

SHOP DRAWING REVIEW

200 KING ST. W., SUITE 310, TORONTO, ON CANADA M5H 3T4 E tmp@tmptoronto.com | P 416-499-8000

ВРА					
Reviewed by: Jeet S		Jeet Sandhu			
ln:	5 August 2025	Out:	8 August 2025		
Rev	Reviewed:				
Reviewed With Comments:			$\overline{\mathbf{V}}$		
Not Acceptable, Resubmit					
	•				

Reviewed for General Arrangement only and subject to any revisions shown. Material, workmanship, dimensions, field clearances & design shall be in accordance with the requirements of the Contract Documents.

PROJECT: BMO Heartland TC	
PROJECT NUMBER:	25-1029-000
SHOP DRAWING NAME:	BAS
SUPPLIER/MANUFACTURER:	BGIS
SUBMITTAL NO:	

- 1.0 BAS, BGIS Reviewed with Comments.
 - .1 Controls contractor to coordinate devices and sensor locations with up to date architectural drawings. Contractor to note front of house finishes
 - .2 Controls contractor to coordinate their work with electrical, mechanical wiring and all applicable trades as necessary.



Submittal

Submittal Number: 019 Revision Number: 00 **Due Date:** Aug 11, 2025

Job Details:

5800 Mavis Road Mississauga, ON L5V 3B7 15.004

O.N. Site Construction Inc. 2861 Sherwood Heights Drive Unit 40 Oakville, ON L6J 7K1

Submit To:

Kearns Mancini Architects Kearns Mancini Architects 67 Mowat Avenue Suite 432 Toronto, ON M6K 3E3 416-538-5666

Project: E25/0210 - BMO Heartland TC Renovation

Vendor: Con-Sult Mechanical Inc.

Reference #	Item#	Description/Manufacturer	Qty	Item Spec - Drawing Ref
15.004	01	BAS Shop Drawing	1	Mechanical

Comments:

O.N. Site Construc Shop Drawing I	mon n (e)
REVIEWED	Aug 5, 2025
REVIEWED AS NOTED	Date Reviewed:
REVISE & RESUBMIT	Marc Gibbons
REJECTED.	Reviewed By:
This review is for the sole purpose of ascertaining design concept. It does not imply approval of the drawings, responsibility for which shall remain with review relieve this sub-contractor of their responsibility for meeting documents.	detail design inherent in the shop this sub-contractor, nor shall such bility for errors or omissions in the gall requirements of the contract
Responsibility for confirmation and co-relation of jo pertaining solely to fabrication procedures or to te- installation, shall remain with this contractor.	



Submittal 25-039-008

Package Items

SUBSECTION

SPEC

PROJECT NAME	PROJECT ADDRESS	DATE SUBMITTED
BMO Heartland Town Centre 25-039	5800 Mavis Rd-Mississau	ga Aug 5, 2025
TO	FROM	
Amrutha Mohan	INZAMAN K	CHAN
COMPANY	COMPANY	
O.N. SITE CONSTRUCTION INC.	Consult Med	chanical Inc.
EMAIL	EMAIL	
amrutha@onsiteconstruction.ca	inzaman@co	onsultmechanical.com
ADDRESS	ADDRESS	
2861 Sherwood Heights Dr Unit 40 Oakville, ON L6J 7K	1 54 Audia Co Concord, Ol	*
Title		
BAS Package		
Description		
Refer attached		

ITEM

TYPE

ITSC011762

BMO Heartland Town Center

5800 Mavis Rd. Mississauga, ON, L5V 3B7



BAS SUBMITTAL PACKAGE

Prepared For:





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2	Damper Schedule
3	N/A
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1	Controls
2	<u>Sensors</u>
3	Damper & Actuators
4	Others & Misc.



SECTION A

DESIGN DRAWINGS

BMO Heartland Town Centre

Job #: ITSC011762

Address: 5800 Mavis Rd.

Mississauga, ON, L5V 3B7

Date: 2025-07-28

Engineer: BPA Impactful Engineers

200 King St. West, Suite 310 Toronto, Ontario, M5H 3T4

Owner: BMO



5150 Fairview St., Burlington, Ontario L7L 6B7 Phone: (905) 331-6555 Fax: (905) 331-6562 www.bgis.com

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VAV Box	301
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Lighting and Misc.	600
Water Leak Detection System	601
Damper Schedule	700
AS-B Controller	900
Controllers Wiring	901

		Drawing Nu	mbers		
Drawing Number	Systems	Drawing Number	Systems	Drawing Number	Systems
000-099	System Architechture (Riser)	400-499	Gas Detection Systems (CO2, NO2, CO)	800-899	Spare
100-199	Hot Water Systems (Boilers, DHW)	500-599	Metering (Gas, Power, Flow)	900-999	Panel Layouts
200-299	Cold Water Systems (Chillers, Cooling Towers)	600-699	Misc (Sump Pumps, Lighting)		
300-399	Air Systems (RTU's, AHU's, VAV's)	700-799	Spare		
	All attached drawings will be	denoted with a letter	following the number, eg. 101, 101A, 101B	-	

	M/D/Y					Designer	Lisa Meng		PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard			
	M/D/Y					Job No.	ITSC011762		BMO Heartland Town Centre	
	M/D/Y									
1.1	07/28/2025	LM	Update			Drawing Title:	Index			
1.0	07/22/2025	LM	Sub mittal Dra win gs					Building:		
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	2 OF 17	System:		



DRAWING NO.

5150 Fairview St., Burlington, Ontario L7L 6B7 Phone: (905) 331-6555 Fax: (905) 331-6562 www.bgis.com

General Point Description

Abbreviation	Description			
Act	Actuator			
Adj	Adjustable, Adjust			
Ahu	Air Handling Unit			
Air	Air			
Alm	Alarm			
Amps	Amps			
Ats	Automatic Transfer Switch			
Auto	Automatic, Automatic			
Aux	Auxiliary			
Avg	Average			
Bbh	Baseboard Heater			
Bldg	Building			
Blr	Boiler			
Bsmt	Basement			
Btu	BTU			
Вур	Bypass			
Calc	Calculation			
Сар	Capacitor			
Сс	Cooling Coil			
Cfm	CFM			
Chgovr	Changeover			
Chlr	Chiller			
Chw	Chilled Water			
Chwp				
Chwr	Chilled Water Pump Chilled Water Return			
Chws	Chilled Water Supply			
Circ	Circulating, Circulation			
Ckt	Circuit			
ClgTurr or Ct	Cooling Cooling Tower			
ClgTwr or Ct	Cooling Valve			
Cls				
Cmbs	,			
	Combustion			
Cmpr	Compressor			
Cmd	Command			
Cnd or Cond	Condenser			
Cntr or Ctrl	Control			
Co	Carbon Monoxide			
Co2	Carbon Dioxide			
Comm	Communication			
Conv	Convector			
Crac	Computer Room Air Conditioner			
Cw	Condenser Water			
Cwp	Condenser Water Pump			
Cwr	Condenser Water Return			
Cws	Condenser Water Supply			
Da	Discharge Air			
DaTmp	Discharge Air Tempeature			
Db	Deadband			
Dc	Direct Current			
Dct or Dec	Detector			
Dcw	Domestic Cold Water			
DCVV	Domestic Cold Water			

Abbreviation	Description	Abbreviation	Description
Dehum	Dehumidifier, Dehumidification	Glyr	Glycol Return
Dhw	Domestic Hot Water	Glys	Glycol Supply
Dif	Differential	Gnl	General
DifPrs	Differential Pressure	Gpm	GPM
Disa	Disable	Grd	Ground
Disch	Discharge	Grn	Green
Disp	Display		
Div	Diverting	Hc	Heating Coil
Dly	Delay	HeadPrs	Head Pressure
Omd	Demand	Hi	High
Orn:	Drain	HiTmpHw	High Temp Hot Water
Ompr	Damper	HiTmpHwr	High Temp Hot Water Return
Dryb	Dry-Bulb	HiTmpHws	High Temp Hot Water Supply
DryClr	Dry Cooler	Hoa	Hand / Off / Auto
Dwn	Down	Hor	Horizontal
Эx	Direct Expansion	HotDk	Hot Deck
Охс	Direct Expansion Coil	Hrv	Heat Recovery
	·	Hrc	Heat Recovery
a	Exhaust Air	Hrs	Hours
aTmp	Exhaust Air Tempeature	Htg	Heating
con	Economzer	HtgVlv	Hot Water Valve
dh	Electric Duct Heater	Htco	High Temperature Cut Out
f	Exhaust Fan	Htrc	Heat Trace
ff	Effective	Hstat	Humidistat
lec	Electric, Electrical	HtWhl	Heat Wheel
merg	Emergency	Htr	Heater
nrg	Energy	Hx	Heat Exchanger
na or En	Enable	Hum	Humid, Humidifier
nt	Entering	Humd	Humidification
nth	Enthalpy	Hvac	Hetating Ventilation & Air Conditioning
ol	Eol: End of Loop, End of Line	Hw	Hot Water
rr	Error	Hwp	Hot Water Pump
vap	Evaporator	Hwr	Hot Water Return
xh	Exhaust	Hws	Hot Water Supply
хр	Expansion	-	
xptnk	Expansion Tank	laq	Indoor Air Quality
xt	Exterior, External	lgv	lgv: Inlet Guide Vanes
ail	Failure	Incr	Increase
bk	Feedback	IP: Input	Input
byp	Face / Bypass	lt	Integration Time
clg	Free Cooling	Iso	Isolation
cu	Fan Coil Unit	Kw	Kilo Watts
-la	Full Load Amps		
-Ir	Floor	Lck: Lockout	Lck: Lockout
-Itr	Filter	Lkd: Locked	Lkd: Locked
lw	Flow	Lmt or Lim	Limit
req	Frequency	Lo	Low
rst	Frost	Loc	Location
rz	Freeze	LoLim	Low Limit
rzStat	Freezestat	Lp	Loop
wd	Forward	Ltco	Low Temperature Cut out
			'
		Ltg	Light, Lighting
Gen	Generator	Lvg	Leaving
Glb	Global	Lvl	Level
∃ly	Glycol	Lvr	Louver
-			

Abbreviation	Description		
Ма	Mixed Air		
MaTmp	Mixed Air Temp		
MaDmpr	Mixed Air Damper		
Man	Manual		
Max	Maximum		
MaxPos	Maximum Position		
Mcdn	Morning Cool-Down		
Med	Medium		
Mfr	Manufacturer		
Min	Minmum		
MinPos	Minimum Position		
Misc	Miscellaneous		
Mix	Mixing		
Mu or Mkup	Make Up		
Mnfd	Manifold		
Multi	Multiple		
Mod	Modulation, Modulating		
MPH	Mechnical Penthouse		
Mtr	Meter		
Multi	Multiple		
Mwup	Morning Warm-Up		
			
Ngt	Night		
Ntfcn	Notification		
Ntwrk	Network		
I SCANIIK	IVOLVVOIN		
Oa	Outdoor Air, Outside Air		
OaTmp	Outdoor Air Temperature		
Ofst	Offset		
Occ	Occupied		
Ор	Output		
Opn	Open		
Opr Opr	Operator		
Oprn	Operation		
Opt	Optimum		
Ovld	OverLoad		
Ovrd			
Oviu	Override		
Pot	Paraent		
Pooir	Percent		
Recir	Recirculating		
Pent	Penthouse		
Phc	Preheat Coil		
PInt	Plant		
Pmp	Pump		
Plt	Plant		
Pls: Pulse	Pls: Pulse		
Pneu	Pneumatic		
Pnl	Panel		
Pos	Position		
Pht	Preheat		
Pri	Primary		
Prkg	Parking		
Pos	Position		
Prop	Proportional		
Prot			

Procession	Abbreviation	Description	Abbreviation	Description
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Uv Unit Ventilation	1.11-	Linit Lin at		_
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Uoc or Unocc Unoccupied	Uv	Unit Ventilation		
	Uoc or Unocc	Unoccupied		

	M/D/Y					Designer	Lisa Meng		
	M/D/Y					PM / Lead	Taylor Roo kyard		
	M/D/Y					Job No.	ITSC011762]	Е
	M/D/Y								
1.1	07/28/2025	LM	Update			Drawing Title:	General Point Description		
1.0	07/22/2025	LM	Sub mittal Dra win gs				•	Building:	Ι
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	3 OF 17	System:	

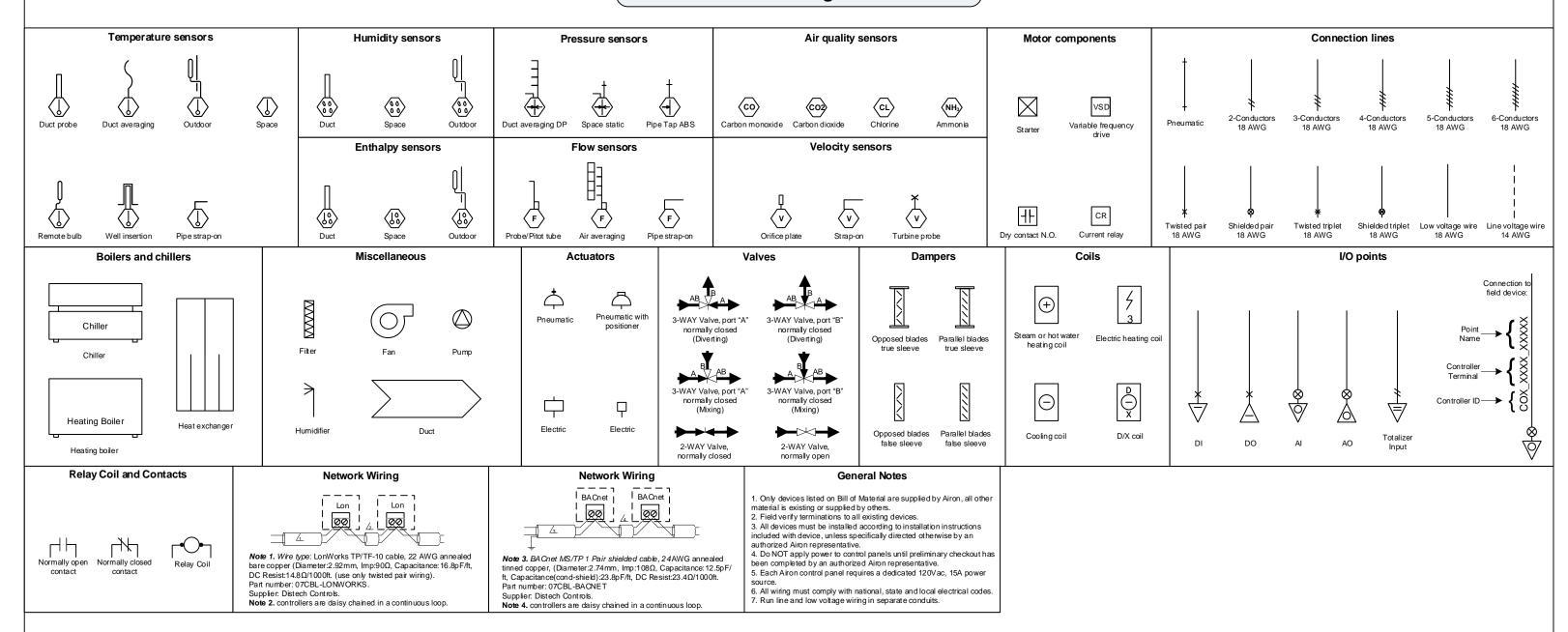
BMO Heartland Town Centre

PROJECT



DRAWING NO.

Control Legend



	M/D/Y					Designer	Lisa Meng	PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard		
	M/D/Y					Job No.	ITSC011762	BMO Heartland Town Centre	
	M/D/Y								
1.1	07/28/2025	LM	Update			Drawing Title:	Legend] :
1.0	07/22/2025	LM	Sub mittal Dra win gs				_	Building:] [
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	4 OF 17	System:	\

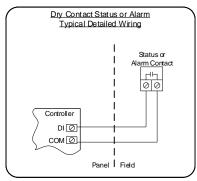
BGIS>
Integrated Technical Services

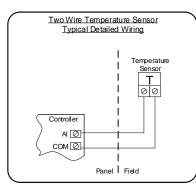
5150 Fairview St., Burlington, Ontario L7L 6B7 Phone: (905) 331-6555 Fax: (905) 331-6562 www.bgis.com 03

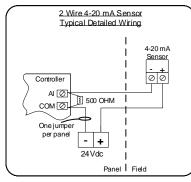
DRAWING NO.

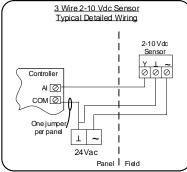
Wiring Installation Instructions

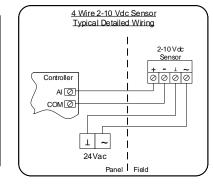
- 1. Refer to device installation manuals for specific wiring requirements. The wiring material requirements are dictated by the application. Utilize the specified wiring for the indicated application.
- 2. Field wiring must be in accordance with national electrical code, state and local building codes, and electrical division of specifications.
- 3. Tag all control wiring/cable at each end of the cable or wire per tags shown in attached drawings.
- 4. Avoid over tightening cable ties and other forms of cable wraps. This can damage the wires inside the cables.
- 5. In open plenums, avoid running wire near lighting ballasts, especially those using 277 vac.
- 6. Do not run field device and communications wiring in same conduit with wiring carrying voltage greater than 30 volts.
- 7. Control panels are not to be used as junction boxes or raceways. Wiring that does not terminate in a control panel is not to be run within the panel.
- 8. All terminations shall be made per manufacturer's instruction. All field wiring runs shall be free of splices. Only splices permitted are within junction boxes.
- Digital input limits: 1000 feet (300 meters).
- 10. 0-10 Vdc analog input limits: 300 feet (100meters).
- 11. 4-20 mA analog input limits: 1000 feet (300 meters).
- 12. Variable resistance analog input limits: 300 feet (100 meters).
- 13. Analog output limits: 1000 feet (300 meters)
- 14. Digital output limits: 1000 feet (300 meters)
- 15. No controller power source may be used to power analog input devices. A separate power supply must be used for any analog input device requiring a power source.
- 16. Internet cat5: 4 pair 8 conductors 23awg, plenum-rated jacket.
- 17. When using shielded cable, connect only one shield end to ground at the controller. Connecting both ends to ground can cause a ground loop.
- 18. LonWorks communication wiring:
 - Wire type: LonWorks TP/TF-10 cable, 22 AWG annealed bare copper (Diameter: 2.92mm, Imp:90Ω, Capacitance: 16.8pF/ft, DC Resist: 14.8Ω/1000ft. (Use only twisted pair wiring).
 - LonWorks limits: 4500 feet (1400 meters), 60 devices maximum (without repeater).
 - LonWorks topology must be daisy chained.
 - One repeater (only one per LonWorks buss) can be used for an additional 4500 feet (1,400 meters).
 - Do not run LonWorks cable alongside or in the same conduit as 24 Vac power. This includes the conductors running from triac-type outputs.
 - Keep LonWorks polarity consistent throughout the site.
 - Make sure that the 24 Vac power supplies are consistent in how they are grounded. Avoid sharing 24 Vac between LonWorks controllers.
- Use only one type of communication wire do not mix wire. In the event of an existing job that used 18 AWG wire, continue using the same wire after prior approval from Airon BAS engineer.
- BACnet communication wiring:
 - Wire type: BACnet MS/TP 1 Pair shielded cable, 24 AWG annealed tinned copper (Diameter: 2.74mm, Imp: 108Ω, Capacitance: 12.5pF/ft, Capacitance (cond-shield): 23.8pF/ft, DC Resist: 23.4Ω/1000ft. (Use only twisted pair wiring).
 - BACnet limits: 4000 feet (1220 meters), 50 devices maximum (without repeater).
 - BACnet topology must be daisy chained (no T-connections).
 - Polarity: Polarity sensitive.
 - One repeater (only one per BACnet buss) can be used for an additional 4000 feet (1220 meters).
 - Do not run BACnet cable alongside or in the same conduit as 24 Vac power. This includes the conductors running from triac-type outputs.
 - Make sure that the 24 Vac power supplies are consistent in how they are grounded.
 - Use only one type of communication wire do not mix wire. In the event of an existing job that used 22 AWG wire, continue using the same wire after prior approval from Airon BAS engineer.

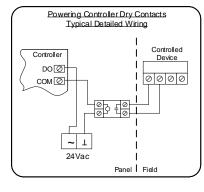


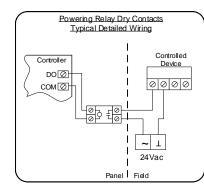


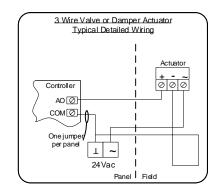


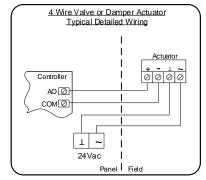












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	M/D/Y					Designer	Lisa Meng		PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard			
	M/D/Y					Job No.	ITSC011762		BMO Heartland Town Centre	
	M/D/Y									
1.1	07/28/2025	LM	Update			Drawing Title:	Wiring Installation Instructions			
1.0	07/22/2025	LM	Sub mittal Dra wings				_	Building:]
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	5 OF 17	System:		

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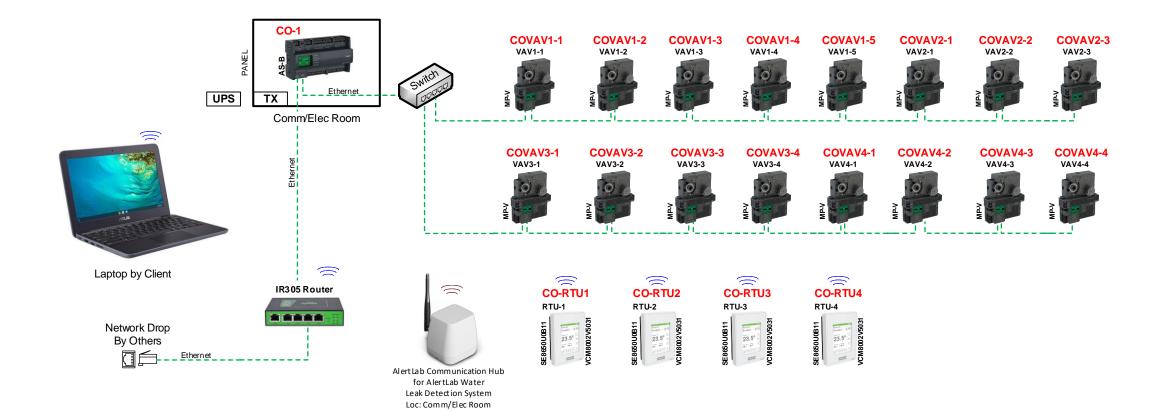
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DRAWING NO.

System Architecture



TAG	MODEL#	QTY	DESCRIPTION	SUPPLIER
AS-B	SXWASB24X10001	1	AS-B controller with 24 I/O points	Schneider Electric
MP-V	SXWMPV7AX10002	16	SmartX MP-V-7 Multi-Purpose VAV Controller	Schneider Electric
			Roof Top Unit, Heat Pump & Indoor Air Quality Ctrl Room Controller.	
SE8650	SE8650U0B11	4	BACnet MS/TP, RH sensor & control, White Case/Fascia	Schneider Electric
Wi-Fi Module	VCM8002V5031	4	Wi-Fi Card for SE8650	Schneider Electric
Ethernet Switch	FL SWITCH 1005N	1	5-port Din-Rail Ethernet Switch	Phoenix Contact
Wireless Router	InHand IR305 Router	1	InHand IR305 Wireless Router	InHand
UPS	PSH600-UPS	1	UPS for AS-B	Xtronics
Xfmr	TR50VA005	17	50 VA Transformer	Functional Devices



2 End of line resistor

Network run can be modified per site situation.

	M/D/Y					Designer	Lisa Meng		PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard			BC
	M/D/Y					Job No.	ITSC011762		BMO Heartland Town Centre	
	M/D/Y									Integrated T
1.1	07/28/2025	LM	Update			Drawing Title:	System Architecture			5150 Fairview St.,
1.0	07/22/2025	LM	Sub mittal Dra win gs				_	Building:		Phone: (905) 331-
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DRAWING NO.

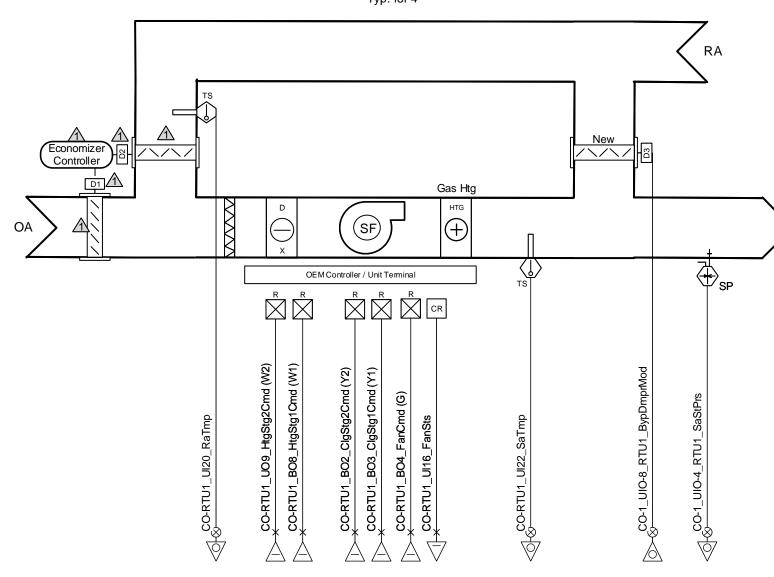
RTU-1,2,3,4

Existing Unit. Refer to RTU schedule & Point mix for more info

SA to VAV

Boxes

<u>RTU-1</u> Typ. for 4



			Manufac-		# of DX	Econo-	# of HTG	
RTU Tag	Controller	Service	turer	Model Number	Stage	mizer	Stage	Note
RTU-1 (AC-1)	CO-RTU1	SE Section VAVs	Lennox	LGH092H4MH4J	2	Yes	2	Existing RTU
RTU-2 (AC-2)	CO-RTU2	SW Section VAVs	Lennox	LGH092H4MH4J	2	Yes	2	Existing RTU
RTU-3 (AC-3)	CO-RTU3	NW Section VAVs	Lennox	LGH074H4TH1J	1	Yes	2	Existing RTU
RTU-4 (AC-4)	CO-RTU4	NE Section VAVs	Lennox	LGH060H4EH5J	1	Yes	2	Existing RTU



SEQUENCE

Sequence is per M0-003

- RTU SHALL BE ENABLED CONSTANTLY BETWEEN 30 MINUTES PRIOR TO AND 15 MINUTES POST SCHEDULED OCCUPANY. RTU SHALL ALSO BE ENABLED AFTER HOURS IN ORDER TO MAINTAIN SPACES WITHIN UNOCCUPIED SETBACK TEMPERATURE RANGES.
- CONTROL UNIT HEATING AND COOLING TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT. RESET SETPOINT BASED ON AVERAGE OF ZONE DEMANDS. ALLOW FOR WEIGHTING OF VOTES FOR PRIORITY/SENIORITY OFFICES.
- SPACE TEMPERATURE HEATING SETPOINT SHALL BE 72°F AND COOLING SETPOINT SHALL BE 75°F (ADJ.).
- PROVIDE PRESSURE SENSOR 2/3 DOWN LONGEST SUPPLY DUCT RUN. PROVIDE LOGIC CONTROL UNIT TO USE READING FROM PRESSURE SENSOR IN ORDER TO CONTROL BYPASS DAMPER. BYPASS DAMPER SHALL MODULATE OPEN TO MAINTAIN PRESSURE BELOW 0.5" W.C. (ADJ.)
- PROVIDE DUCT MOUNTED TEMPERATURE SENSORS ON SUPPLY AIR DUCT AND RETURN AIR DUCT.
- INITIAL SUPPLY AIR TEMP SHALL BE 75°F. SUPPLY AIR TEMP SHALL BE ADJUSTED BASED ON ZONE DEMANDS.

RTU-1,2,3,4	RTU-1,2,3,4 - Part List											
TAG	MODEL No.	QTY	DESCRIPTION	SUPPLIER								
TS	TDDDR00	8	DUCT SENSOR. 10K T2 THERMISTOR DUCT 8"	Veris								
SP	PX3DLN01	4	Multi-Range Differential Pressure Transmitter, LCD	Veris								
CR	H600	4	Split Core Current Switch w/ Fixed Setpoint	Veris								
R	RMIA210024VAC, ZMI15-2N	18	24VAC relay c/w base	Carlo Gavazzi								

Part counted in System Architecture

21	c/w unit						K KIVIIAZ	.10024VAC, ZIVII15-ZIV 1	10 241
	M/D/Y					Designer	Lisa Meng	PRO	OJECT
	M/D/Y					PM / Lead	Taylor Rookyard		
	M/D/Y					Job No.	ITSC011762	BMO Heartlar	nd Tow
	M/D/Y								
1.1	07/28/2025	LM	Update			Drawing Title:	RTU-1,2,3,4		
1.0	07/22/2025	LM	Sub mittal Dra wings					Building:	
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	7 OF 17	System:	
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	7 OF 17	System:	

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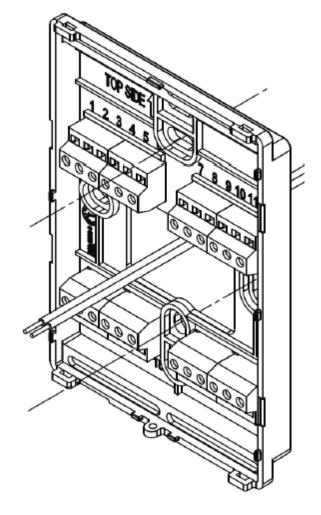
DRAWING NO.

300

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RTU Room Controller Terminals

SE8650U0B11



3. TERMINAL IDENTIFICATION AND FUNCTION

SE8650 Description / Application	Used in applications
	IAQ, HP & RTU
Internal Temperature	X
1- BO1	Aux
2- BO2	Y2
3-BO3	Y1
4- BO4	G
5- RC	RC (24 Vac)
6- C	Cornmon
7- RH	RH
8- BO8	W1
9- UO9	W2/OB
10- UO10	Econo (0-10 Vdc)
11- UO11	Heat (0-10 Vdc), set "Heat Stages" to 0 to enable
12- UO12	Dehumidification output (24 Vac On/Off)
13- RS485 +	BACnet (+)
14- RS485 -	BACnet (-)
15- RS485 Ref	BACnet Ref. (do not sire shield in this terminal)
16- UI16	UI16 (multifunction input)
17- UI17	Ul17 (multifunction input)
18-Scom	Cornmon
19- UI19	CO2 (0-10 Vdc input)
20- UI20	RS (Remote sensor input 10K, type 2 thermistor)
21-Scom	Cornmon
22- UI22	SS (Supply sensor input 10K, type 2 thermistor)
23- UI23	OS (Outside sensor input 10K, type 2 thermistor)
24- UI24	Airflow (0-10 Vdc input)

A Part counted in System Architecture

	M/D/Y					Designer	Lisa Meng	PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard		
	M/D/Y					Job No.	ITSC011762	BMO Heartland T	own Centre
	M/D/Y								
1.	1 07/28/2025	LM	Update			Drawing Title:	RTU Room Controller Terminals		
1.	07/22/2025	LM	Submittal Drawings					Building:	
Re	v. Date	Modified By	Description	Approved By	Approved By	Page No.	8 OF 17	System:	

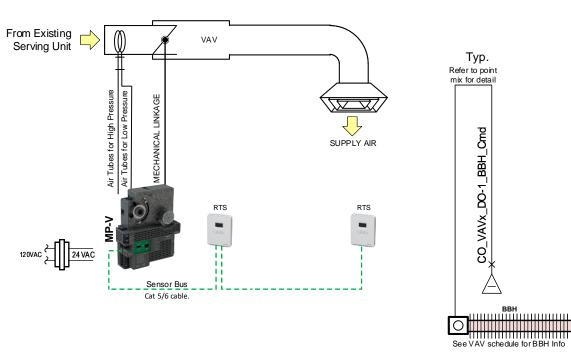


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VAV & Controller Wiring

Typical of 16, see schedule and point mix for details

VAVRefer to VAV schedule & point mix for details



VAV Schedule

		VAV Schedule												
Item	VAV Tag	Serving	Size (Inch)	Min Flow (CFM)*	Max Flow (CFM)*	Main T-Stat	Secondary T-Stat	Serving RTU	Remote BBH					
1	VAV-1-1	Banking Hall 34	8	140	400	SXWSATXXXSLW		RTU-1	No					
		Office 12				SXWSATXXXSLW			1500w					
2	VAV-1-2	Office 11	10	300	880		SXWSATXXXSLW	RTU-1	1000w					
		Office 10					SXWSATXXXSLW		1000w					
		Office 04					SXWSATXXXSLW		No					
3	VAV-1-3	Office 05	6	90	250	SXWSATXXXSLW		RTU-1	No					
		Office 06					SXWSATXXXSLW		No					
4	VAV-1-4	Office 09	6	70	200	SXWSATXXXSLW		RTU-1	qty: 2-BBH (1000w+500w)					
5	VAV-1-5	Corridor 07	10	300	900	SXWSATXXXSLW		RTU-1	qty: 2-BBH (1500w+1500w)					
_		Office 13	4.0	222	000	SXWSATXXXSLW		D.T.I. 0	1500w					
6	VAV-2-1	Office 14	12	330	990		SXWSATXXXSLW	RTU-2	1500w					
7	VAV-2-2	Office 15	10	290	860	SXWSATXXXSLW		RTU-2	1500w					
′	VAV-Z-Z	Office 16	10	290	800		SXWSATXXXSLW	KIU-2	1500w					
8	VAV-2-3	Office 17	8	150	434	SXWSATXXXSLW		RTU-2	1000w					
٥	VAV-2-3	Corridor	٥	130	434		SXWSATXXXSLW	K10-2	No					
9	VAV-3-1	Bank Hall	8	170	500	SXWSATXXXSLW		RTU-3	No					
10	VAV-3-2	Filing Room 20	8	150	450	SXWSATXXXSLW		RTU-3	500w					
11	VAV-3-3	Staff Lounge 27 & Kitchen 28	10	220	650	SXWSATXXXSLW		RTU-3	qty: 4-BBH (500w+15000w+1500w+500w)					
		Office 29					SXWSATXXXSLW		1500w					
12	VAV-3-4	Office 30	10	250	750	SXWSATXXXSLW		RTU-3	1500w					
		Office 31					SXWSATXXXSLW		1500w					
13	VAV-4-1	Office 32	8	170	500	SXWSATXXXSLW		RTU-4	1500w					
13	VAV-4-1	Office 33	0	170	300		SXWSATXXXSLW	K10-4	1250w					
14	VAV-4-2	Banking Hall (sensor at Lounge 04)	8	140	400	SXWSATXXXSLW		RTU-4	No					
15	VAV-4-3	Entrance Vestibule 01	8	140	400	SXWSATXXXSLW		RTU-4	No					
16	VAV-4-4	ATM Room 02	8	140	400	SXWSATXXXSLW		RTU-4	No					
	Qty: 16					Qty: 16	Qty: 10		qty: 22 - BBHs					
*:	per Balancin	g Schedule							qty: 18 Relays					

Typical Refer to point mix for details MP-V Controller MP-V-7A CO-VAVx Refer to VAV schedule & Air Flow (Low) point mix for detail Sensor (High) 24 VAC 24 COM COM 18 🛇 DO1 17 🚫 Refer to point mix for detail BBH_Cmd_RMy DO2 16 🛇 RET DO3 15 🛇 Refer to point mix for detail **-©** 5 UI2 UI3 VO1 13 🛇 CO1 12 🔯 RET 11 🛇 VO2 10 🛇 Ethernet 1 Ethernet 2 CO2 9 🛇

SEQUENCE

Sequence Is from M0-003

VAV SEQUENCE

- PROVIDE CUSTOM FIELD-MOUNTED PRE-PROGRAMMED CONTROLLER TO SATISFY BASED ON THE AVERAGE TEMPERATURE READING FROM ALL SPACES SERVED BY THE DEVICE.
- SPACE TEMPERATURE SETPOINTS SHALL BE 72°F +/- 1°F IN HEATING AND 75°F +/- 1°F IN COOLING.
- ENABLE ELECTRIC BASEBOARD HEATER WHEN IN HEATING MODE IN SEQUENCE TO MAINTAIN SPACE TEMPERATURE SET POINT.
- IN COOLING MODE ELECTRIC BASEBOARD SHALL ONLY BE ENABLED WHEN THE VAV FLOW IS AT MINIMUM CONDITION.
- MANUALLY DISABLE ELECTRIC HEATERS IN SUMMER VIA SWITCH AT BREAKER. REFER TO ELECTRICAL DRAWINGS FOR DETAILS.

Note: One sensor added in Room 17 (Business Center) at cost extra. Pending for approval

VAV - Parts List						
TAG	MODEL No	QTY	DESCRIPTION	SUPPLIER		
RTS	SXWSATXXXSLW	26	Smart Temp Sensor SXWSATXXXSLW	Schneider Electric		
R	RMIA210024VAC, ZMI15	18	24VAC relay c/w base	Carlo Gavazzi		
T-Stat Guard	CG511A1000	2	T-Stat Guard for VAV-4-2 & VAV-1-1	Honeywell		

							-		
	M/D/Y					Designer	Lisa Meng	PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard		
	M/D/Y					Job No.	ITSC011762	BMO Heartland Town Centre	
	M/D/Y								
1.1	07/28/2025	LM	Update			Drawing Title:	VAV & Controller Wiring		_ [
1.0	07/22/2025	LM	Sub mittal Dra wings					Building:	_ F
Rev	. Date	Modified By	Description	Approved By	Approved By	Page No.	9 OF 17	System:	\ \ \

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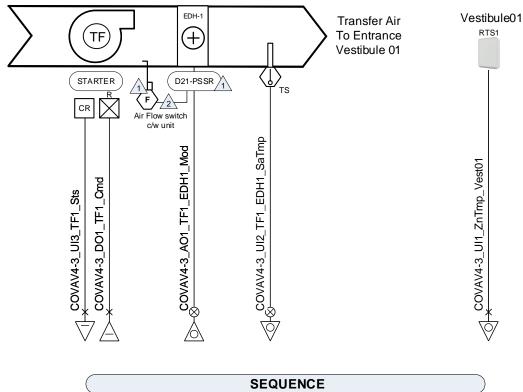
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TF-1 & EDH-1, TF-2, TF-3, FFH-1,2

TF-1 & EDH-1

Serving Entrance Vestibule 01



Sequence is from M0-003

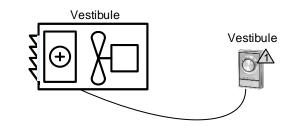
- SYSTEM TO OPERATE ON A TIME OF DAY SCHEDULE AND FROM SPACE TEMPERATURE.
- SYSTEM SHALL BE DISABLED DURING UNOCCUPIED MODE AND ALL VESTIBULE HEATING SHALL BE PROVIDED BY THE ELECTRIC FAN FORCED HEATER (STANDALONE, NOT ON BAS).
- IN OCCUPIED MODE, ON A CALL FOR HEATING, ENGAGE FAN AND THEN ELECTRIC DUCT HEATER. MODULATE DUCT HEATER TO MAINTAIN SUPPLY AIR TEMPERATURE SETPOINT (105F). THE HEATING COIL SHALL NOT ENGAGE UNTIL AIR FLOW IS PROVEN BY THE BUILT-IN AIR PROVING SWITCH.
- OCCUPIED MODE SHALL RUN FROM 30 MINUTES PRIOR TO OPENING TO 15 MINUTES PAST CLOSE.

Wired by BGIS

Device c/w unit

Electric FFH

Typ for 2. Refer to below schedule for details



SEQUENCE

Sequence is per M1-201

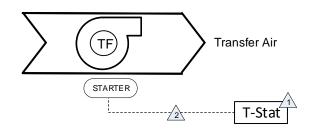
FH

NEW CEILING MOUNTED 2.0 – 6.0 KW FFH BY DIV. 26 C/W INTEGRAL THERMOSTAT. SET THERMOSTAT TO 72F

Item	Unit Tag	Serving	Control	Controller
1	FFH-1	Main Entrance Vestibule	T-Stat c/w unit	Local T-Stat
2	FFH-2	SW Entrance	T-Stat c/w unit	Local T-Stat

TF-2,3

Typ for 2. Refer to below schedule for details



SEQUENCE

Sequence is from M0-003

TF-2, TF-3

ENABLE FAN WHEN ASSOCIATED THERMOSTAT READS ABOVE SETPOINT (78°F, ADJ.).

Item	Fan Tag	Serving	Control	Controller	
1	TF-2	ATM Room 02	T-Stat c/w TF	Local T-Stat	
	11-2	Transfer Air	1-Stat C/W 1F		
2	TF-3	Comm/Elec Room 18	T-Stat c/w TF	Local T-Stat	
	11-3	Transfer Air	1-Stat C/W 1F		

TF-1,2,3, EDH-1, FFH-1 - Part List					
TAG	MODEL No.	QTY	DESCRIPTION	SUPPLIER	
RTS1	TW2XAXM	1	Wall Temp sensor, 20K NTC thermistor	Veris	
TS	TDCDR00	1	Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor	Veris	
CR	H600	1	Split Core Current Switch w/ Fixed Setpoint	Veris	
R	RMIA210024VAC, ZMI15-2N	1	24VAC relay c/w base	Carlo Gavazzi	

		o, 11							
	M/D/Y					Designer	Lisa Meng		PRO
	M/D/Y					PM / Lead	Taylor Rookyard		
	M/D/Y					Job No.	ITSC011762]	BMO Heartlan
	M/D/Y								
1.1	07/28/2025	LM	Update			Drawing Title:	TF-1,2,3, EDH-1, FFH-1,2		
1.0	07/22/2025	LM	Sub mittal Dra win gs				, , , ,	Building:	
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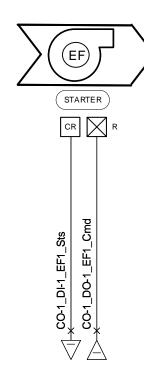
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DRAWING NO.

EF-1,2 and SAC-1

EF-1,2

Typ of 2. Refer to Below schedule & point Mix for details

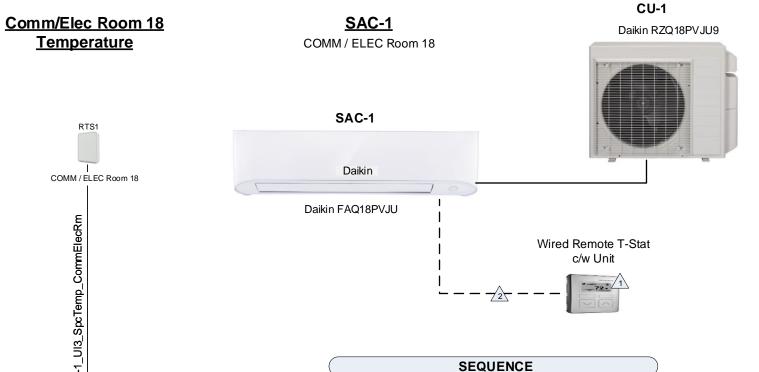


Item	Fan Tag	Location	Serving	Control	Controller
1	EF-1	Roof	Sanitary Exhaust	BAS Schedule	CO-1
2	EF-2	Roof	Staff Lounge 27/ Kitchen28 Exhaust	BAS Schedule	CO-1

SEQUENCE

Sequence is from M0-003

- FAN OPERATES ON A SCHEDULE SUPPLIED BY OWNER. ON START SIGNAL, START EF.
- FAN TO ENGAGE 30 MINUTES BEFORE OCCUPANCY AND 15 MINUTES PAST CLOSE AND WHEN BUILDING IS OCCUPIED UTSIDE OF REGULAR HOURS (I.E. OVERNIGHT CLEANING).



<u>SAC-1</u>

T-STAT (C/W UNIT) TO OPERATE THE AC UNIT TO MAINTAIN SPACE TEMPERATURE AT SETPOINT. BAS SHALL MONITOR ROOM TEMPERATURE.

EF-1,2 and SAC-1						
TAG	MODEL No.	QTY	DESCRIPTION	SUPPLIER		
RTS1	TW2XAXM	1	Wall Temp sensor, 20K NTC thermistor	Veris		
CR	H600	2	Split Core Current Switch w/ Fixed Setpoint	Veris		
R	RMIA210024VAC, ZMI15-2N	2	24VAC relay c/w base	Carlo Gavazzi		

\wedge
2

Wired by BGIS



1	Device	c/w unit								
	M/D/Y					Designer	Lisa Meng		PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard			
	M/D/Y					Job No.	ITSC011762		BMO Heartland Town Centre	
	M/D/Y									
1.1	07/28/2025	LM	Update			Drawing Title:	EF-1,2 and SAC-1			5150
1.0	07/22/2025	LM	Sub mittal Dra wings				·	Building:		Pho
Rev	. Date	Modified By	Description	Approved By	Approved By	Page No.	11 OF 17	System:		ww

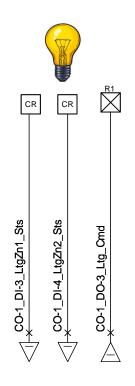
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DRAWING NO.

Lighting and Misc

Lighting Control

Elec/Comm Room – tbc



SEQUENCE

Sequence is created by BGIS. Engineer to review and approve

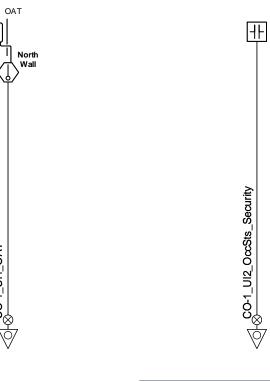
Lighting

BAS shall operate lighting per its lighting occupancy schedule.

BAS shall turn on the lighting in occupied mode and turn off the lighting in unoccupied mode.

<u>OAT</u>

Security



SEQUENCE

Sequence is per M0-003

SECURITY SYSTEM (OCCUPANCY SIGNAL)

ENABLE RTU(S) AND EXHAUST FANS WHEN BUILDING IS OCCUPIED OUTSIDE OF REGULAR OPERATING HOURS.

Lighting and Misc							
TAG	MODEL No.	QTY	DESCRIPTION	SUPPLIER			
OAT	TODR00	1	Temperature Sensor, Outdoor, 10K T2, Therm	Veris			
CR	H600	2	Split Core Current Switch w/ Fixed Setpoint	Veris			
R1	RIBU1C	1	Pilot Relay, 10 Amp SPDT, 10-30 Vac/dc/120 Vac	Rib			

	M/D/Y					Designer	Lisa Meng	PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard	BMO Heartland Town Centre	
	M/D/Y					Job No.	ITSC011762		
	M/D/Y								
1.1	07/28/2025	LM	Update			Drawing Title:	Lighting and Misc.] 5
1.0	07/22/2025	LM	Sub mittal Dra win gs					Building:	_ F
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	12 OF 17	System:	٧

BGIS>
Integrated Technical Services

Integrated Technical Services

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www.bgis.com

600

DRAWING NO.

WATER LEAK DETECTION SYSTEM

Refer to M2-101 for water detection system sensors & devices locations



AlertLab Sensor Relay (Communication Hub)





AlertLab Floodie

(Flood Sensor)





















Water Detection System								
TAG	MODEL No. QT		DESCRIPTION	SUPPLIER				
WD	AlertLabs Package	1	AlertLabs Water Detection System Package (9 floodie sensors, Flowie-O flow sensor, sensor relay, auto shutoff valve (1.5") for main line, professional service)	AlertLabs				

	M/D/Y					Designer	Lisa Meng	
	M/D/Y					PM / Lead	Taylor Rookyard	
	M/D/Y					Job No.	ITSC011762	
	M/D/Y							
1.1	07/28/2025	LM	Update			Drawing Title:	WATER LEAK DETECTION SYSTEM	
1.0	07/22/2025	LM	Sub mittal Dra wings					Buildin
Rev	. Date	Modified By	Description	Approved By	Approved By	Page No.	13 OF 17	Syster

	PROJECT	
i	BMO Heartland Town Centre	
Building:		

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DRAWING NO.

Damper Schedule

							DAM	IPER &	ACT	UATO	OR SO	HEDU	JLE							
									Duc	t Size										
Item	ID - Equipment	Damper Qty	Providing Damper	Applicatio n	Connection Type	Blade Type	Manuf.	Model	A (Inch)	B (Inch)	Ft2	Req'd Torque (lb-in)	Actuator Part Number	Actuator Torque (Ib-in)	Actuator Qty	Control	Non/Spring Return	End Switch Req'd	Power Supply	Mech. Drawing
			1	1								1								
1	Bypass Damper for RTU-1	1	Υ	Bypass	Flanged	Opposed	Alumavent	Series 3960	20	16	2.22	13.3	TFB24-SR	18	1	Mod	Spring Return	No	24VAC	M1-101
2	Bypass Damper for RTU-2	1	Υ	Bypass	Flanged	Opposed	Alumavent	Series 3961	16	16	1.78	10.7	TFB24-SR	18	1	Mod	Spring Return	No	24VAC	M1-101
3	Bypass Damper for RTU-3	1	Y	Bypass	Flanged	Opposed	Alumavent	Series 3962	16	16	1.78	10.7	TFB24-SR	18	1	Mod	Spring Return	No	24VAC	M1-101
4	Bypass Damper for RTU-4	1	Y	Bypass	Flanged	Opposed	Alumavent	Series 3963	16	14	1.56	9.3	TFB24-SR	18	1	Mod	Spring Return	No	24VAC	M1-101
	Total:	4												Total:	4					

All damper sizes to be verified by sheet metal before damper & actuator ordering.

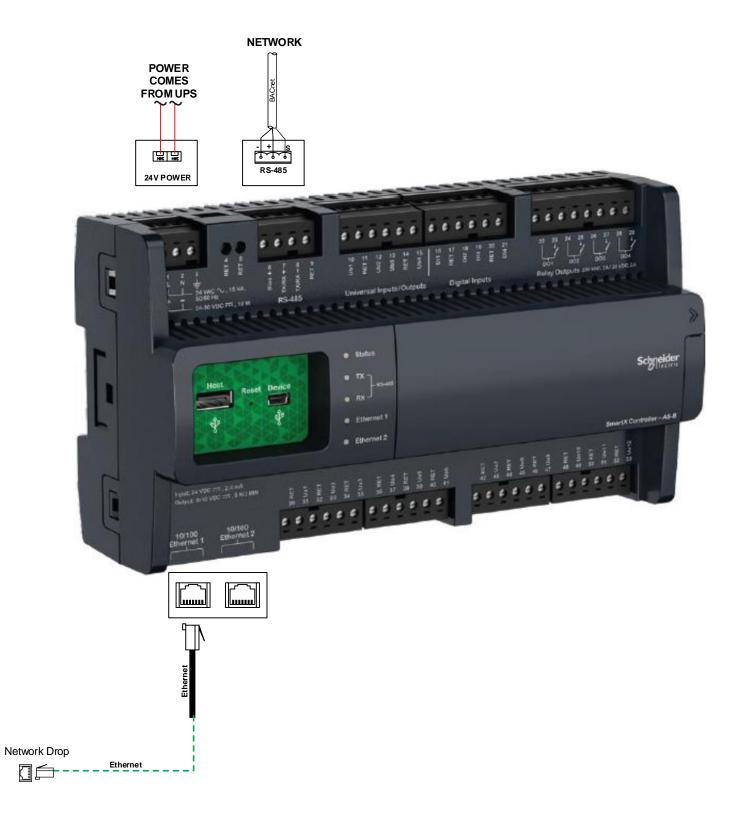
	M/D/Y					Designer	Lisa Meng		PROJECT	
	M/D/Y					PM / Lead	Taylor Rookyard			
	M/D/Y					Job No.	ITSC011762		BMO Heartland Town Centre	
	M/D/Y									
1.1	07/28/2025	LM	Update			Drawing Title:	Damper Schedule			515
1.0	07/22/2025	LM	Sub mittal Dra win gs				•	Building:		Pho
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	14 OF 17	System:		l ww



700

DRAWING NO.

Jace Controller

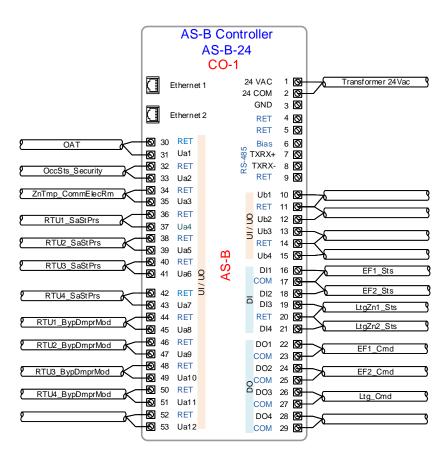


	M/D/Y					Designer	Lisa Meng	PROJECT	T
	+						-	-	
	M/D/Y					PM / Lead	Taylor Rookyard		
	M/D/Y					Job No.	ITSC011762	BMO Heartland Town Centre	
	M/D/Y								
1.1	07/28/2025	LM	Update			Drawing Title:	AS-B Controller		51
1.0	07/22/2025	LM	Submittal Drawings					Building:	Ph
Rev	. Date	Modified By	Description	Approved By	Approved By	Page No.	15 OF 17	System:	w
		-							



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Controller Wiring



	M/D/Y					Designer	Lisa Meng	I	PROJECT	
	M/D/Y					PM / Lead	Taylor Roo kyard	1		
	M/D/Y					Job No.	ITSC011762		BMO Heartland Town Centre	1
	M/D/Y									1
1.1	07/28/2025	LM	Update			Drawing Title:	Controller Wiring			5:
1.0	07/22/2025	LM	Submittal Drawings					Building:		Pl
Rev.	Date	Modified By	Description	Approved By	Approved By	Page No.	16 OF 17	System:		w
	•				•	•		•		



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SECTION B

POINT MIX

				ITSC0117	62 - Point Mix	
	Controller					
System	ID	Controller Model	I/O Type	Point Name	Model No.	Device(s)
AS-B	CO-1	SXWASB24X10001	UIO-1	OaTmp	TODR00	Temperature Sensor, Outdoor, 10K T2, Thermistor, Resistive Output
5800 Mavis RdMississauga, ON	L5V 3B7	AS-B-24	UIO-2	OccSts_Security	Dry Contact	Dry Contact
			UIO-3	ZnTmp_CommElecRm	TW2XAXM	Space Temp - TEMP WALL 20K
			UIO-4	RTU1_SaStPrs	PX3DLN01	Multi-Range Differential Pressure Transmitter, LCD, Pressure: 0 to 1 in. WC
			UIO-5	RTU2_SaStPrs	PX3DLN02	Multi-Range Differential Pressure Transmitter, LCD, Pressure: 0 to 1 in. WC
			UIO-6	RTU3_SaStPrs	PX3DLN03	Multi-Range Differential Pressure Transmitter, LCD, Pressure: 0 to 1 in. WC
			UIO-7	RTU4_SaStPrs	PX3DLN04	Multi-Range Differential Pressure Transmitter, LCD, Pressure: 0 to 1 in. WC
			UIO-8	RTU1_BypDmprMod	0-10vdc	Refer to Damper Schedule
			UIO-9	RTU2_BypDmprMod	0-10vdc	Refer to Damper Schedule
				RTU3_BypDmprMod	0-10vdc	Refer to Damper Schedule
			UIO-11 UIO-12	RTU4_BypDmprMod	0-10vdc	Refer to Damper Schedule
			UIO-12			
			UIO-13	+	+	
			UIO-14			
			UIO-15			
			DI-1	EF1 Sts	H600	Current Switch, Fixed Trip Point
			DI-1 DI-2	EF2 Sts	H600	Current Switch, Fixed Trip Point
			DI-3	LtgZn1_Sts	H600	Current Switch, Fixed Trip Point
			DI-4	LtgZn2_Sts	H600	Current Switch, Fixed Trip Point
			DO-1	EF1 Cmd	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2	EF2 Cmd	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-3	Ltg Cmd	Rib Relay	Rib Relay
			DO-4		The Herdy	The relay
RTU-1 (AC-1)	CO-RTU1	SE8650U0B11	Internal Sns	SpcTemp		
Existing RTU Serving VAVs	c/w w	vifi card VCM8002V5031	BO-1			
DX Clg Stages			BO-2	ClgStg2Cmd (Y2)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
Gas Htg Stages			BO-3	ClgStg1Cmd (Y1)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			BO-4	FanCmd (G)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			BO-8	HtgStg1Cmd (W1)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			UO-9	HtgStg2Cmd (W2)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			UO-10			
			UO-11			
			UO-12			
			UI-16	FanSts	H600	Current Switch, Fixed Trip Point
			UI-17			
			UI-18			
			UI-19	Do Troco	TDDDDOO	Town Concer Duct Mount Deska Landth Oll 40KT3 The weighter Design Co. 1
			UI-20	RaTmp	TDDDR00	Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
				SaTmp	TDDDR00	Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
			UI-23 UI-24		+	+
			UI-24			+
				1		
RTU-2 (AC-2)	CO-RTU2	SE8650U0B11	Internal Sns	SpcTemp		
Existing RTU Serving VAVs		vifi card VCM8002V5031	BO-1			
DX Clg Stages	2, 00 00		BO-2	ClgStg2Cmd (Y2)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
Gas Htg Stages			BO-3	ClgStg1Cmd (Y1)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			BO-4	FanCmd (G)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			BO-8	HtgStg1Cmd (W1)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			UO-9	HtgStg2Cmd (W2)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			UO-10	30 (=,		- 1 7
			UO-11			
			UO-12			
			UI-16	FanSts	H600	Current Switch, Fixed Trip Point
			UI-17			

				ITSC011	762 - Point Mix	
	Controller					
System	ID	Controller Model	I/O Type	Point Name	Model No.	Device(s)
			UI-18			
			UI-19	D-T	TDDDD00	Town Concer Duct Mount Duck of our this Off 10K TO The projection Designation Output
			UI-20 UI-22	RaTmp SaTmp	TDDDR00 TDDDR00	Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
			UI-23	Sattip	TDDDR00	Temp Sensor, Duct Mount, Probe Length: 8 , 10k 12, Thermistor, Resistive Output
	1		UI-24			
			0124			
RTU-3 (AC-3)	CO-RTU3	SE8650U0B11	Internal Sns	SpcTemp		
Existing RTU Serving VAVs	c/w w	vifi card VCM8002V5031	BO-1			
DX Clg Stages			BO-2	Cl-Ct-4 Co-4 (V4)	DAMA 240 024 VA C - / 7041 45 /201 b	24/46
Gas Htg Stages	-		BO-3 BO-4	ClgStg1Cmd (Y1) FanCmd (G)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
			BO-4 BO-8	HtgStg1Cmd (W1)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
			UO-9	HtgStg2Cmd (W2)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
	1		UO-10	TitgStg2Cilia (W2)	MWIAZIO OZTVAC C/ W ZIVII-13/ ZIV base	24VACTEIAY () W BASE
			UO-11			
			UO-12			
			UI-16	FanSts	H600	Current Switch, Fixed Trip Point
			UI-17			
			UI-18			
			UI-19			
			UI-20	RaTmp	TDDDR00	Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
			UI-22	SaTmp	TDDDR00	Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
			UI-23			
			UI-24			
RTU-4 (AC-4)	CO-RTU4	SF8650U0B11	Internal Sns	SncTemn		
RTU-4 (AC-4) Existing RTU Serving VAVs	CO-RTU4	SE8650U0B11 vifi card VCM8002V5031	Internal Sns BO-1	SpcTemp		
Existing RTU Serving VAVs		SE8650U0B11 vifi card VCM8002V5031	Internal Sns BO-1 BO-2	SpcTemp		
			BO-1	ClgStg1Cmd (Y1)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2	ClgStg1Cmd (Y1) FanCmd (G)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9	ClgStg1Cmd (Y1) FanCmd (G)	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2)	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages			BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	vifi card VCM8002V5031	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23 UI-24	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages		SXWMPV7AX10002	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23 UI-24	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	SXWMPV7AX10002 VAV	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23 UI-24 UI-1	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	SXWMPV7AX10002 VAV W/ACTUATOR	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23 UI-24 UI-1 UI-2 UI-3	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	SXWMPV7AX10002 VAV	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23 UI-24 UI-1 UI-2 UI-3 DO-1	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	SXWMPV7AX10002 VAV W/ACTUATOR	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23 UI-24 UI-1 UI-2 UI-3 DO-1 DO-2	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	SXWMPV7AX10002 VAV W/ACTUATOR	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-23 UI-24 UI-1 UI-2 UI-3 DO-1 DO-2 DO-3	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	SXWMPV7AX10002 VAV W/ACTUATOR	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-22 UI-23 UI-24 UI-1 UI-2 UI-3 DO-1 DO-2	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00	24VAC relay c/w base 24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output
Existing RTU Serving VAVs DX Clg Stages Gas Htg Stages	c/w w	SXWMPV7AX10002 VAV W/ACTUATOR	BO-1 BO-2 BO-3 BO-4 BO-8 UO-9 UO-10 UO-11 UO-12 UI-16 UI-17 UI-18 UI-19 UI-20 UI-23 UI-24 UI-1 UI-2 UI-3 DO-1 DO-2 DO-3 AO-1	ClgStg1Cmd (Y1) FanCmd (G) HtgStg1Cmd (W1) HtgStg2Cmd (W2) FanSts RaTmp SaTmp	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base H600 TDDDR00 TDDDR00	24VAC relay c/w base 24VAC relay c/w base Current Switch, Fixed Trip Point Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output Temp Sensor, Duct Mount, Probe Length: 8", 10K T2, Thermistor, Resistive Output

				ITSC011	.762 - Point Mix	
	Controller					
System	ID	Controller Model	I/O Type	Point Name	Model No.	Device(s)
VAV-1-2	COVAV-x	SXWMPV7AX10002	UI-1			
		VAV	UI-2			
		W/ACTUATOR	UI-3	10011 0 1 0 10	200000000000000000000000000000000000000	
		SmartX MP-V	DO-1	BBH_Cmd_Rm12	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2	BBH_Cmd_Rm11	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-3 AO-1	BBH_Cmd_Rm10	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			Sns Bus	ZnTmp Rm12	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm11	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm10	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			3113 Du3	2.11111p_1(11110	SAWSATAAKSEW	zee bispitay, remp, setpoint, override, optimum writte
VAV-1-3	COVAV-x	SXWMPV7AX10002	UI-1	1		
VAV-1-3	COVAV-X	VAV	UI-2			
t		W/ACTUATOR	UI-3	<u> </u>		
		SmartX MP-V	DO-1			
			DO-2			
			DO-3			
			AO-1			
			Sns Bus	ZnTmp_Rm04	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm05	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm06	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
VAV-1-4	COVAV-x	SXWMPV7AX10002	UI-1			
		VAV	UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1	BBH_Cmd_Rm09	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2			
			DO-3			
			AO-1			
			Sns Bus	ZnTmp_Rm09	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
		l			· · · · · · · · · · · · · · · · · · ·	
VAV-1-5	COVAV-x	SXWMPV7AX10002	UI-1			
		VAV	UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1	BBH_Cmd_Rm07	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2			
			DO-3			+
			AO-1 Sns Bus	ZnTmp Rm07	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			3115 DUS	ZITTIIP_NIIIU/	3AVV3ATAAA3LVV	Display, Temp, Serpoint, Override, Optimum writte
VAV-2-1	COVAV-x	SXWMPV7AX10002	111.4	1		
VAV-Z-1	COVAV-X	VAV	UI-1 UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1	BBH_Cmd_Rm13	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
		5	DO-2	BBH Cmd Rm14	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-3		, -, -, -, -, -, -, -, -, -, -, -, -, -,	
			AO-1			
			Sns Bus	ZnTmp_Rm13	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm14	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
VAV-2-2	COVAV-x	SXWMPV7AX10002	UI-1	To the state of th	1	
VAV-2-2	COVAV-X	VAV	UI-2			
		W/ACTUATOR	UI-3			
		,	0.5	1	1	l

				ITSC011	762 - Point Mix	
	Controller					
System	ID	Controller Model	I/O Type	Point Name	Model No.	Device(s)
,		SmartX MP-V		BBH_Cmd_Rm15	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
		J	DO-2	BBH_Cmd_Rm16	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-3			
			AO-1	7 T D 45	CVIA/CATYOVICIAA	LCD Di L. T. C. L. I. O. II. O. II. WILL
			Sns Bus Sns Bus	ZnTmp_Rm15 ZnTmp_Rm16	SXWSATXXXSLW SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White LCD Display, Temp, Setpoint, Override, Optimum White
			SIIS BUS	ZIIIIIIP_KIIIIO	3AVV3ATAAA3LVV	CO Display, Temp, Setpoint, Override, Optimum writte
			•	•		
VAV-2-3	COVAV-x	SXWMPV7AX10002	UI-1			
		VAV	UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1	BBH_Cmd_Rm17	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2 DO-3			
			AO-1			
			Sns Bus	ZnTmp Rm17	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Corr	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
VAV-3-1	COVAV-x	SXWMPV7AX10002	UI-1			
		VAV	UI-2			
		W/ACTUATOR SmartX MP-V	UI-3 DO-1			
		Silial tx IVIF-V	DO-1 DO-2			
			DO-3			
			AO-1			
			Sns Bus	ZnTmp_BnkgHall	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
				ī		
VAV-3-2	COVAV-x	SXWMPV7AX10002 VAV	UI-1			
		W/ACTUATOR	UI-2 UI-3			
		SmartX MP-V		BBH Cmd Rm20	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2			
			DO-3			
			AO-1		COUNTY ATTROPOSITION	
			Sns Bus	ZnTmp_Rm20	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
VAV-3-3	COVAV-x	SXWMPV7AX10002	UI-1			
1AV 3 3	COVAV-X	VAV	UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1	BBH_Cmd_Rm27	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2	BBH_Cmd_Rm27	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-3 AO-1			
			Sns Bus	ZnTmp_Rm27	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			5113 503	ρ	SATISTATION SET	200 5.5piay, Temp, Serpoint, Override, Optimum vinite
VAV-3-4	COVAV-x	SXWMPV7AX10002	UI-1			
		VAV	UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1	BBH_Cmd_Rm29	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2 DO-3	BBH_Cmd_Rm30 BBH_Cmd_Rm31	RMIA210 024VAC c/w ZMI-15/2N base RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base 24VAC relay c/w base
			AO-1	דוומ עוווס דוומם	MINIMAZIO OZHVAC C/W ZIVII-IJ/ZIN DASE	27VAC I Clay C/ W Dasc
			Sns Bus	ZnTmp_Rm29	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm30	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm31	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White

				ITSC011	.762 - Point Mix	
	Controller					
System	ID	Controller Model	I/O Type	Point Name	Model No.	Device(s)
VAV-4-1	COVAV-x	SXWMPV7AX10002	UI-1			
		VAV	UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1	BBH_Cmd_Rm32	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-2	BBH_Cmd_Rm33	RMIA210 024VAC c/w ZMI-15/2N base	24VAC relay c/w base
			DO-3			
			AO-1			
			Sns Bus	ZnTmp_Rm32	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
			Sns Bus	ZnTmp_Rm33	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
VAV-4-2	COVAV-x	SXWMPV7AX10002	UI-1		_	
VAV-4-2	COVAV-X	VAV	UI-2			
		W/ACTUATOR	UI-3			
		SmartX MP-V	DO-1			
		Siliai (X IVII V	DO-2			
			DO-3			
			AO-1			
			Sns Bus	ZnTmp_Rm04	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
				r <u> </u>		
VAV-4-3	COVAV4-3	SXWMPV7AX10002	UI-1	ZnTmp_Vest01	TW2XAXM	Wall Temp sensor, 20K NTC thermistor
		VAV	UI-2	TF1_EDH1_SaTmp	TDCDR00	Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor
		W/ACTUATOR	UI-3	TF1_Sts	H600	Current Switch, Fixed Trip Point
		SmartX MP-V	DO-1	TF1_Cmd		
			DO-2			
			DO-3			
			AO-1	TF1_EDH1_Mod	0-10vdc	
			Sns Bus	ZnTmp_Rm02	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White
VAV-4-4	COVAV-x	SXWMPV7AX10002	UI-1			
**** * *	COVAVA	VAV	UI-2			
		W/ACTUATOR	UI-3	<u> </u>		
		SmartX MP-V	DO-1			
		5	DO-2	1		
			DO-3			
			00-3			
			AO-1			
				ZnTmp_Rm02	SXWSATXXXSLW	LCD Display, Temp, Setpoint, Override, Optimum White



SECTION C

MATERIAL LIST



SECTION C

SUB-SECTION 1

PARTS LIST

ITSC011762 - Part List						
System Architecture Parts						
TAG	MODEL#	QTY	DESCRIPTION	SUPPLIER		
S-B	SXWASB24X10001	1	AS-B controller with 24 I/O points	Schneider Electric		
P-V	SXWMPV7AX10002	16	SmartX MP-V-7 Multi-Purpose VAV Controller	Schneider Electric		
			Roof Top Unit, Heat Pump & Indoor Air Quality Ctrl Room Controller.			
8650	SE8650U0B11	4	BACnet MS/TP, RH sensor & control, White Case/Fascia	Schneider Electric		
/i-Fi Module	VCM8002V5031	4	Wi-Fi Card for SE8650	Schneider Electric		
hernet Switch	FL SWITCH 1005N	1	5-port Din-Rail Ethernet Switch	Phoenix Contact		
ireless Router	InHand IR305 Router	1	InHand IR305 Wireless Router	InHand		
PS	PSH600-UPS	1	UPS for AS-B	Xtronics		
fmr	TR50VA005	17	50 VA Transformer	Functional Device		
TH 4 2 2 4 . Do						
ΓU-1,2,3,4 - Part Li TAG	MODEL No.	QTY	DESCRIPTION	SUPPLIER		
iAG	TDDDR00	8	DUCT SENSOR. 10K T2 THERMISTOR DUCT 8"	Veris		
)	PX3DLN01	4	Multi-Range Differential Pressure Transmitter, LCD, Pressure: 0 to 1 in. W			
<u> </u>	H600	4	Split Core Current Switch w/ Fixed Setpoint	Veris		
`	RMIA210024VAC, ZMI15-2N	18	24VAC relay c/w base	Carlo Gavazzi		
	MWHAZIOOZ4VAC, ZIWIIS ZIV	10	24VACTCIUY () W BUSC	Carlo Gavazzi		
AV - Parts List						
TAG	MODEL No	QTY	DESCRIPTION	SUPPLIER		
	C) (1.1.0 A T) (1.1.1.1	26	Smart Temp Sensor SXWSATXXXSLW	Schneider Electric		
S	SXWSATXXXSLW	26	Smart remp sensor sawsaraaastw	Schillelach Electric		
ΓS	RMIA210024VAC, ZMI15-2N	18	24VAC relay c/w base	Carlo Gavazzi		
TS -Stat Guard F-1 & EDH-1, TF-2.	RMIA210024VAC, ZMI15-2N CG511A1000		' '			
Stat Guard F-1 & EDH-1, TF-2,	RMIA210024VAC, ZMI15-2N	18	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION	Carlo Gavazzi		
Stat Guard F-1 & EDH-1, TF-2,3 TAG	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM	18 1 QTY 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor	Carlo Gavazzi Honeywell SUPPLIER Veris		
Stat Guard F-1 & EDH-1, TF-2, TAG TS1	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00	18 1 QTY 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor	Carlo Gavazzi Honeywell SUPPLIER Veris Veris		
-Stat Guard F-1 & EDH-1, TF-2, TAG TS1	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600	18 1 QTY 1 1 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint	Carlo Gavazzi Honeywell SUPPLIER Veris Veris Veris		
-Stat Guard F-1 & EDH-1, TF-2, TAG TS1 S	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00	18 1 QTY 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor	Carlo Gavazzi Honeywell SUPPLIER Veris Veris		
-Stat Guard F-1 & EDH-1, TF-2, TAG TS1	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600	18 1 QTY 1 1 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint	Carlo Gavazzi Honeywell SUPPLIER Veris Veris Veris		
-Stat Guard F-1 & EDH-1, TF-2, TAG TS1 S	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600	18 1 QTY 1 1 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint	Carlo Gavazzi Honeywell SUPPLIER Veris Veris Veris		
Stat Guard F-1 & EDH-1, TF-2,3 TAG TS1 S R	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600 RMIA210024VAC, ZMI15-2N	18 1 1 2 1 1 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base	SUPPLIER Veris Veris Veris Carlo Gavazzi		
Stat Guard F-1 & EDH-1, TF-2, TAG TS1 S R F-1,2 and SAC-1 TAG	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600	18 1 QTY 1 1 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION	Carlo Gavazzi Honeywell SUPPLIER Veris Veris Veris Carlo Gavazzi SUPPLIER		
Stat Guard F-1 & EDH-1, TF-2, TAG TS1 F-1,2 and SAC-1 TAG	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600 RMIA210024VAC, ZMI15-2N MODEL No.	18 1 1 1 1 1 1 1 QTY 1 QTY	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Wall Temp sensor, 20K NTC thermistor	SUPPLIER Veris Veris Veris Carlo Gavazzi		
Stat Guard F-1 & EDH-1, TF-2, TAG TS1 GR F-1,2 and SAC-1 TAG	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600 RMIA210024VAC, ZMI15-2N MODEL No. TW2XAXM	18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION	Carlo Gavazzi Honeywell SUPPLIER Veris Veris Carlo Gavazzi SUPPLIER Veris		
F-1,2 and SAC-1 TAG TS1	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600 RMIA210024VAC, ZMI15-2N MODEL No. TW2XAXM H600	18 1 1 1 1 1 1 1 1 1	24VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Wall Temp sensor, 20K NTC thermistor Split Core Current Switch w/ Fixed Setpoint	Carlo Gavazzi Honeywell SUPPLIER Veris Veris Carlo Gavazzi SUPPLIER Veris Veris Veris		
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Stat Guard F-1 & EDH-1, TF-2,3 TAG TS1 S F-1,2 and SAC-1 TAG TS1 R ghting and Misc TAG AT	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600 RMIA210024VAC, ZMI15-2N MODEL No. TW2XAXM H600 RMIA210024VAC, ZMI15-2N	QTY	Z4VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Wall Temp sensor, 20K NTC thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Temperature Sensor, Outdoor, 10K T2, Thermistor, Resistive Output Split Core Current Switch w/ Fixed Setpoint	SUPPLIER Veris Veris Carlo Gavazzi SUPPLIER Veris Carlo Gavazzi SUPPLIER Veris Veris Veris Veris SUPPLIER Veris		
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F-1 & EDH-1, TF-2,3 TAG TS1 S R F-1,2 and SAC-1 TAG TS1 R ghting and Misc TAG AT R 1	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600 RMIA210024VAC, ZMI15-2N MODEL No. TW2XAXM H600 RMIA210024VAC, ZMI15-2N MODEL No. TODR00 H600 RIBU1C Stem MODEL No. TODR00 H600 RIBU1C Stem MODEL No. M	18 1 1 1 1 1 1 1 2 2 1 1	Z4VAC relay c/w base T-Stat Guard for VAV-4-2 DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Wall Temp sensor, 20K NTC thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Temperature Sensor, Outdoor, 10K T2, Thermistor, Resistive Output Split Core Current Switch w/ Fixed Setpoint Pilot Relay, 10 Amp SPDT, 10-30 Vac/dc/120 Vac Coil DESCRIPTION AlertLabs Water Detection System Package (9 floodie sensors, Flowie-O	SUPPLIER Veris Veris Carlo Gavazzi SUPPLIER Veris Carlo Gavazzi SUPPLIER Veris Veris Veris Veris Veris Carlo Gavazzi		
F-1 & EDH-1, TF-2,3 TAG TS1 S R F-1,2 and SAC-1 TAG TS1 R ghting and Misc TAG AT R 1	RMIA210024VAC, ZMI15-2N CG511A1000 B - Part List MODEL No. TW2XAXM TDCDR00 H600 RMIA210024VAC, ZMI15-2N MODEL No. TW2XAXM H600 RMIA210024VAC, ZMI15-2N MODEL No. TODR00 H600 RIBU1C Stem	18 1 1 1 1 1 1 1 2 2 1 1	DESCRIPTION Wall Temp sensor, 20K NTC thermistor Temp Sensor, Duct Mount, Probe Length: 6", 10K T2, Thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Wall Temp sensor, 20K NTC thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Wall Temp sensor, 20K NTC thermistor Split Core Current Switch w/ Fixed Setpoint 24VAC relay c/w base DESCRIPTION Temperature Sensor, Outdoor, 10K T2, Thermistor, Resistive Output Split Core Current Switch w/ Fixed Setpoint Pilot Relay, 10 Amp SPDT, 10-30 Vac/dc/120 Vac Coil	SUPPLIER Veris Veris Carlo Gavazzi SUPPLIER Veris Carlo Gavazzi SUPPLIER Veris Veris Veris Veris Veris Veris Rib		



SECTION C

SUB-SECTION 2

DAMPER SCHEDULE (Refer to BAS SD)



SECTION D

PARTS SPECIFICATIONS



SECTION D

SUB-SECTION 1

CONTROLS





SpaceLogic automation server, AS-B-24, 24 I/O points, BACnet, MS/TP, modbus, scalable

SXWASB24PX10001

Main

Main	
Device short name	AS-B-24-P
Product certifications	ICES-003 BTL FCC part 15 class B cULus CE RCM
Width	198 mm
Product or component type	Controller system
Power consumption in W	10 W
Power consumption in VA	15 VA
Network frequency	50 Hz 60 Hz
Communication service	Modbus TCP server Modbus TCP client SMTPS e-mail notification SNMP network management SMTP e-mail notification
Display type	FSTN transflective LCD
Clock drift	+/- 52 s/month
Display resolution	128 x 64 pixels
IP degree of protection	IP20
Ambient air temperature for storage	-2070 °C
Ambient air temperature for operation	050 °C
Input/Output type	16 universal I/O
Relative humidity	095 % non-condensing
Memory type	256 MB FRAM 2 GB flash
[Us] rated supply voltage	1929 V AC 2133 V DC
Number of inputs	4 digital
Number of outputs	4 relay
Height	114 mm
Product weight	5.04 kg

Depth	64 mm
Number of port	2 ETHERNET
Range	EcoStruxure Building Operation
Traingo	
Complementary	
Product compatibility	Xenta
	I/NET Continuum
	Balco Satchwell
	Honeywell Johnson Control
Does does de la constant	
Product brand	Schneider Electric
Display colour	Monochrome
Switching frequency	25 Hz
Web services	TLS 1.0 Programmable scripts : alarm summaries, report management HTTP server
Mounting support	DIN rail
Analogue input type	Configurable voltage, current or probe 020 mA
	Configurable voltage, current or probe 010 V input voltage Configurable voltage, current or probe 20 kOhm connection of probes
	Configurable voltage, current or probe 10 kOhm connection of probes Configurable voltage, current or probe 2.2 kOhm connection of probes
	Configurable voltage, current or probe 1.8 kOhm connection of probes
	Configurable voltage, current or probe 1 kOhm connection of probes Configurable voltage, current or probe 10 kOhm with shunt
Integrated connection type	USB 2.0 type A
	USB type mini B Ethernet with RJ45 connector
	Serial link with RS485 connector
	FSTN transflective LCD 36 x 17 mm
Flame retardance	UL94V0-5VB
Communication port protocol	BACnet TOP 1 PO 105
	Modbus TCP master RS485 Modbus TCP slave RS485
	HTTPS RJ45 HTTP RJ45
Realtime clock	With
Supply	Power supply: 24 V, <0.5 A
Processor name	Spear 320s
Standards	UL 916
	FCC CFR 47 part 15
Material	ABS/PC
Electrical connection	plug-in sub-base terminal with a manual overide switch
Environment	
Temperature probe type	LG-Ni 1000 - 50150 °C
	Ni 1000 - 50150 °C Pt 1000 - 50150 °C
Packing Units	
Unit Type of Package 1	Db
Number of Units in Package 1	1
Package 1 Height	19.8 cm
Package 1 Width	11 cm
Package 1 Length	6.4 cm

Package 1 Weight	504 g
0 0	-

Offer Sustainability

Sustainable offer status	Green Premium product	
REACh Regulation	REACh Declaration	
EU RoHS Directive	Compliant EU RoHS Declaration	
Mercury free	Yes	
China RoHS Regulation	China RoHS declaration	
RoHS exemption information	Yes	
Environmental Disclosure	Product Environmental Profile	
Circularity Profile	End of Life Information	
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins	
PVC free	Yes	
Halogen content performance	Halogen free plastic parts & cables product	
California proposition 65	WARNING: This product can expose you to chemicals including: Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov	

Recommended replacement(s)

MP-V SmartX IP Controller

MP-V-7A



Introduction

SmartX IP Controller – MP-V is a multi-purpose, fully programmable, IP based field controller dedicated for VAV cooling and heating applications. MP-V integrates a controller, a damper actuator, and an air flow sensor in a single compact package for ease of installation. MP-V can either be used as a standalone BACnet/IP field controller or as part of an EcoStruxure BMS with a SmartX AS-P or AS-B server or an Enterprise Server as the parent server. MP-V comes in two models with different I/O count.

The MP-V has the following features:

- · IP enabled with dual port Ethernet switch
- Integrated damper actuator with feedback signal
- · Factory-calibrated air flow sensor
- High reliability
- Sensor bus for living space sensors
- Mobile commissioning application
- Full EcoStruxure Building Operation software support, providing efficient engineering tools

IP connectivity and flexible network topologies

The MP Series controllers are based on open protocols that simplify interoperability, IP configuration, and device management:

- IP addressing
- BACnet/IP communications
- DHCP for easy network configuration

The MP Series controllers have a dual-port Ethernet switch, which enables flexible network topologies:

- Star
- Daisy chain
- Rapid Spanning Tree Protocol (RSTP) ring

In a star topology, the controller and the parent EcoStruxure BMS server are individually connected to an Ethernet switch. You can reduce the installation time and cost by daisy-chaining multiple controllers together. You can use an RSTP ring topology when you want failures of a single controller to be detected and recovered quickly and efficiently.

Models with a versatile mix of I/O points

MP-V comes in two models with different I/O point count and a versatile mix of I/O point types that match a wide variety of VAV applications.



I/O Point Types by MP-V Models

I/O Point Types	MP-V-7A	MP-V-9A
Universal inputs	3	4
Triac outputs	3	3
Analog outputs	1	2

Configurations by I/O Point Types

Configurations	Universal Inputs	Triac Outputs	Analog Outputs
Digital inputs	yes	-	-
Counter inputs	yes	-	-
Supervised inputs	yes	-	-
Voltage inputs	yes	-	-
(0 to 10 VDC)			
Current inputs	yes	-	-
(0 to 20 mA)			
Temperature inputs	yes	-	-
Resistive inputs	yes	-	-
2-wire RTD temperature inputs	yes	-	-
Digital outputs	-	yes	-
Digital pulsed outputs	-	yes	-
PWM outputs	-	yes	-
Tristate outputs	-	yes	-
Tristate pulsed outputs	-	yes	-
Voltage outputs	-	-	yes
(0 to 10 VDC)			
Current outputs	-	-	yes
(0 to 20 mA)			

Universal inputs

The universal inputs are ideal for any mix of temperature, pressure, flow, status points, and similar point types in a building control system.

As counter inputs, they are commonly used in energy metering applications. As RTD inputs, they are ideal for temperature points in a building control system. As supervised inputs, they are used for security applications where it is critical to know whether or not a wire has been cut or shorted. These events provide a separate indication of alarms and trouble conditions to the system.

For all analog inputs, maximum and minimum levels can be defined to automatically detect over-range and under-range values.

Triac outputs

The triac outputs can be used in many applications to switch 24 VAC on or off for external loads such as actuators, relays, or indicators. The triac outputs are isolated from the controller. Triacs are silent and do not suffer from relay contact wear.

SmartX IP Controller

Analog outputs

The analog outputs are capable of supporting analog voltage or current point types, without the need for external bias resistors. Therefore, analog outputs support a wide range of devices, such as actuators.

Integrated damper actuator with feedback signal

The integrated damper actuator allows for simplified installation of MP-V directly over the damper shaft. This eliminates the need for separate installation, wiring, and positioning of the damper motor. MP-V uses the same actuator mechanics as many Schneider Electric VAV controller models from the Andover Continuum, TAC Vista, TAC I/A Series, and TAC I/NET product lines. The feedback signal from the actuator makes it possible to determine the exact position of the damper. The actuator also features a push button for manual positioning of the damper during commissioning.

Factory-calibrated air flow sensor

The factory-calibrated air flow sensor uses a state-ofthe-art technology that requires no air flow from the velocity probe. Unlike flow-through sensors, the sensor does not impose rigid requirements on tubing, dust, or filters, and the sensor is not affected by errors induced on the local probe pressure readings. The sensor requires no maintenance and a minimum of field adjustments.

High reliability

The MP Series controllers support local trends, schedules, and alarms, enabling local operation when the controller is offline or used in standalone applications.

The battery-free power backup of the memory and realtime clock prevents data loss and ensures seamless and quick recovery after a power failure.

WorkStation allows you to update the firmware of multiple MP Series controllers at the same time and with minimum down time. The EcoStruxure BMS server keeps track of the installed firmware to support backup, restore, and replacement of the controllers and sensors. The server can host controllers of different firmware versions.

Sensor bus for living space sensors

The MP Series controllers provide an interface designed for the SmartX Sensor family of living space sensors. The SmartX Sensors offer an efficient way to sense the temperature, humidity, CO₂, and occupancy in a room. The SmartX Sensors are available with different combinations of sensor types and various covers and user interface options, such as touchscreen, setpoint and override buttons, and blank covers.







SmartX Sensors

The sensor bus provides both power and communications for up to four sensors that are daisychained using standard Cat 5 (or higher) cables. The maximum number of sensors that can be connected to a controller varies depending on the sensor model and the combination of cover and sensor base type:

- Blank covers: Up to four sensors of any combination of sensor base types
- 3-button and touchscreen covers:
 - Up to two sensor bases with CO₂ option
 - Up to four sensor bases without CO₂ option
- SmartX LCD temperature sensors: Up to four sensors are supported

The maximum total length of the sensor bus is 61 m (200 ft). For more information, see the SmartX Living Space Sensors Specification Sheet.

Mobile commissioning application

The eCommission SmartX Controllers mobile application is designed for local configuration, field deployment, and commissioning of MP Series controllers, and air flow balancing of VAV units. The mobile application reduces the commissioning time, allows flexibility in project execution, and eliminates dependencies on network infrastructure.

The mobile application is designed for use with Android, Apple (iOS), and Microsoft Windows 10 devices. For more information, see the eCommission SmartX Controllers Specification Sheet.

MP-V SmartX IP Controller



eCommission SmartX Controllers mobile app

Using the eCommission SmartX Controllers mobile application, you can connect to one or many MP Series controllers. You can connect to a single MP Series controller using the eCommission Bluetooth Adapter connected to a SmartX Sensor. You can connect to a network of MP Series controllers on the local IP network, using a wireless access point or a network switch.

Device configuration

With the eCommission SmartX Controllers mobile application, you can easily discover MP Series controllers on the IP network and change each controller's configuration, including the BACnet and IP network settings, location, and parent server. To save engineering time, you can save common device settings and then reuse them for controllers of the same model.

Field deployment and I/O checkout

The eCommission SmartX Controllers mobile application does not require an EcoStruxure BMS server or a network infrastructure to be in place. You can use the mobile application to load the controller application directly into the local MP Series controller and deploy the controller. The controller application can be created offline using Project Configuration Tool or WorkStation. You can also perform an I/O checkout to ensure that the controller's I/O points are configured, wired, and operating correctly.

Air flow balancing

Using the eCommission SmartX Controllers mobile application, you can perform air flow balancing of VAV units controlled by MP-Vs. An intuitive workflow automatically guides you through the process. After the

flow balancing, you can generate a report in HTML format for one or more VAV units. The balancing parameters associated with each MP-V are stored in the parent server, which makes it easier to replace the controller if necessary.

Full EcoStruxure Building Operation software support

The power of the MP Series controller is fully realized when it is part of an EcoStruxure BMS, which provides the following benefits:

- · WorkStation/WebStation interface
- Script and Function Block programming options
- Device discovery
- Engineering efficiency

WorkStation/WebStation interface

WorkStation and WebStation provide a consistent user experience regardless of which EcoStruxure BMS server the user is logged on to. The user can log on to the parent EcoStruxure BMS server to engineer, commission, supervise, and monitor the MP Series controller and its I/O as well as its attached SmartX Sensors. For more information, see the WorkStation and WebStation specification sheets.

Script and Function Block programming options

Unique to the industry, the MP Series controllers have both Script and Function Block programming options. This flexibility assures that the best programming method can be selected for the application. Existing programs can easily be reused between the EcoStruxure BMS server and the controller.

Device discovery

The enhanced Device Discovery in WorkStation enables you to easily identify MP Series controllers on a BACnet network and to associate the controllers with their parent server.

Engineering efficiency

The engineering and maintenance of MP Series controllers can be done very efficiently using the EcoStruxure Building Operation reusability features. With these features, you can create library items (Custom Types) for a complete controller application that contains programs and all necessary objects such as trends, alarms, and schedules. The controller application in the Custom Types library is reusable across all controllers of the same model. You can use the controller application as a base for creating new

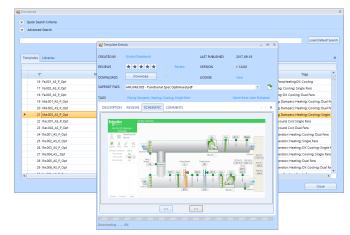
SmartX IP Controller

controllers intended for similar applications. You can then edit the controller application, and the changes are automatically replicated to all controllers, while each controller keeps its local values.

WorkStation supports both online and offline engineering of MP Series controllers. You can make the configuration changes online or use database mode to make the changes offline. In database mode, the changes are saved to the EcoStruxure Building Operation database so that you can apply the changes to the controllers later.

Project Configuration Tool enables you to perform all the engineering off site, without the need for physical hardware, which minimizes the time you need to spend on site. You can run the EcoStruxure BMS servers virtually and engineer the MP Series controllers, before you deploy your server and controller applications to the servers and controllers on site. For more information, see the Project Configuration Tool specification sheet.

In addition, you can use Automated Engineering Tool to facilitate your engineering process when using MP Series controllers. This tool provides access to a library of standard controller applications. These standard applications can be quickly configured and customized using the wizards and mass edit functions provided in the tool and then loaded into your target server. The tool also enables the quick creation of your own templates based on MP Series controller applications that you have developed. This facilitates a standard approach and drives the ability to easily reuse and duplicate common controller applications. For more information, see the Automated Engineering Tool specification sheet.



Library of standard HVAC applications

Part Numbers

Product	Part number
MP-V-7A	SXWMPV7AX10001
MP-V-9A	SXWMPV9AX10001
Spare terminal blocks for all MP-V models	SXWMPVCON10001
(1 x 2-pin, 2 x 3-pin, 2 x 4-pin, 1 x 5-pin, 1 x 6-pin terminal blocks)	
Adapter for damper shaft diameter 9.5 mm (0.375 inch)	AM-135
eCommission Bluetooth Adapter	SXWBTAECXX10001

Specifications

AC input

Nominal voltage	24 VAC
Operating voltage range	+/-20 %
Frequency	50/60 Hz
Maximum power consumption (MP-V-7A)	21 VA
Maximum power consumption (MP-V-9A)	22 VA
Power input protection	MOV suppression and internal fuse

MP-V SmartX IP Controller

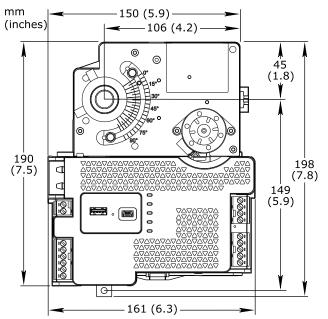
Environment

Ambient temperature, operating	0 to 50 °C (32 to 122 °F)
Ambient temperature, storage	40 to +70 °C (-40 to +158 °F)
Maximum humidity	95 % RH non-condensing

Material

Plastic flame rating	UL94 V-0
Ingress protection rating	IP 20

Mechanical





Weight	1.13 kg (2.5 lb)
Installation	Over the damper shaft
Terminal blocks	Removable

Software compliance

EcoStruxure Building Operation softwareversion 2.0 or later

Agency compliances

Emission	RCM; EN 61000-6-3; EN 50491-5-2; FCC Part 15, Sub-part B, Class B
Immunity	EN 61000-6-2; EN 50491-5-3
Safety	EN 60730-1; EN 60730-2-11; EN 50491-3; UL 916 C-UL US Listed
Fire performance in air-handling spaces ^a a) MP-V-7A and MP-V-9A are approved for ple	num applications.

Real-time clock

Accuracy, at 25 °C (77 °F)+/-1 minute per month
Backup time, at 25 °C (77 °F)7 days minimum

Communication ports	
Ethernet	
USB	USB 2.0, 5 VDC, 2.5 W, 1 device port (mini-B) and 1 host port (type-A)
Sensor Bus	
Sensor Bus protection	Transient voltage suppressors on communication and power signals
Communications	
	BACnet/IP, port configurable, default 47808
	BTL B-AAC (BACnet Advanced Application Controller) ^a e details on BTL listed firmware revisions on BACnet International's home
CPU	
Frequency	500 MHz
Туре	ARM Cortex-A7 dual-core
DDR3 SDRAM	128 MB
NOR flash memory	
Memory backup	
Damper actuator	
Torque rating	
Stroke	0° to 90°, fully adjustable
	gree at 60 Hz and 2.4 seconds/degree at 50 Hz for 90° rotation at 24 VAC
Position indication	Visual indication
Damper position feedback	Yes
	Push-button clutch release
Damper shaft minimum length (from VAV box	x)
Air flow sensor	
Range	
Resolution	
Accuracy	±5% of 249 Pa (1.00 inH ₂ O) span at 25°C (77°F)
Universal inputs, UI	
Channels, MP-V-7A	
Channels, MP-V-9A	
Absolute maximum ratings	0.5 to +24 VDC
A/D converter resolution	
Universal input protection	Transient voltage suppressor on each input
Digital inputs	
RangeDry contact switch clo	sure or open collector/open drain, 24 VDC, typical wetting current 2.4 mA
Minimum pulse width	150 ms

MP-V SmartX IP Controller

Counter inputs	
RangeDry contact switch closure or open collector/	open drain, 24 VDC, typical wetting current 2.4 mA
Minimum pulse width	20 ms
Maximum frequency	25 Hz
Supervised inputs	
5 V circuit, 1 or 2 resistors Monitored switch combinations	Series only, parallel only, and series and parallel
Resistor range	
Voltage inputs	
Range	0 to 10 VDC
Accuracy	+/-(7 mV + 0.2 % of reading)
Resolution	1.0 mV
Impedance	100 kohm
Current inputs	
Range	0 to 20 mA
Accuracy	+/-(0.01 mA + 0.4 % of reading)
Resolution	1 μΑ
Impedance	47 ohm
Resistive inputs	
10 ohm to 10 kohm accuracy	+/-(7 + 4 x 10 ⁻³ x R) ohm
10 kohm to 60 kohm accuracy	+/-($4 \times 10^{-3} \times R + 7 \times 10^{-8} \times R^2$) ohm
Temperature inputs (thermistors)	
Range	50 to +150 °C (-58 to +302 °F)
Supported thermistors	
Honeywell	20 kohm
Type I (Continuum)	10 kohm
Type II (I/NET)	
Type III (Satchwell)	
Type IV (FD)	10 kohm
Type V (FD w/ 11k shunt)	Linearized 10 kohm
Satchwell D?T	Linearized 10 kohm
Johnson Controls	2.2 kohm
Xenta	1.8 kohm
Balco	1 kohm
Measurement accuracy	
20 kohm	50 to -30 °C: +/-1.5 °C (-58 to -22 °F: +/-2.7 °F)



	0 to 100 °C: +/-0.2 °C (32 to 212 °F: +/-0.4 °F)
	,
10 kohm, 2.2 kohm, and 1.8 kohm	
Linearized 10 kohm	
	30 to 0 °C: +/-0.75 °C (-22 to +32 °F: +/-1.35 °F) 0 to 100 °C: +/-0 2 °C (32 to 212 °F: +/-0 4 °F)
1 kohm	50 to +150 °C: +/-1.0 °C (-58 to +302° F: +/-1.8 °F)
RTD temperature inputs	
Supported RTDs	Pt1000
Pt1000	
Range	50 to +150 °C (-58 to +302 °F)
Measurement accuracy	50 to +70 °C: +/-0.5 °C (-58 to +158 °F: +/-0.9 °F)70 to 150 °C: +/-0.7 °C (158 to 302 °F: +/-1.3 °F)
RTD temperature wiring	
Maximum wire resistance	20 ohm/wire (40 ohm total)
Maximum wire capacitance The wire resistance and capacitance typically corresponds to a 20	
Triac outputs, DO	
Channels, MP-V-7A	
Channels, MP-V-9A	
Output rating (for each triac output)	Max. 0.5 A
Voltage	24 VAC +/-20 %
Commons The common terminal COM can be connected to 24 VAC or to gro	
Common voltage, high side output	24 VAC
Common voltage, low side output	,
Minimum pulse width	
Triac output protection	MOV and snubber across each triac outputMOV from triac COM to ground
Analog outputs, AO	
Channels, MP-V-7A	
Channels, MP-V-9A	2, VO1/CO1 and VO2/CO2
Analog output protection	Transient voltage suppressor on each output
Voltage outputs	
Range	0 to 10 VDC
Accuracy	+/-60 mV
Resolution	10 mV

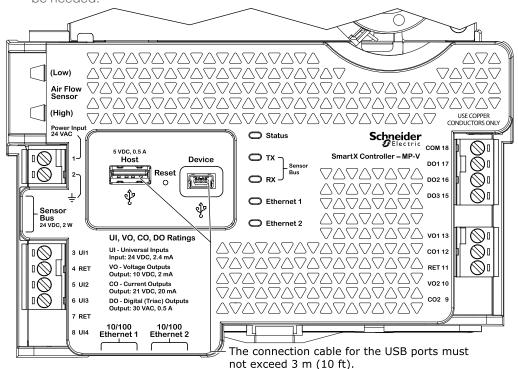
SmartX IP Controller

Minimum load resistance	5 kohm to ground
Load range	0 to +2 mA
	Voltage Output (VO), Return (RET)
Current outputs	
Range	0 to 20 mA
	+/-0.2 mA
Resolution	21 μA
Load range	0 to 650 ohm
Terminals	Current Output (CO) Return (RET)

Terminals

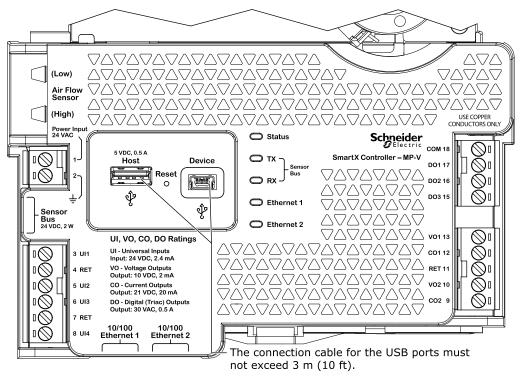
Be sure to follow proper installation wiring diagrams and instructions, including these instructions:

- MP-V-7A and MP-V-9A have several RET terminals for connection of I/O returns, so a common chassis/signal ground rail is optional and may not be needed.
- Individual 24 VDC power sources to the field must be current limited to maximum 4 A for UL compliant installations, and maximum 6 A in other areas.
- · For more information on wiring, see Hardware Reference Guide.



MP-V-7A

SmartX IP Controller



MP-V-9A

Part Numbers in AMER Region for Network Connectivity Accessories

Product description ^a	Part number (AMER region)	
Cat 6 field-term plug, UTP	ACTPG6TLU001	
Cat 6 pass-through plug, UTP, 100-pack	ACTPG6PTU100	
Actassi crimping tool	ACTTLCPT	
Cat 6 cable, UTP, 1000 ft (305 m), CMP, green	ACT4P6UCP1ARXGR	
Cat 6 patch cord, UTP, 30 ft (9 m), CMP, green	ACTPC6UBCP30AGR	
Cat 6 patch cord, UTP, 50 ft (15 m), CMP, green	ACTPC6UBCP50AGR	
Cat 6 patch cord, UTP, 70 ft (21 m), CMP, green	ACTPC6UBCP70AGR	
Cat 6 patch cord, UTP, 90 ft (27 m), CMP, green	ACTPC6UBCP90AGR	
Cat 5e pass-through plug, UTP, 100-pack	ACTPG5EPTU100	
Cat 5e cable, UTP, 1000 ft (305 m), CMP, green	ACT4P5EUCP1ARXGR	
Cat 5e patch cord, UTP, 30 ft (9 m), CMP, green	ACTPC5EUBCP30AGR	
Cat 5e patch cord, UTP, 50 ft (15 m), CMP, green	ACTPC5EUBCP50AGR	
Cat 5e patch cord, UTP, 70 ft (21 m), CMP, green	ACTPC5EUBCP70AGR	
Cat 5e patch cord, UTP, 90 ft (27 m), CMP, green	ACTPC5EUBCP90AGR	

a) For more information, see the Product Selection Guide (SmartX IP Controllers - Accessories). Abbreviations: UTP (Unshielded Twisted Pair), CMP (Plenum-rated cable)



Part Numbers in EMEA Region for Network Connectivity Accessories

Product description ^a	Part number (EMEA region)	
Cat 6 field-term plug, UTP	ACTPG6TLU001	
Cat 6 pass-through plug, UTP, 100-pack	ACTPG6PTU100	
Actassi crimping tool	ACTTLCPT	
Cat 6 cable, UTP, 305 m (1000 ft), Euroclass D, green	VDICD116118	
Cat 6 patch cord, UTP, 10 m (32 ft), LSZH, green	ACTPC6UBLS100GR	
Cat 6 patch cord, UTP, 15 m (49 ft), LSZH, green	ACTPC6UBLS150GR	
Cat 6 patch cord, UTP, 20 m (65 ft), LSZH, green	ACTPC6UBLS200GR	
Cat 6 patch cord, UTP, 25 m (82 ft), LSZH, green	ACTPC6UBLS250GR	
Cat 5e pass-through plug, UTP, 100-pack	ACTPG5EPTU100	
Cat 5e cable, UTP, 1000 ft (305 m), Euroclass D, green	VDICD115118	
Cat 5e patch cord, UTP, 10 m (32 ft), LSZH, green	ACTPC5EUBLS100GR	
Cat 5e patch cord, UTP, 15 m (49 ft), LSZH, green	ACTPC5EUBLS150GR	
Cat 5e patch cord, UTP, 20 m (65 ft), LSZH, green	ACTPC5EUBLS200GR	
Cat 5e patch cord, UTP, 25 m (82 ft), LSZH, green	ACTPC5EUBLS250GR	

a) For more information, see the Product Selection Guide (SmartX IP Controllers - Accessories). Abbreviations: UTP (Unshielded Twisted Pair), CMP (Plenum-rated cable), LSZH (Low Smoke Zero Halogen)

Part Numbers in Pacific Region for Network Connectivity Accessories

Product description ^a	Part number (Pacific region)
Cat 6 field-term plug, UTP	ACTPG6TLU001
Cat 6 pass-through plug, UTP, 100-pack	ACTPG6PTU100
Actassi crimping tool	ACTTLCPT
Cat 6 cable, UTP, 305 m (1000 ft), PVC, green	2D4P6IPV3B-GR
Cat 6 patch lead, UTP, 10 m (32 ft), PVC, green	RJ6_100PL-GR
Cat 6 patch lead, UTP, 15 m (49 ft), PVC, green	RJ6_150PL-GR
Cat 6 patch lead, UTP, 20 m (65 ft), PVC, green	RJ6_200PL-GR
Cat 6 patch lead, UTP, 25 m (82 ft), PVC, green	RJ6_250PL-GR
Cat 5e pass-through plug, UTP, 100-pack	ACTPG5EPTU100
Cat 5e cable, UTP, 305 m (1000 ft), PVC, green	2D4P5IPV3B-GR
Cat 5e patch lead, UTP, 10 m (32 ft), PVC, green	RJ5_100PL-GR
Cat 5e patch lead, UTP, 15 m (49 ft), PVC, green	RJ5_150PL-GR
Cat 5e patch lead, UTP, 20 m (65 ft), PVC, green	RJ5_200PL-GR
Cat 5e patch lead, UTP, 25 m (82 ft), PVC, green	RJ5_250PL-GR

a) For more information, see the Product Selection Guide (SmartX IP Controllers - Accessories). Abbreviations: UTP (Unshielded Twisted Pair), PVC (Polyvinyl chloride)



Regulatory Notices

Federal Communications Commission

FCC Rules and Regulations CFR 47, Part 15, Class B
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada
This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



Regulatory Compliance Mark (RCM) - Australian Communications and Media Authority (ACMA)

This equipment complies with the requirements of the relevant ACMA standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997. These standards are referenced in notices made under section 182 of the Radiocommunications Act and 407 of the Telecommunications Act.

CE - Compliance to European Union (EU)

2014/30/EU Electromagnetic Compatibility Directive 2011/65/EU Restriction of Hazardous Substances (RoHS) Directive

2011/65/EU RESTRICTION OF HAZAGROUS SUBSTANCES (ROHS) DIFFECTIVE
This equipment complies with the rules, of the Official Journal of the European Union, for
governing the Self Declaration of the CE Marking for the European Union as specified in the
above directive(s) per the provisions of the following standards: EN 60730-1, EN 60730-211, and EN 50491-3 Safety Standards.

Ø

■ WEEE - Directive of the European Union (EU)

This equipment and its packaging carry the waste of electrical and electronic equipment (WEEE) label, in compliance with European Union (EU) Directive 2012/19/EU, governing the disposal and recycling of electrical and electronic equipment in the European community.

UL 916 Listed products for the United States and Canada, Enclosed Energy Management Equipment. UL file E80146.

Life Is On Schneider

Digital stand-alone and communicating room controllers

SE8650 | Rooftop unit, heat pump and indoor air quality room controller

Smart energy management has never been easier than with the SpaceLogic SE8650 room controllers for rooftop units, heat pumps and indoor air quality applications. Designed for new construction and retrofit projects, the room controllers dramatically decrease project delivery costs by reducing installation, configuration and commissioning time. No complex software or tools are required to customize functionality in order to meet your applications requirements. The room controllers provide all the advanced features and monitoring functions required by modern building automation systems in a simple compact enclosure. An elegantly simple casing combines with configurable screen colors to match decor. Display your own logo and custom messages on screen to reinforce your brand and provide a more enjoyable occupant experience.



Description	
	Height: 12cm/4.72in
Dimension	Width: 8.6cm/3.38in
	Depth: 2.5cm/1in
Power	
	24 Vac 50/60Hz or 24 Vdc
Voltage	up to 6 VA power consumption
	94 VA Max. output load
Communication	
	BACnet MS/TP, or Modbus RTU
Protocol	Zigbee Pro (with VCM8000V5045P or on-board Zigbee)
	BACnet/IP and email notification via Wi-Fi (with VCM8002V5031)

Product highlights

- Elegant style combinations, designed to complement any decor
- · Customizable color digital touch screen interface with multi-language support
- · Configurable as 1H / 1C, 2H / 2C, 3H / 2C and Modulating (Analog) Heat / 2C for rooftop and heat pump units
- CO₂ and fresh air inputs for Indoor Air Quality (IAQ) applications
- Suitable for both commercial and hospitality markets and systems
- · Fully programmable control sequences using scripting
- · On board configuration interface utility
- Configurable sequence of operations
- · Configurable Economizer
- · Configurable Scheduler
- Wired BACnet MS/TP, Wi-Fi BACnet IP or wired Modbus RTU network protocols for BMS integration
- · Humidity sensor with on-board dehumidification strategy
- Optional Passive Infrared (PIR) occupancy sensor
- · Advanced occupancy functions for commercial and lodging applications
- · Optional wireless door, window, motion and water leak sensors available.

Communication

- BACnet MS/TP or Modbus RTU (user selectable)
- Zigbee Pro (P) opiton for direct BMS integration (On-board or plug-in Zigbee Pro wireless module)
- BACnet/IP and email notification via Wi-Fi (with VCM8002V5031)

Facias

This model can be ordered with silver or white fascia, and can be customized with many different fascias. Refer to "Fascias" on page 18 for more information (later in this document).

Accessories

- CO₂ sensor module CO₂/temperature/humidity sensor
- Zigbee wireless window, door, motion and water leak sensors

Part Number	Description	RH sensor & control	PIR motion sensor	Zigbee Pro on-board	BACnet MS/TP	Fascia & casing
SE8650U0B00	RTU, heat pump & IAQ Controller	х		No*	Х	Silver
SE8650U5B00	RTU, heat pump & IAQ Controller	х	×	No*	X	Silver
SE8650U5B00P	RTU, heat pump & IAQ Controller	х	×	х	×	Silver
SE8650U0B11	RTU, heat pump & IAQ Controller	х		No*	×	White
SE8650U5B11	RTU, heat pump & IAQ Controller	х	×	No*	X	White
SE8650U5B11P	RTU, heat pump & IAQ Controller	х	×	х	×	White
SE8650U0N11	RTU, heat pump & IAQ Controller	х		No*		White
SE8650U5N11	RTU, heat pump & IAQ Controller	х	×	No*		White

^{*}Note: Zigbee Pro plug-in module is available

Product data sheet

Specifications



Roof Top Unit, Heat Pump & Indoor Air Quality Ctrl: BACnet MS/TP, RH sensor & control, White Case/Fascia

SE8650U0B11

Main

- Iviairi	
Product name	SE8000 Series
Device short name	SE8600
Product or component type	Roof top unit
Device application	Staging equipment (RTU/HP)
Net weight	11.99 oz (340 g)
AWG gauge	AWG 22AWG 18
Targeted region	North America.
Height	4.72 in (120 mm)
Width	3.39 in (86 mm)
Temperature resolution	0.1 °C
Humidity measurement drift	Less than 1 % yearly
Directives	2014/30/EU - electromagnetic compatibility 2014/35/EU - low voltage directive 2014/53/EU - radio equipment directive
Depth	0.98 in (25 mm)
Ambient air temperature for operation	32122 °F (050 °C)
Market segment	Lodging/hotel Small commercial Buildings Healthcare Non-critical buildings Office Residential School
Housing colour	White
Ambient air temperature for storage	-22122 °F (-3050 °C)
Measurement accuracy	Temperature +/- 0.5 °C, Humidity +/- 5 %, 2080 % RH non-condensing) Humidity +/- 10 %, 1020 % non-condensing) Humidity +/- 10 %, 8090 % non-condensing)
Information displayed	Temperature - 40122 °F
Network frequency	50 Hz 60 Hz
Communication port protocol	BACnet MS/TP Modbus RTU Zigbee Pro

Input voltage 010 V Temperature setting range 54100 *F (1237.5 *C) cooling 4090 *F (4.532 *C) heating Calibration certificate 1 pt Standards ENIEC 60730-1 FCC part 15 Subpart B ICES-003 ETSI EN 300 328 ETSI EN 300 328 ETSI EN 301 489-17.v1.9.2 FCC part 15 Subpart C UL 60730-2-9 ETSI EN 301 489-17.v2.2.1, 2012 Relative humidity 075 % [Us] rated supply voltage 24 V AC/DC relay output 010 V AC/DC voltage output Output voltage 24 V AC/DC relay output 4 xuniversal Output type 5 xrelay output 4 xuniversal Output current 1 A relay output 1.5 A universal output inrush) Sensor type Temperature: 10 kOhm T2 NTC thermistor Humidity: byte space RH sensor Humidity: byte space RH sensor Humidity: both polymer Input type Dry contact 2 Analog 5 Humidity setting range EcoStruxure Building Expert Economizer No PIR cover No		
Calibration certificate 1 pt Standards EN/IEC 60730-1 FCC part 15 Subpart B ICES-003 ETSI EN 300 328 ETSI EN 301 489-17:v2.2.1, 2012 Relative humidity 075 % [Us] rated supply voltage 24 V AC 50/60 Hz +/- 15 % Output voltage 24 V AC/IDC relay output 010 V AC/IDC voltage output 010 V AC/IDC voltage output 1 A relay output 3 A relay output 3 A relay output inrush) 0.3 A universal output inrush) 1.5 A universal output inrush 1.5 A universa	Input voltage	010 V
Standards EN/IEC 60730-1 FCC part 15 Subpart B ICES-003 ETSI EN 300 328 ETSI EN 300 328 ETSI EN 300 489-1-1/1.9.2 FCC part 15 Subpart C UL 60730-2-9 ETSI EN 301 489-17:v2.2.1, 2012 Relative humidity 075 % [Us] rated supply voltage 24 V AC/DC relay output 010 V AC/DC voltage output Output voltage 5 xrelay output 4 xuniversal Output current 1 A relay output 3 A relay output inrush) 0.3 A universal output inrush) 0.3 A universal output inrush) 1.5 A universal output inrush) Sensor type Temperature: 10 kOhm T2 NTC thermistor Humidity: balk polymer Input type Dry contact 2 Analog 5 Humidity setting range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	Temperature setting range	54100 °F (1237.5 °C) cooling 4090 °F (4.532 °C) heating
FCC part 15 Subpart B ICES-003	Calibration certificate	1 pt
Counting to the supply voltage 24 V AC 50/60 Hz +/- 15 %	Standards	FCC part 15 Subpart B ICES-003 ETSI EN 300 328 ETSI EN 301 489-1:v1.9.2 FCC part 15 Subpart C UL 60730-2-9
Output voltage 24 V AC/DC relay output 010 V AC/DC voltage output Output type 5 xrelay output 4 xuniversal Output current 1 A relay output inrush) 0.3 A relay output inrush) 0.3 A universal output 1.5 A universal output inrush) Sensor type Temperature: 10 kOhm T2 NTC thermistor Humidity: space RH sensor Humidity: bulk polymer Input type Dry contact 2 Analog 5 Humidity setting range 3095 % Range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	Relative humidity	075 %
Output type 5 xrelay output 4 xuniversal Output current 1 A relay output 3 A relay output inrush) 0.3 A universal output 1.5 A universal output 1.5 A universal output inrush) Sensor type Temperature: 10 kOhm T2 NTC thermistor Humidity: space RH sensor Humidity: bulk polymer Input type Dry contact 2 Analog 5 Humidity setting range 3095 % Range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	[Us] rated supply voltage	24 V AC 50/60 Hz +/- 15 %
Output current 1 A relay output 3 A relay output 3 A relay output inrush) 0.3 A universal output inrush) Sensor type Temperature: 10 kOhm T2 NTC thermistor Humidity: space RH sensor Humidity: bulk polymer Input type Dry contact 2 Analog 5 Humidity setting range 3095 % Range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	Output voltage	
3 A relay output inrush) 0.3 A universal output 1.5 A universal output inrush) Sensor type Temperature: 10 kOhm T2 NTC thermistor Humidity: space RH sensor Humidity: bulk polymer Input type Dry contact 2 Analog 5 Humidity setting range 3095 % Range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	Output type	
Humidity: space RH sensor Humidity: bulk polymer Input type Dry contact 2 Analog 5 Humidity setting range 3095 % Range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	Output current	3 A relay output inrush) 0.3 A universal output
Humidity setting range 3095 % Range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	Sensor type	Humidity: space RH sensor
Range EcoStruxure Building Expert Economizer No Humidity control Yes PIR cover No	Input type	Dry contact 2 Analog 5
Economizer No Humidity control Yes PIR cover No	Humidity setting range	3095 %
Humidity control Yes PIR cover No	Range	EcoStruxure Building Expert
PIR cover No	Economizer	No
	Humidity control	Yes
Calcabillian Voc	PIR cover	No
Scheduling	Scheduling	Yes

Complementary

Surface finish	Matt
Surface treatment	Untreated
Function available	HVAC control Available with CO2/RH/T Brightness sensor Changes can be made directly over display Code lock function Easily configurable Firmware update by USB Fan control

Packing Units

Unit Type of Package 1	Db
Number of Units in Package 1	1
Package 1 Height	1.77 in (4.5 cm)
Package 1 Width	4.13 in (10.5 cm)
Package 1 Length	5.91 in (15.0 cm)
Package 1 Weight	8.68 oz (246.0 g)

Offer Sustainability

REACh Regulation	REACh Declaration
EU RoHS Directive	Compliant

EU RoHS Declaration

Mercury free	Yes
China RoHS Regulation	China RoHS declaration
RoHS exemption information	Yes

Recommended replacement(s)



SECTION D

SUB-SECTION 2

SENSORS

Specification Sheet schneider-electric.com | 1

SpaceLogic Sensors SXWS Sensors for MP and RP IP Controllers

SXWSATXXXSLW



Note: A subset of models shown.

Product Description

SXWS sensors are a family of living space sensors for use with MP and RP IP controllers that use the EcoStruxure Building Operation user interface. These sensors use an RJ-45 sensor bus that provides communication and power from the IP controller. For quick installation, up to four SXWS sensors may be connected to each IP controller through the RJ-45 sensor bus using Cat 5/6 cable (22 to 26 AWG). A Bluetooth® adapter is available for commissioning and service. It is temporarily connected to installed communicating sensors and allows for quick setup and configuration. The Bluetooth adapter communicates to upload devices (smart phone, laptop, table, etc.) with the Living Space Sensor EcoStruxure Building Operation app installed via USB or Bluetooth communications.

SXWS living space sensors are modular and are ordered in two parts: the sensor base and the cover. Four SXWS communicating sensor base models are available that can be paired with any SXWS cover model. CO2, Relative Humidity, and Temperature sensor base options provide an efficient, cost effective solution for living space air quality and comfort needs. Covers are available with a 61 mm (2.4") backlit color touchscreen and a three button non-display version for override and setpoint. Blank covers with no user interface are also available. All modular cover variants are available with and without passive infrared occupancy sensors.

Two complete sensor/cover combination model types are available:

- Temperature-only with LCD display. Communicating with three button cover. This is a low cost temperature sensor with a basic display.
- A two-wire, resistive-only, non-communicating temperature sensor is offered for a low cost conformance part. This uses an I/O port on the controller.

Combination models come with a sensor base and cover and are available in medium matte white, optimum glass white and optimum glass black. Combination units have the same form factor as the modular sensor bases and covers of the same housing type. Combination units will not work with other covers. SXWS living space sensors measure the levels of CO₂ (if equipped), RH (if equipped), and temperature of air in a living space application. The CO₂ sensor operates within accuracy specifications for an interval of two years and can be field calibrated.

Features

- Medium matte white housing or optimum glass panel housing available in white or black
- 61 mm (2.4") backlit color touchscreen cover available
- Basic LCD, three button with temperature available
- Long-life humidity sensing element with excellent resistance to contamination and condensation
- Digital CO₂ indication (0 to 2000 ppm display resolution)
- Field calibratable non-dispersive infrared CO₂ sensor
- Pushbutton override capabilities allow occupants to switch to timed occupied mode for after hours operation
- Displays selected system values such as setpoints, outdoor air temperature, and operating mode
- Touchscreen includes light and blind control functionality, for use with RP-x controllers with light/blind modules
- Configurable to show only setpoint temperature rather than actual temperature
- Provides the ability to change operating modes
- Passive Infrared (PIR) occupancy sensor covers available
- Directly connects to the sensor bus of the MP Series controller with EcoStruxure Building Operation software version 2.0 or greater
- Sensor bus provides power and communication via RJ-45 over Cat 5/6 cable (22 to 26 AWG)



Specifications

op comoditions	
CO ₂ Sensor	
Sensor type	Non-dispersive infrared (NDIR), diffusion sampling
Output range	0 to 2000 ppm
Accuracy	±30 ppm ±2% of measured value
Repeatability	±20 ppm ±1% of measured value
Response time	<60 seconds for 90% step change
RH Sensor	
HS sensor	Thin-film capacitive
Accuracy	±2% from 10 to 80% RH @ 25°C (77 °F)
Hysteresis	1.5% typical
Linearity	Included in accuracy specification
Stability	±1% @ 20°C (68 °F) annually for 2 years
Output range	0 to 100% RH
Temperature coefficient	±0.1% RH/°C above or below 25 °C (77 °F) typical
Temperature Sensor (N	Ion-communicating Models)
Sensor type	10K Type 3 thermistor
Accuracy	±0.2 °C (±0.4 °F) typical
Resolution	0.1 °C (0.2 °F)
Output range	0 to 50 °C (32 to 122 °F)
Temperature Sensor (C	Communicating Models)
Accuracy	±0.2 °C (±0.4 °F) typical
Occupancy Sensor	
Sensor type	Passive infrared (PIR)
Light and Blind Contro	I
Number of light control zones	1 manually controlled 4 configurable in scenes
Number of blind control zones	1 manually controlled 4 configurable in scenes
User interface	Any SXWS cover with touchscreen
Communication	Sensor Bus on RP-x models with light/blind modules
Preconfigured scenes	Configurable via EcoStruxure Building Operation software
Light control	On/off/dimming
Blind control	Blind open /close/adjust Louver open/close/adjust
Operating Environmen	t
Operating temperature	0 to 50 °C (32 to 122 °F)
Operating humidity range	0 to 95% RH, non-condensing
	0 to 95% RH, non-condensing High impact ABS plastic Flammability rating UL 94 V-0

Wiring Terminals	
Non-communicating models	Screw, 2-wire, 18-24 AWG
Communicating models	RJ-45 female sensor bus
Regulatory Information	1
Agency approvals	UL 916, European conformance CE: EN61000-6-3 EN61000 Series - industrial immunity standard FCC Part 15 Class B, REACH, RoHS, Green Premium, RCM (Australia), ICES-003 (Canada), EAC (Russia)

Software Specifications

Using the SpaceLogic Bluetooth Adapter to Configure

- · Custom field-configurable sensor displays
- Auto-ranging of displayed values
- Occupant command capabilities
- Adjustable minimum/maximum limit setpoint values
- Controller driven, automatically configured, customized display/command values

Communications

IP Controller Sensor Bus

IP controller sensor bus communications wiring provides power and communication interface to the MP Series controllers. The IP controller sensor bus connects up to four sensor devices per controller using unshielded RJ-45 connectors and Cat 5/6 cable (22 to 26 AWG)*. The maximum total length of the IP controller sensor bus is 61 m (200 ft.).

*Due to power constraints, limitations exist for the number of sensors the Sensor Bus can support. For specific sensor combinations supported, see the Sensor Bus Configuration Calculator on the last page of this document.



Multiple Housing Finishes Available

Optimum Housing

- Higher-end aesthetic suitable for new construction and remodels
- Available for all SXWS cover types
- Glass touch panel
- Available in white or black

















Medium Housing

- Standard aesthetic suitable for schools, hospitals, municipal facilities
- Available for all SXWS cover types (except offscreen light/blind control buttons)
- Matte white finish

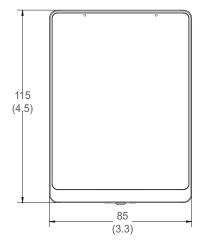


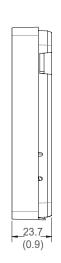




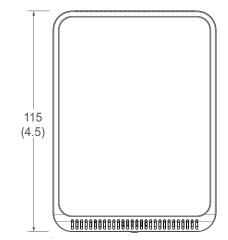


Dimensions mm (in.) **Optimum Housing**





Medium Housing





Asia: +65 6484 7877



Available Products

SXWS Sensor Bases

					IP Controller	
Model Number	Temp	RH	CO_2	Cover	System Bus	Resistive Only (10K T3)
SXWSBTXXXSXX	X			Not Included	X	
SXWSBTHXXSXX	X	Χ		Not Included	X	
SXWSBTXCXSXX	X		Χ	Not Included	X	
SXWSBTHCXSXX	Х	Х	Χ	Not Included	Х	
SXWSATXXXSLX*	Х		Included - Medium White X			
SXWSATXXXSLW*	Χ		Included - Optimum White X			
SXWSATXXXSLB*	X		Included - Optimum Black X			
SLASXXX*	Х	X Included - Medium White X		X		
SLAWXXX*	Х			Included - Optimum White X		X
SLABXXX*	Х			Included - Optimum Black X		X

^{*}Combination models include base and cover.

SXWS Covers

Model Number	61mm (2.4") Color Touchscreen with Light & Blind Control	Override	Setpoint	Off-Touchscreen Light & Blind Control Buttons	Off-Touchscreen Light Control Buttons	Occupancy Sensor (PIR)	Housing Finish
SXWSCDXSELXX	X	Х	X			-	Medium, White
SXWSC3XSELXX		Х	Х				Medium, White
SXWSCBXSELXX							Medium, White
SXWSCDPSELXX	X	Х	X			X	Medium, White
SXWSC3PSELXX		X	X			X	Medium, White
SXWSCBPSELXX						X	Medium, White
SXWSCDXSELXW	X	Х	X				Optimum, White
SXWSC3XSELXW		Х	X				Optimum, White
SXWSCBXSELXW							Optimum, White
SXWSCDPSELXW	X	Х	X			X	Optimum, White
SXWSC3PSELXW		Х	X			X	Optimum, White
SXWSCBPSELXW						X	Optimum, White
SXWSCDXSELXB	X	Х	X				Optimum, Black
SXWSC3XSELXB		Х	X				Optimum, Black
SXWSCBXSELXB							Optimum, Black
SXWSCDPSELXB	X	Х	X			X	Optimum, Black
SXWSC3PSELXB		Х	X			X	Optimum, Black
SXWSCBPSELXB						X	Optimum, Black
SXWSC2XSELXW	X	Х	X		X		Optimum, White
SXWSC4XSELXW	X	Х	X	X			Optimum, White
SXWSC2PSELXW	X	Х	X		X	X	Optimum, White
SXWSC4PSELXW	Х	Х	X	Х		Х	Optimum, White
SXWSC2XSELXB	Х	Х	Χ		Х		Optimum, Black
SXWSC4XSELXB	X	X	Χ	X			Optimum, Black
SXWSC2PSELXB	X	X	X		Х	Χ	Optimum, Black
SXWSC4PSELXB	X	X	X	X		X	Optimum, Black



Sensor and Cover Combination Models

Communicating Temperature Only User Interface with LCD

- · Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- · LCD displays temperature, heating, cooling status
- · Setpoint and override









Non-communicating Temperature Only, No User Interface

- 2-wire resistive output
- 10K Type 3 thermistor
- Uses I/O port on controller







SLAWXXX

SLABXXX

SLASXXX

Cover Variants - Communicating Sensors Blank, No User Interface

- · Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- · Occupancy sensor version available







SXWSCBPSELXW with Occupancy



SXWSCBXSELXB



SXWSCBPSELXB with Occupancy



SXWSCBXSELXX



SXWSCBPSELXX with Occupancy



Cover Variants - Communicating Sensors (cont.)

3-Button User Interface, Setpoint and Override

- Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- Setpoint and override buttons
- Halo indicates heating and cooling status
- Occupancy sensor version available



SXWSC3XSELXW SXWSC3PSELXW











with Occupancy Sensor

SXWSC3XSELXB

SXWSC3PSELXB with Occupancy Sensor

SXWSC3XSELXX

SXWSC3PSELXX with Occupancy Sensor

Touch Screen User Interface

- Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- 61 mm (2.4") color touchscreen
- CO₂, RH, temperature, setpont and override displayed
- Heating, cooling, ecomode status
- Light and blind control for use with RP-x with light and blind modules
- Occupancy sensor version available









SXWSCDPSELXW with Occupancy Sensor



SXWSCDXSELXB



SXWSCDPSELXB with Occupancy Sensor



SXWSCDXSELXX



SXWSCDPSELXX with Occupancy Sensor

Display Examples



HVAC Configuration



Up to 4 Configurable Buttons on Main Menu



Sub-menu Configurable with up to 8 Buttons



Configurable Preset Scenes



Configured Scene Example

Setpoint Examples



Temperature



Lighting



Blind and Louver



Available Scenes

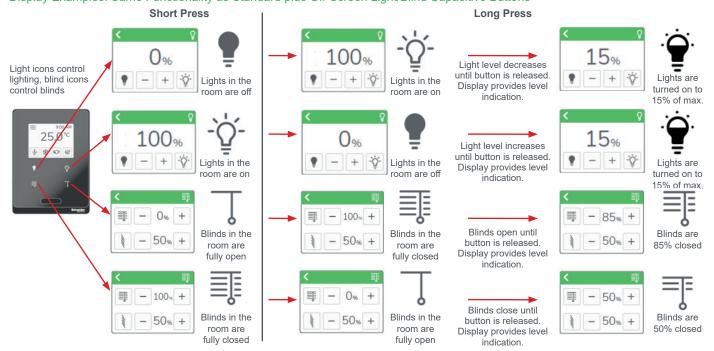
USA: +1 888-444-1311 Asia: +65 6484 7877



- · Configurable through the eCommission Bluetooth Adapter or EcoStruxure Building Operation software
- 61 mm (2.4") color touchscreen
- CO₂, RH, temperature, setpont and override displayed
- · Heating, cooling, ecomode status
- Light and blind control for use with RP-x with light and blind modules
- Occupancy sensor version available
- Two glass touch capacitive button version for lights
- Four glass touch capacitive button version for lights and blinds



Display Examples: Same Functionality as Standard plus Off-Screen Light/Blind Capacitive Buttons



Architecture

MP/RP Controller and Sensor Bus with Communicating Sensors

MP/RP Controller

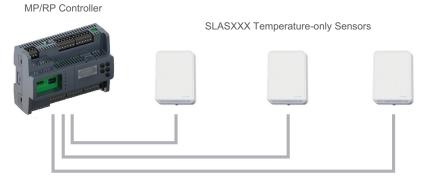


Cat 5/6 cable (22 to 26 AWG) terminated via unshielded RJ-45 connector.

61 m (200 ft.) total maximum length.

Up to four communicating sensors on sensor bus. For specific combinations of sensors supported by the Sensor Bus, see the Sensor Bus Configuration Calculator section later in this document.

MP/RP Controller and Non-communicating Sensors



Each sensor uses an I/O port on the controller. Maximum number of inputs varies by controller type.

RP Controller, Light and Blind Control Modules with Communicating Sensor





Sensor Bus Configuration Calculator Calculate Power/mW to Validate Sensor Bus Configuration

Add power/mW for all covers, combination units and bases to be used on a single sensor bus for total sensor bus wattage. The sensor bus will support current of up to 2000 mW. Device combinations totalling more than 2000 mW will not be supported on the sensor bus.

Sensor Bus Power Table

Description	Model Number	Power/mW
Sensor Base, Temp	SXWSBTXXXSXX	90
Sensor Base, Temp, Humidity	SXWSBTHXXSXX	90
Sensor Base, Temp, CO ₂	SXWSBTXCXSXX	490
Sensor Base, Temp, Humidity, CO ₂	SXWSBTHCXSXX	490
Resistive 10K T3 Combination Sensors	SLASXXX	0
	SLABXXX	0
	SLAWXXX	0
Temp with LCD, 3 Button Combination Sensors	SXWSATXXXSLX	80
	SXWSATXXXSLB	80
	SXWSATXXXSLW	80
3 Button Covers with Occupancy	SXWSC3PSELXB	210
	SXWSC3PSELXW	210
	SXWSC3PSELXX	210
3 Button Covers	SXWSC3XSELXB	190
	SXWSC3XSELXW	190
	SXWSC3XSELXX	190
	SXWSCBPSELXB	20
Blank Covers with Occupancy	SXWSCBPSELXW	20
	SXWSCBPSELXX	20
	SXWSCBXSELXB	0
Blank Covers	SXWSCBXSELXW	0
	SXWSCBXSELXX	0
	SXWSCDPSELXB	210
	SXWSCDPSELXW	210
	SXWSCDPSELXX	210
Touchscreen Covers with Occupancy	SXWSC2PSELXB	210
	SXWSC2PSELXW	210
	SXWSC4PSELXB	210
	SXWSC4PSELXW	210

USA: +1 888-444-1311 Europe: +46 10 478 2000 Asia: +65 6484 7877 www.schneider-electric.com



Sensor Bus Power Table (cont.)

Description	Model Number	Power/mW
	SXWSC2XSELXB	190
	SXWSC2XSELXW	190
	SXWSC4XSELXB	190
Touchscreen Covers	SXWSC4XSELXW	190
	SXWSCDXSELXB	190
	SXWSCDXSELXW	190
	SXWSCDXSELXX	190
eCommission Bluetooth Adaptor	SXWBTAECXX10001*	300

^{*}The eCommission Bluetooth Adapter is used temporarily for commissioning and servicing only.



TW2 ANALOG SERIES

TW2XAXM

Wall Mount Temperature Sensors



The TW2 Series of temperature sensors for living space is a versatile sensor platform for use with BAS controllers designed to accept 4 to 20mA, 0 to 5Vdc or 0 to 10Vdc outputs. TW2 Series sensors are available with three user interface options: touchscreen, LCD with three buttons and blank.

SPECIFICATIONS

OPERATING ENVIRONMENT

Input Power	Class 2; 20 to 30 Vdc, 24 Vac, 50 to 60 Hz
Analog Output	Selectable 4 to 20 mA, 0 to 5 V, 0 to 10 V $$
Operating Temperature Range	0 to 50 °C (32 to 122 °F)
Operating Humidity Range	0 to 95% RH non-condensing
Housing Material	High-impact ABS plastic
Terminal Block Torque	0.5 to 0.6 N-m (0.37 to 0.44 in-lbf)
IP Rating	IP 30
Mounting Location	For indoor use only. Not suitable for wet locations.
Surface Mount	The device can be surface mounted on Single Gang J-Box, British Standard and CE60 wall boxes

TEMPERATURE TRANSMITTER OPTION

Sensor Type	Solid state, integrated circuit or other thermistors
Accuracy	±0.2 °C (±0.4 °F) typical
Resolution	0.1 °C (0.1 °F)
Range	0 to 50 °C (32 to 122 °F)

3	
DISPLAY MODELS	
Touchscreen	61 mm (2.4 in), color, backlit, capacitive, 240x300 px Setpoint: 0-10Vdc. Temperature, humidity or fan speed selectable Timeout override: Display timeout* Lockout override: Touchscreen/button lockout*
LCD	52mm (2.05 in), segmented with 3 buttons Setpoint: 0-10Vdc. Temperature, humidity or fan speed selectable Timeout override: Display timeout* Lockout override: Touchscreen/button lockout*

Flexible

Polarity insensitive, two-wire resistive thermistor, 3+ wires 4 to 20 mA or 0-5/0-10 Vdc versions...flexible systems compatibity...save time in the field, stock fewer devices

Calibration-free

No calibration required

APPLICATIONS

- · Controlling HVAC systems for improved comfort & energy savings
- Museums, schools, printing shops, hospitals, data centers, & other locations that require temperature control

Easy to install

Large wiring terminals on baseplate and snap-on covers with security screw simplify installation and service

Facilitating compliance with ASHRAE standards for environmental control and indoor air quality

SETPOINTS**

Temperature Setpoint	0 to 10V output Scale: 10 to 35 °C (50 to 95 °F) / 0 to 50 °C (32 to 122 °F)
Fan Speed Setpoint	0 to 10V output Off 0V, Auto 1.5V, Low 3.3V, Med. 6.7V, High 10.0V

OVERRIDE

Override Button Display models fea momentary-to-gro	ture a und override button
---	-------------------------------

WIRING TERMINALS

Terminal Blocks	Screw terminals, 18-24 AWG
Screw Terminal Torque	0.2 N-m (2.0 in-lbF) max.

WARRANTY

Limited Warranty 5 years

COMPLIANCE INFORMATION

UL 916, European conformance CE: EN61000-6-2 EN61000-6-3 **Agency Approvals** EN61000 Series - industrial immunity FN 61326-1 FCC Part 15 Class B, REACH, RoHS, RCM (Australia), ICES-003 (Canada), UKCA (UK)



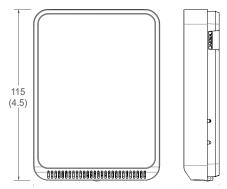




- *DIP switch selectable.
- ** One setpoint type is selectable via DIP switch on display models only.

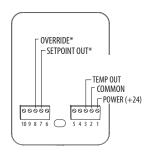


DIMENSIONAL DRAWING



TW2X/TW2T DISPLAY MODELS WITH TEMP TRANSMITTER

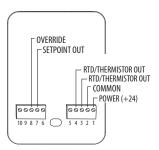
Wiring Diagram



*TW2T models only.

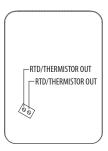
TW2L/TW2T DISPLAY MODELS WITH RTD/THERMISTOR

Wiring Diagram



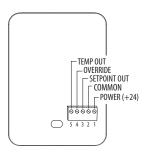
TW2X WITH RTD/THERMISTOR

Wiring Diagram



TW2L WITH TEMP TRANSMITTER

Wiring Diagram



USER INTERFACE TYPES



TW2XAXM

ORDERING INFORMATION

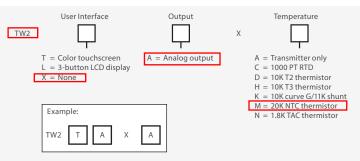


TABLE OF STANDARD RTD & THERMISTOR VALUES

Class	Pt RTD	<u>THERMISTOR</u>								
Туре	1000 0hm	10k Type 2	10k Type 3	20k						
Accuracy	±0.3°C	±1.0°C	±0.2℃	Consult						
	0.00385 curve	-50/150°C	0/70°C	Factory						
Temp. Response*	PTC	NTC	NTC	NTC						

*PTC: Positive Temperature Coefficient *NTC: Negative Temperature Coefficient

STANDARD RTD AND THERMISTOR VALUES (Ohms O)

JIANUI	ווח שחוּ	םחו שאא ע	AUTCIIVIA.	VALUES (7111115 1 <i>1)</i>	
°C	°F	1000 0hm	10k Type 2	10k Type 3	20k NTC	
-50	-58	803.06	692,700	454,910	1,267,600	
-40	-40	842.71	344,700	245,089	643,800	
-30	-22	882.22	180,100	137,307	342,000	
-20	-4	921.60	98,320	79,729	189,080	
-10	14	960.86	55,790	47,843	108,380	
0	32	1,000.00	32,770	29,588	64,160	
10	50	1,039.03	19,930	18,813	39,440	
20	68	1,077.94	12,500	12,272	24,920	
25	77	1,097.35	10,000	10,000	20,000	
30	86	1,116.73	8,055	8,195	16,144	
40	104	1,155.41	5,323	5,593	10,696	
50	122	1,193.97	3,599	3,894	7,234	
60	140	1,232.42	2,486	2,763	4,992	
70	158	1,270.75	1,753	1,994	3,512	
80	176	1,308.97	1,258	1,462	2,516	
90	194	1,347.07	919	1,088	1,833	
100	212	1,385.06	682	821	1,356	
110	230	1,422.93	513	628	1,016	
120	248	1,460.68	392	486	770	
130	266	1,498.32	303	380	591	
Sensor	Codes	C	D	Н	М	

TO SERIES

TODR00

Sleek Design, Reduces Solar Heating



TO Series outdoor temperature sensors feature a sleek, weather resistant design, and provide easy installation. The durable probe is encased in a radiation shield to reduce the effects of solar heating. Choose from a variety of RTD, thermistor, or transmitter outputs to suit any application.

Sleek design

Reduces solar heating...reliable and accurate

Flexibile

Available with transmitter, linitemp, RTDs, or thermistors

APPLICATIONS

Outdoor reference

SPECIFICATIONS

Wiring

	5-wire: voitage output models								
Junction Box	Weather resistant								
TEMPERATURE TRANSMITTER OPTION									
Input Power	4 to 20 mA version - Loop powered Class 2, 12 to 30 Vdc only, 30 mA max; 0-5/0-10 V versions - 12-30 Vdc/24 Vac, 50/60 Hz, 15 mA max								
Temp. Output	2-wire, loop powered Class 2, 4 to 20mA; 3-wire, 0-5 V/0-10 Vdc								
Sensor Type	Solid-state, integrated circuit (Transmitter)								

±0.5°C (±.9°F) typical

(-40 to 122 °F)*

0 to 50 °C (32 to 122 °F), -40 to 50 °C

22 AWG; 2-wire: RTD/Thermistor, 4 to 20 mA;

LINII	TEMP	ODTI	
LIII	ICIVIP	OFII	OIA

Accuracy

Ranges

LINITEMP OPTION	
Input Power	5 to 30 Vdc
Output	10mV/°C
Operating Temp	-25 to 105 °C (-13 to 221 °F)
Calibration Offset	1.5 °C (2.7 °F) typical; 2.5 °C (4.5 °F) max. at 25 °C (77 °F)
Offset over Temp.	1.8 °C (3.24 °F) typical; 3.0 °C (5.4 °F) max. over 0 to 70 °C (32 to 158 °F) range; 2.0 °C (3.6 °F) typical, 3.5 °C (6.3 °F) max. over -25 to 105 °C (-13 to 221 °F) range
RESISTIVE OPTION	
Operating Temp	-25 to 105 °C (-13 to 221 °F)

WARRANTY

Limited Warranty 5 years

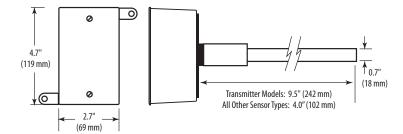
AGENCY APPROVALS



*The CE mark indicates RoHS2 compliance. Please refer to the CE Declaration of Conformity for additional details.

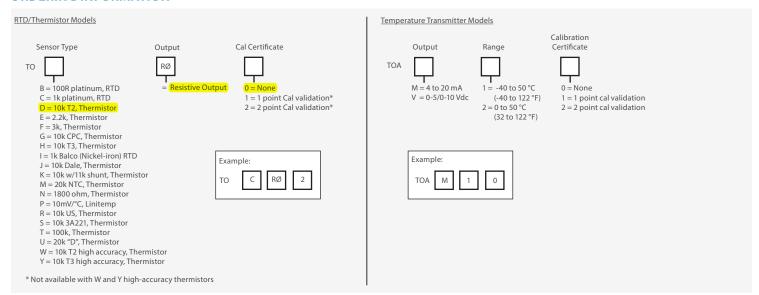
V

DIMENSIONAL DRAWING



TODR00

ORDERING INFORMATION



THERMISTOR TABLE

Cla	SS			Balco RTD	Balco RTD THERMISTOR								
Тур	e			1000 0hm	10k Type 2	10k Type 3	10k Dale	10k "G" US	20k				
Accui	racy	±0.3℃	±0.3°C	±1% @70°C	±1.0℃	±0.2°C	±0.2°C	±0.2°C	Consult				
		0.00385 curve	0.00385 curve		-50/150°C	0/70°C	-20/70°C	0/70°C	Factory				
Tem Respo	np. nse*	PTC	PTC	PTC	NTC	NTC	NTC	NTC	NTC				

^{*}PTC: Positive Temperature Coefficient *NTC: Negative Temperature Coefficient

STANDARD RTD AND THERMISTOR VALUES (Ohms Ω)

			THERMINI	JK VALUES (UIII	113 12)				
°C	°F	100 0hm	1000 0hm	1000 0hm	10k Type 2	10k Type 3	10k Dale	10k "G" US	20k NTC
-50	-58	80.306	803.06	740.46	692,700	454,910	672,300	441,200	1,267,600
-40	-40	84.271	842.71	773.99	344,700	245,089	337,200	239,700	643,800
-30	-22	88.222	882.22	806.02	180,100	137,307	177,200	135,300	342,000
-20	-4	92.160	921.60	841.00	98,320	79,729	97,130	78,910	189,080
-10	14	96.086	960.86	877.46	55,790	47,843	55,340	47,540	108,380
0	32	100.000	1,000.00	913.66	32,770	29,588	32,660	29,490	64,160
10	50	103.903	1,039.03	952.25	19,930	18,813	19,900	18,780	39,440
20	68	107.794	1,077.94	991.82	12,500	12,272	12,490	12,260	24,920
25	77	109.735	1,097.35	1,013.50	10,000	10,000	10,000	10,000	20,000
30	86	111.673	1,116.73	1,035.18	8,055	8,195	8,056	8,194	16,144
40	104	115.541	1,155.41	1,077.68	5,323	5,593	5,326	5,592	10,696
50	122	119.397	1,193.97	1,120.52	3,599	3,894	3,602	3,893	7,234
60	140	123.242	1,232.42	1,166.13	2,486	2,763	2,489	2,760	4,992
70	158	127.075	1,270.75	1,210.75	1,753	1,994	1,753	1,990	3,512
80	176	130.897	1,308.97	1,254.55	1,258	1,462	1,258	1,458	2,516
90	194	134.707	1,347.07	1,301.17	919	1,088	917	1,084	1,833
100	212	138.506	1,385.06	1,348.38	682	821	679	816.8	1,356
110	230	142.293	1,422.93	1,397.13	513	628	511	623.6	1,016
120	248	146.068	1,460.68	1,447.44	392	486	389	481.8	770
130	266	149.832	1,498.32	1,496.28	303	380	301	376.4	591
Sensor Codes		В	C	I	D	Н	J	R	М

To compute Linitemp Temperature mV reading/10 - 273.15 = Temperature in $^{\circ}$ C

Duct Mount Temperature Sensors



Sensor Housed In Probe, Protects **Against Corrosion**

FEATURES

- Cost-effective, high accuracy thermistors or RTDs available with or without a junction box
- No calibration required
- Stainless steel probe

DESCRIPTION

Veris' duct mount temperature sensors are precalibrated and housed in sturdy stainless steel probes. The devices are easy to install, durable, and highly accurate.

To compute Linitemp Temperature

mV reading/10 - 273.15 = Temperature in °C

SPECIFICATIONS



0. 2007	Warranty						
Wiring	22 AWG; 2-wire: RTD Thermistor, 4-20mA; 3-wire: Voltage output models						
7	TEMPERATURE TRANSMITTER OPTION						
Input Power	4-20mA models: Loop powered 12-30VDC only, 30mA max;						
	0-5/0-10V models: 12-30VDC/24VAC, 15mA max						
Temp Output	TF, TG, TDDA: 2-wire, loop powered 4-20mA						
	TDDA only: 3-wire, 0-5V/0-10VDC						
Sensor Type	TDDA: Solid-state, integrated circuit						
	TF, TG: Thermistor/RTD						
Transmitter	TDDA: ±0.5°C (±.9°F) typical**						
Accuracy	TF/TG: ±.1°C *						
Ranges	TDDA: Selectable 0° to 50°C (32° to 122°F) or -40° to 50°C (-40° to 122°F)**						
	TF/TG: -25° to 105°C (available ranges; model number specifies exact range)						
	LINITEMP OPTION						
Input Power	5 to 30VDC						
Output	10mV/°C						
Operating Temp	-25° to 105°C (-13° to 221°F)						
Calibration Error	1.5°C (2.7°F) typical; 2.5°C (4.5°F) max. at 25°C (77°F)***						
Error over Temp	1.8°C (3.24°F) typical; 3.0°C (5.4°F) max. over 0° to 70°C (32° to 158°F) range						
	2.0°C (3.6°F) typical, 3.5°C (6.3°F) max. over -25° to 105°C (-13° to 221°F) range						
	RESISTIVE OPTION						
RTD/Thermistor	See table below						

^{*} Add the transmitter accuracy to the RTD/thermistor accuracy to get the total product accuracy.

^{***}Room temperature error documented on each unit.

Class	Pt RTD Balco RTD THERMISTOR							1							
Туре	100 0hm	1000 0hm	1000 0hm	2.2k	3k	10k Type 2	10k Type 3	10k Dale	10k 3A221	10k "G" US	20k	20k "D"	100k	10k Type 2	10k Type 3
Accuracy	±0.3℃	±0.3°C	±1%@70°C	±0.2°C	±0.2℃	±1.0°C	±0.2°C	±0.2°C	±1.1℃	±0.2°C	Consult	Consult	Consult	±0.1°C 20/70°C	±0.1°C
	0.00385 curve	0.00385 curve		0/70℃	0/70°C	-50/150°C	0/70°C	-20/70°C	0/70°C	0/70°C	Factory	Factory	Factory	±0.2℃ 0/20℃	0/70°C
Temp. Response*	PTC	PTC	PTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC	NTC
*PTC: Positive Temperature	PTC: Positive Temperature Coefficient								High Acc	uracy					

^{*}NTC: Negative Temperature Coefficient

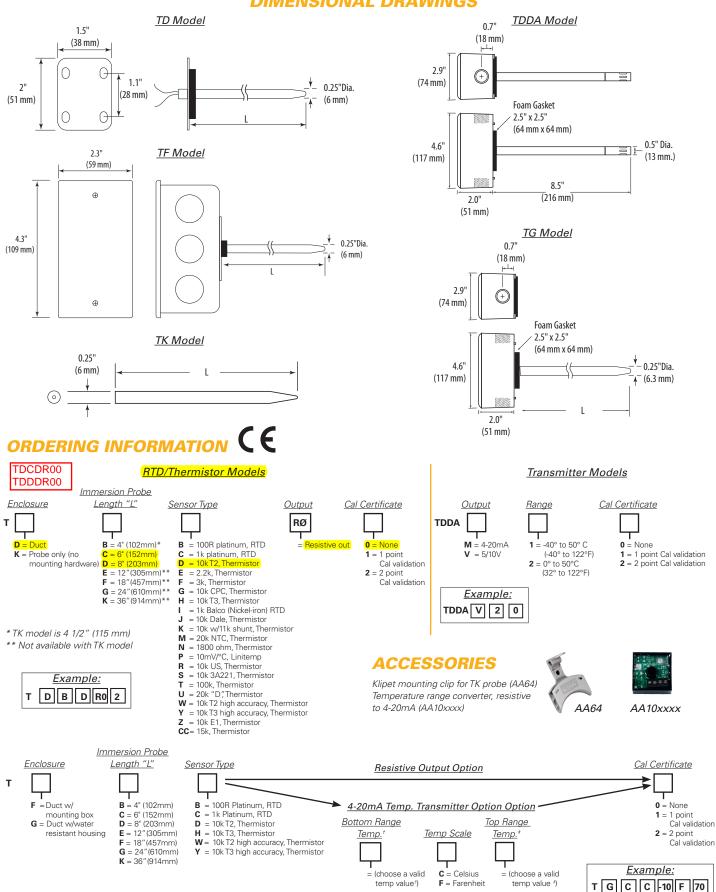
	STANDARD RTD AND THERMISTOR VALUES (Ohms Ω)																
)- l	°C	°F	100 0hm	1000 0hm	1000 0hm	2.2k	3k	10k Type 2	10k Type 3	10k Dale	10k 3A221	10k "G" US	20k NTC	20k "D"	100k	10k Type 2	10k Type 3
	-50	-58	80.306	803.06	740.46	154,464	205,800	692,700	454,910	672,300	-	441,200	1,267,600	-	-	692,700	454,910
	-40	-40	84.271	842.71	773.99	77,081	102,690	344,700	245,089	337,200	333,562	239,700	643,800	803,200	3,366,000	344,700	245,089
,	-30	-22	88.222	882.22	806.02	40,330	53,730	180,100	137,307	177,200	176,081	135,300	342,000	412,800	1,770,000	180,100	137,307
	-20	-4	92.160	921.60	841.00	22,032	29,346	98,320	79,729	97,130	96,807	78,910	189,080	220,600	971,200	98,320	79,729
	-10	14	96.086	960.86	877.46	12,519	16,674	55,790	47,843	55,340	55,252	47,540	108,380	122,400	553,400	55,790	47,843
	0	32	100.000	1,000.00	913.66	7,373	9,822	32,770	29,588	32,660	32,639	29,490	64,160	70,200	326,600	32,770	29,588
	10	32	103.903	1,039.03	952.25	4,487	5,976	19,930	18,813	19,900	19,901	18,780	39,440	41,600	199,000	19,930	18,813
	20	68	107.794	1,077.94	991.82	2,814	3,750	12,500	12,272	12,490	12,493	12,260	24,920	25,340	124,900	12,500	12,272
	25	77	109.735	1,097.35	1,013.50	2,252	3,000	10,000	10,000	10,000	10,000	10,000	20,000	20,000	100,000	10,000	10,000
	30	86	111.673	1,116.73	1,035.18	1,814	2,417	8,055	8,195	8,056	8,055	8,194	16,144	15,884	80,580	8,055	8,195
	40	104	115.541	1,155.41	1,077.68	1,199	1,598	5,323	5,593	5,326	5,324	5,592	10,696	10,210	53,260	5,323	5,593
	50	122	119.397	1,193.97	1,120.52	811.5	1,081	3,599	3,894	3,602	3,600	3,893	7,234	6,718	36,020	3,599	3,894
	60	140	123.242	1,232.42	1,166.13	561.0	747	2,486	2,763	2,489	2,486	2,760	4,992	4,518	24,880	2,486	2,763
	70	158	127.075	1,270.75	1,210.75	395.5	527	1,753	1,994	1,753	1,751	1,990	3,512	3,100	17,510	1,753	1,994
	80	176	130.897	1,308.97	1,254.55	284.0	378	1,258	1,462	1,258	1,255	1,458	2,516	2,168	12,560	1,258	1,462
	90	194	134.707	1,347.07	1,301.17	207.4	-	919	1,088	917	915	1,084	1,833	1,542	9,164	919	1,088
	100	212	138.506	1,385.06	1,348.38	153.8	-	682	821	679	678	816.8	1,356	1,134	6,792	682	821
	110	230	142.293	1,422.93	1,397.13	115.8	-	513	628	511	509	623.6	1,016	816	5,108	513	628
ĺ	120	248	146.068	1,460.68	1,447.44	88.3	-	392	486	389	388	481.8	770	606	3,894	392	486
ĺ	130	266	149.832	1,498.32	1,496.28	68.3	-	303	380	301	299	376.4	591	456	3,006	303	380
	Sensor	Codes	В	C	1	E	F	D	Н	J	S	R	М	U	T	W	Y

800.354.8556 +1 503.598.4564 HQ0001874.C 01141 www.veris.com



^{**}For RTD and thermistor accuracies and ranges, see the table below.

DIMENSIONAL DRAWINGS



 $[\]dagger$ Value must be a whole number between -25°C and 105°C (-13°F and 221°F) and must be lower than the Top Range Temp Value.

www.veris.com



HQ0001874.C 01141

[‡] Value must be a whole number between -25°C and 105°C (-13°F and 221°F) and must be higher than the Bottom Range Temp Value.

PX3 SERIES

PX3DLN01

Bluetooth® Differential Pressure/Air Velocity Transducers



The PX3 transducer can measure either air pressure or velocity with the flip of a switch. The PX3 is available in three installation configurations: duct, panel or universal. Duct and panel models have two pressure and velocity options: 0-1 in. WC / 0-3,000 ft/min or 1-10 in. WC / 3,000-6,000 ft/min with four field-selectable sub-ranges. The universal model comes in one pressure/velocity range: 0-10 in. WC / 0-7,000 ft/min with seven field-selectable sub-ranges for pressure and eight for velocity. All variants are available with and without display. The PX3 has an IP65/ NEMA 4 environmental rating and a 5-year limited warranty.

The Veris Sensors App provides the ability to connect to a device and configure a variety of field-selectable parameters remotely from a smartphone via Bluetooth wireless technology. The app allows users to create and store commonly used parameters that will reduce commissioning time and provide assurance that all parameters are properly configured with no call backs. The app can also create a trend log while connected, providing important data for troubleshooting purposes. iOS® users can download the app through the iOS App Store on their smart device. Android users can download the app through the Google Play[™] store.

Note: This product is intended for use in HVAC and building environmental control applications. It is not intended for direct medical monitoring of patients.

SPECIFICATIONS

GENERAL

Media Compatibility	Dry air or inert gas
Input Power	Three-wire Volt mode: 24 Vac ±20% or 12-30 Vdc* Two-wire mA mode: 12-30 Vdc*
Output Power	Field-selectable: 2-wire, loop-powered 4-20 mA Minimum input voltage for 4 to 20 mA operation: $250\Omegaloop = 12Vdc; 500\Omegaloop = 19Vdc$ (DC only, clipped and capped), 24 Vac/dc or 3-wire 0-5V/0-10V Minimum load resistance for Volt operation: $5k\Omega$

PRESSURE RANGES				
Pressure Range 1	Pressure Mode: Unidirectional: 0.1/0.25/0.5/1 in. WC, switch selectable Bidirectional: ±0.1/±0.25/±0.5/±1 in. WC, switch selectable Unidirectional: 25/50/100/250 Pa, switch selectable Bidirectional: ±25/±50/±100/±250 Pa, switch selectable Velocity Mode: 500/1,000/2,000/3,000 ft/min 2.5/5/10/15 m/s			

Wireless configuration

View and configure all fieldselectable parameters via smartphone. No ladder necessary for duct mount applications.

High accuracy

High accuracy digital sensor with seven selectable pressure and eight velocity sub-ranges, maintains calibration and reduces callhacks

Water-resistant

IP65/NEMA 4 housing allows for mounting in wash-down locations

Excellent tolerance to overpressure

and vibration reduces field failures

Reduce field

failures

housing

Maintenance free

High reliability sensor technology for long-term, maintenance-free operation

Circuit protection

Circuit protection avoids damage due to incorrect input wiring

APPLICATIONS

- · Duct static pressure (Pressure mode)
- Building or room pressure (Pressure mode)
- Filter status (Pressure mode)
- · Air flow measurement (Velocity mode)

Pressure Pressure Mode: Range 5 Unidirectional: 0.1/0.25/0.5/1/2.5/5/10 in. WC, switch selectable Bidirectional: ±0.1/±0.25/±0.5/±1/±2.5/±5/±10 in. WC, switch selectable Unidirectional: 25/50/100/250/500/1,000/2,500 Pa, switch selectable Bidirectional: ±25/±50/±100/±250/±500/±1,000/±2,500 Pa, switch selectable Velocity Mode: 500/1,000/2,000/3,000/4,000/5,000/6,000/7,000 ft/min 2.5/5/10/15/20/25/30/35 m/s	Pressure Range 2	Pressure Mode: Unidirectional: $1.0/2.5/5/10$ in. WC, switch selectable Bidirectional: $\pm 1.0/\pm 2.5/\pm 5/\pm 10$ in. WC, switch selectable Unidirectional: $\pm 250/500/1,000/2,500$ Pa, switch selectable Bidirectional: $\pm 250/\pm 500/\pm 1,000/\pm 2,500$ Pa, switch selectable Velocity Mode: $3,000/4,000/5,000/6,000$ ft/min $15/20/25/30$ m/s
		Unidirectional: $0.1/0.25/0.5/1/2.5/5/10$ in. WC, switch selectable Bidirectional: $\pm 0.1/\pm 0.25/\pm 0.5/\pm 1/\pm 2.5/\pm 5/\pm 10$ in. WC, switch selectable Unidirectional: $25/50/100/250/500/1,000/2,500$ Pa, switch selectable Bidirectional: $\pm 25/\pm 50/\pm 100/\pm 250/\pm 500/\pm 1,000/\pm 2,500$ Pa, switch selectable Velocity Mode: $500/1,000/2,000/3,000/4,000/5,000/6,000/7,000$ ft/min

CENICOD

SENSON	
Response Time	Standard: T95 in 20 sec, Fast: T95 in 2 sec, DIP switch selectable
Mode	Unidirectional or bidirectional, DIP switch selectable
Display (option)	Pressure mode: Signed 3-1/2 digit LCD, indicates pressure, overrange indicator Velocity mode: Signed 4-1/2 digit LCD, indicates velocity, overrange indicator
Proof Pressure	1.44 psid (9,953 Pa)
Burst Pressure	4.33 psid (29,860 Pa)
Pressure Mode Accuracy	±1% FS (combined linearity and hysteresis)
Velocity Mode	±90 ft/min (±0.45 m/s) plus 5% of measured value**

Note: The Bluetooth word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. Any use of such marks is under license.



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SPECIFICATIONS (CONT.)

TEMPERATURE EFFECT

Temperature Effect	0.00048 in. WC/°C (0.12 Pa/°C) relative to 25 °C, 0 to 50 °C (32 to 122 °F)
Zero Drift (1-year)****	+/-5.0 Pa (+/-0.020 in WC) max.
Zero Adjust	Pushbutton auto-zero and digital input (2-pos terminal block)
Operating Env.	-20 to 60 °C (-4 to 140 °F)***
Altitude of Operation	0 to 3,000 m
Humidity Range	100% RH, non-condensing
Mounting Location	For indoor or outdoor use (display will not function below 0 °C (32 °F))
Fittings	Brass barb; 0.24" (6.1 mm) o.d.
Bluetooth Frequency Range	2.402 to 2.480 GHz (Bluetooth version 4.2, enabled by DIP switch)
Environmental Rating	IP65, NEMA 4
Flammability Rating	UL 94 5VA fire retardant polycarbonate, plenum rated

WARRANTY

Limited	5 years
Warranty	

AGENCY APPROVALS

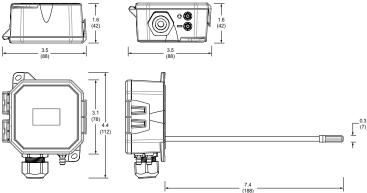


EMC Conformance: EN 61000-6-3 and A1, Class B, EN 61000-6-1 and EN61326-1. * Class 2/II power source.

- ** For measured values between 200 and 7,000 ft/min (1 and 35 m/s).
- *** Display will not function below 0 °C (32 °F).
- **** Can be compensated for using the Zero Reset function.

DIMENSIONAL DRAWING





SMART PHONE APP

The Veris Sensors App allows for remote viewing and adjustment of settings. A great tool for reducing commissioning time.



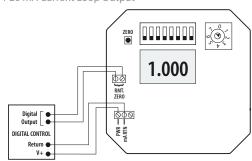






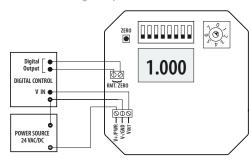
WIRING DIAGRAM

2-wire, 4-20 mA Current Loop Output



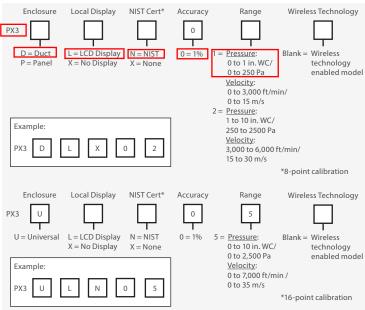
WIRING DIAGRAM

3-wire, 0-5 V/0-10 V Voltage Output



ORDERING INFORMATION





ACCESSORIES

VFXP Series Air Velocity Measurement Probe* Velocity Pitot Tubes, 8-5/8", 12-5/8", 18-5/8" (AA18, AA19, AA20)* Static-04 Pick-up - 4" Duct Static Pickup Probe (AA06) Static-08 Pick up - 8" Duct Static Pickup Probe) (AA07) Wall Plate Remote Pickup (AA56)

*For use with the PX3P (panel) and PX3U



(universal) models in Velocity mode only.

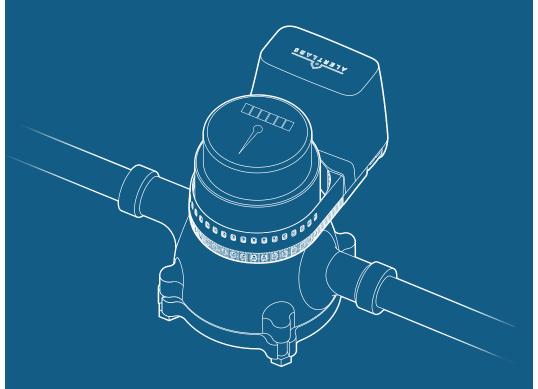






FLOWIE-O

Water Flow Sensor



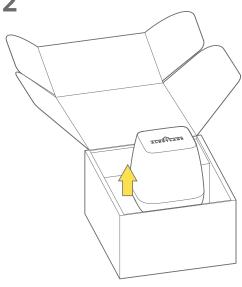
Add sensor and see install instructions at app.alertlabs.com

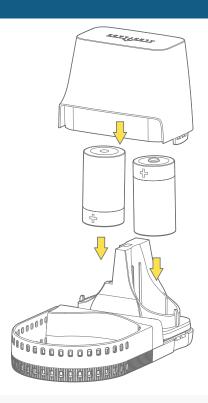


Add sensor and see install instructions at app.alertlabs.com (add Sensor Relay first)



















FLOODIE

Quick-start Guide Guide de démarrage rapide



BEFORE YOU START

Please install any orange- coloured Alert Labs sensor first (and at the same property). This sensor needs to talk to it.

AVANT DE COMMENCER

Veuillez d'abord installer votre détecteur Alert Labs de couleur orange (sur la même propriété). Ce détecteur doit communiquer avec lui.



Remove the pull tab. Once your Floodie connects, the light will turn green for 20 seconds and then turn off.

● RED	No signa
GREEN (20s)	Good signa
BLUE	.Water detecte
OFF	Battery save



Enlevez la languette. Lorsque votre Floodie est connecté, le voyant sera vert pendant 20 secondes, puis il s'éteindra.

ROUGE	Aucun signal
VERT (20s)	Bon signal
O BLEU	Eau détectée
O ÉTEINT Éd	onomiseur de pile



2 Test it out. Check for a blue light as you hold a kitchen knife across both metal contacts at the same time to simulate a flood.

Faites un test. Reliez les deux contacts métalliques avec un couteau de cuisine pour simuler un dégât d'eau; le voyant devrait s'allumer en bleu.



Remove the installation sticker. Place your Floodie on the floor or stick it to the wall. Keep the metal contacts against the floor. Enlevez l'autocollant d'installation. Placez votre Floodie sur le sol ou collez-le au mur. Assurez-vous de placer les contacts métalliques contre le sol



4 Sign-in at alertlabs.com or on the Alert Labs App.

Select • Add Sensor to register your Floodie with this number.

Connectez-vous sur le site alertlabs.com ou avec l'appli Alert Labs.

Choisissez **Add Sensor** pour enregistrer votre Floodie à l'aide de ce numéro.

Visit alertlabs.com/support for more information. Pour en savoir plus, visitez alertlabs.com/support



FCC compliance statement at alertlabs.com/FCC. FCC label in battery compartment.

Déclaration de conformité de la FCC disponible à l'adresse alertlabs.com/FCC. L'étiquette de la FCC apposée dans le compartiment des piles.



SECTION D

SUB-SECTION 3

DAMPERS & ACTUATORS





3960 | 3961 | 3965







3961 Quick 'N' Stall **Duct-Mount**

3965 Flanged-to-Duct

STANDARD CONSTRUCTION

UMAVENT

Depth: 4" (102 mm) - 3960/3965 5.25" (133 mm) - 3961

Depth with Blades Open: 6.125" (156 mm) Minimum Height: 6" (152 mm) - Single Blade 15" (381 mm) - Multiple Blade Maximum Panel Width: 48" (1219 mm)

Maximum Panel Height: 60" (1524 mm)
Maximum Panel Size: 20 Sq.Ft.

Maximum System Pressure: 4" w.g. (1 kPa)
Operating Temperature Range: -40° to +180° F

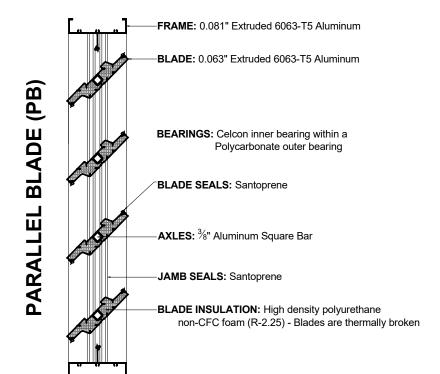
Standard Finish: Mill

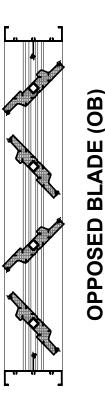
Standard Motor Installation: 6" Side Shaft Direct Drive

Linkage: Concealed in Frame (3960/3961) Outside of Frame (3965)

OPTIONS/ACCESSORIES

- **Factory Supplied Actuators**
- End Switch for signaling peripheral devices
- **Jack Shaft**
- **Hand Quadrants**
- Chain Operation for manual operation spring closed
- Silicone Blade and Jamb Seals Specify 3900SI
- Salt Water Construction Specify 3900 SW
- Available finish: Clear Anodized
- Frame Insulation: Polystyrene Insulation





DWG. 3960-3961-3965

JUNE 2023





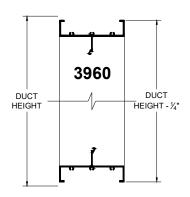


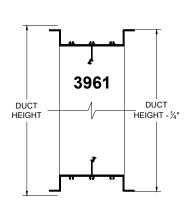


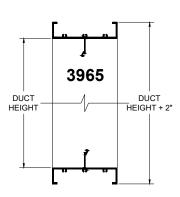
3960 - Duct-Mount

3961 – Duct-Mount

3965 - Flanged-to-Duct



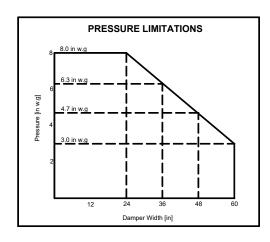




For Duct-Mount Frame specify: 3960 / 3961 For Flanged-to-Duct Frame specify: 3965

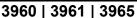
RECOMMENDED SPECIFICATION

Furnish and install control damper models 3960 / 3961 / 3965 as manufactured by Alumavent, Alliston Ontario. Dampers must be licensed to bear the AMCA seal. Blades shall be 0.063" (1.60~mm) thick, thermally broken with high density Polyurethane non-CFC injected foam insulation. Frame shall be 0.081" (2.06~mm) thick. Axles shall be 0.375" (9.53~mm) thick, aluminum square bar. Blade and jamb seals shall be Santoprene. Linkage is concealed in frame for models 3960 / 3961 and outside of frame for model 3965. Air leakage through a 36" x 36" (914~mm x 914~mm) damper shall not exceed 3 CFM/ft² (15.2~L/s/m²) against 1" w.g (0.25~kPa) static pressure at standard air (as per AMCA testing). Operating temperature range shall be -40° to +180° F.

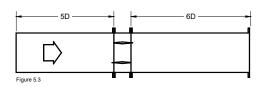


DWG. 3960-3961-3965

JUNE 2023







3900 SERIES CONTROL					
DAMPER PRESSURE DROP					
Velocity	Pressure Drop				
[FPM]	[in. w.g]				
12x12 (inches)					
553.6	0.044				
891.4	0.119				
1051.9	0.161				
2021.4	0.554				
2221.7	0.740				
24x24	(inches)				
536.8	0.014				
776.9	0.025				
1101.1	0.056				
2066.3	0.182				
2530.1	0.272				
36x36	(inches)				
500.4	0.01				
750.6	0.021				
1006.1	0.036				
2019.5	0.161				
2526.6	0.249				
12x48	(inches)				
545	0.008				
772.8	0.018				
1095.3	0.035				
2055.5	0.126				
2519.2	0.187				
48x12	(inches)				
544.6	0.029				
772.2	0.064				
1094.4	0.1228				
2053.1	0.439				
2516	0.661				

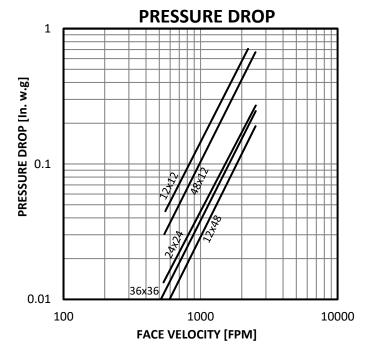
DEFINITION OF LEAKAGE CLASSIFICATION					
	LEAKAGE ft ³ /min/ft ² (L/s/m ²)				
CLASS	1" (0.25 kPa)	4" (1.0 kPa)	8" (2.0 kPa)	12" (3.0 kPa)	
1A	3 (15.2)	N/A	N/A	N/A	
1	4 (20.3)	8 (40.6)	11 (55.9)	14 (71.1)	
2	10 (50.8)	20 (102)	28 (142)	35 (178)	
3	40 (203)	80 (406)	112 (569)	140 (711)	

3900 SERIES CONTROL DAMPER LEAKAGE RATING				
DAMBED SIZE	PRESSURE in w.g (kPa)			
DAMPER SIZE Width x Height	1" (0.25 kPa)	4" (1.0 kPa)	8" (2.0 kPa)	
12"x 12" (305x305 mm)	1A	1	1	
24"x 24" (610x610 mm)	1	1	1	
36"x 36" (914x914 mm)	1A	1	1	
12"x 48" (305x1219 mm)	1A	1	1	
48"x 12" (1219x305 mm)	1A	1	1	
36"x 48" (914x1219 mm)	1A	1	1	

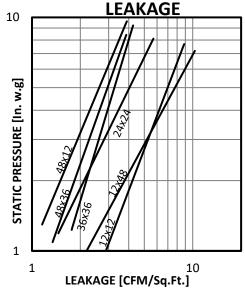
CERTIFIED RATINGS

Alumavent Inc. certifies that the 3900 Series Insulated Control Dampers shown here are licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings and air leakage ratings.





Pressure drop tested to AMCA Standard 500-D, per set-up Figure 5.3. Data corrected to standard air density of 0.075 lbs./ft. $^{\rm 3}$.



Leakage test was conducted in accordance with AMCA Standard 500-D, Fig.5.4A. Data are based on a torque of 6 in.-lbs./sq.ft (.87 N•m) to close and seat the damper during the test. Air leakage is based on operation between 0°C-49°C (32°F-120°F). Data corrected to standard air density of 0.075 lbs./ft.³.

DWG. 3960-3961-3965

JUNE 2023



Basic Fail-Safe modulating actuator for controlling dampers in typical commercial HVAC applications.

- Torque motor 22 in-lb [2.5 Nm]
- Nominal voltage AC/DC 24 V
- Control Modulating
- Position feedback 2...10 V







TFB24-SR



Technical data

lectri		4-	
ecu	Lai	ud	ILd

Nominal voltage	AC/DC 24 V
Nominal voltage frequency	50/60 Hz
Nominal voltage range	AC 19.228.8 V / DC 21.628.8 V
Power consumption in operation	2 W
Power consumption in rest position	1 W
Transformer sizing	4 VA
Electrical Connection	18 GA plenum cable, 1 m, with 1/2" NPT conduit connector
Overload Protection	electronic throughout 095° rotation
Electrical Protection	actuators are double insulated

Functional data

Torque motor	22 in-lb [2.5 Nm]
Operating range Y	210 V
Operating range Y note	420 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)
Input impedance	100 k Ω for 210 V (0.1 mA), 500 Ω for 420 mA
Position feedback U	210 V
Position feedback U note	Max. 0.5 mA
Direction of motion motor	selectable with switch 0/1
Direction of motion fail-safe	reversible with cw/ccw mounting
Angle of rotation	Max. 95°
Angle of rotation note	adjustable with mechanical stop
Running Time (Motor)	95 s /
Running time motor note	constant, independent of load
Running time fail-safe	<25 s @ -4122°F [-2050°C], <60 s @ -22°F [-30°C]
Noise level, motor	35 dB(A)
Noise level, fail-safe	62 dB(A)
Position indication	Mechanical

Safety data

Power source UL	Class 2 Supply
Degree of protection IEC/EN	IP42
Degree of protection NEMA/UL	NEMA 2
Enclosure	UL Enclosure Type 2
Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU
Quality Standard	ISO 9001
UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC
Ambient humidity	Max. 95% RH, non-condensing
Ambient temperature	-22122°F [-3050°C]
Storage temperature	-40176°F [-4080°C]



	lechnical data sheet		TFB24-SR
Safety data	Servicing	maintenance-free	_
Weight	Weight	1.8 lb [0.83 kg]	
Materials	Housing material	UL94-5VA	

Footnotes †Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 3

Product features

Application

For fail-safe, modulating control of dampers in HVAC systems. Actuator sizing should be done in accordance with the damper manufacturer's specifications. The actuator is mounted directly to a damper shaft from 1/4" up to 1/2" in diameter by means of its universal clamp, 1/2" shaft centered at delivery. A crank arm and several mounting brackets are available for applications where the actuator cannot be direct coupled to the damper shaft. The actuator operates in response to a 2 to 10 VDC, or with the addition of a 500Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. A 2 to 10 VDC feedback signal is provided for position indication.

Operation

The TF series actuators provide true spring return operation for reliable fail-safe application and positive close-off on air tight dampers. The spring return system provides consistent torque to the damper with, and without, power applied to the actuator. The TF series provides 95° of rotation and is provided with a graduated position indicator showing 0 to 95°. The TF uses a brushless DC motor which is controlled by an Application Specific Integrated Circuit (ASIC) and a microprocessor. The microprocessor provides the intelligence to the ASIC to provide a constant rotation rate and to know the actuator's exact fail-safe position. The ASIC monitors and controls the brushless DC motor's rotation and provides a digital rotation sensing function to prevent damage to the actuator in a stall condition. The actuator may be stalled anywhere in its normal rotation without the need of mechanical end switches. Power consumption is reduced in holding mode.

Safety Note: Screw a conduit fitting into the actuator's bushing. Jacket the actuator's input and output wiring with suitable flexible conduit. Properly terminate the conduit in a suitable junction box.

Typical specification

Spring return control damper actuators shall be direct coupled type which require no crank arm and linkage and be capable of direct mounting to a shaft up to a 1/2" diameter and center on a 1/2" shaft. The actuator must provide modulating damper control in response to a 2 to 10 VDC or, with the addition of a 500Ω resistor, a 4 to 20 mA control input from an electronic controller or positioner. The actuator must be designed so that they may be used for either clockwise or counter clockwise fail-safe operation. Actuators shall use a brushless DC motor controlled by a microprocessor and be protected from overload at all angles of rotation. Run time shall be constant, and independent of torque. A 2 to 10 VDC feedback signal shall be provided for position feedback. If required, one SPDT auxiliary switch shall be provided having the capability of being adjustable. Actuators with auxiliary switch must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. Actuators shall be cULus listed, have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.



Accessories

Electrical accessories	Description	Туре
	DC Voltage Input Rescaling Module	IRM-100
	Auxiliary switch, mercury-free	P475
	Auxiliary switch, mercury-free	P475-1
	Signal simulator, Power supply AC 120 V	PS-100
	Convert Pulse Width Modulated Signal to a 210 V Signal for Belimo	PTA-250
	Proportional Actuators	
	Positioner for wall mounting	SGA24
	Positioner for front-panel mounting	SGF24
	Cable conduit connector 1/2"	TF-CC US
	Resistor, 500 Ω , 1/4" wire resistor with 6" pigtail wires	ZG-R01
	Resistor kit, 50% voltage divider	ZG-R02
	Transformer, AC 120 V to AC 24 V, 40 VA	ZG-X40
Mechanical accessories	Description	Туре
	Shaft extension 170 mm ø10 mm for damper shaft ø616 mm	AV6-20
	Position indicator	IND-TF
	for TFB(X)	
	Shaft clamp	K8 US
	for TFB(X)	
	Ball joint suitable for damper crank arm KH8 / KH10	KG10A
	Ball joint suitable for damper crank arm KH8	KG6
	Ball joint suitable for damper crank arm KH8	KG8
	Damper crank arm Slot width 8.2 mm, for ø1.05"	KH12
	Damper crank arm Slot width 6.2 mm, clamping range ø1018 mm	KH6
	Damper crank arm Slot width 8.2 mm, clamping range ø1018 mm	KH8
	TFB(X) crankarm with 5/16" slot.	KH-TF US
	TFB(X) crankarm with 1/4" slot.	KH-TF-1 US
	Screw fastening kit	SB-TF
	Push rod for KG10A ball joint 36" L, 3/8" diameter	SH10
	Push rod for KG6 & KG8 ball joints (36" L, 5/16" diameter).	SH8
	Anti-rotation bracket TF/NKQ/AM/NM/LM.	TF-P
	Wrench 0.32 in and 0.39 in [8 mm and 10 mm]	TOOL-06
	Angle of rotation limiter, with end stop	ZDB-TF
	Mounting bracket for TFB(X)	ZG-113
	Damper clip for damper blade, 3.5" width.	ZG-DC1
	Damper clip for damper blade, 6" width.	ZG-DC2
	Shaft extension for 3/8" diameter shafts (4" L).	ZG-LMSA-1
	Shaft extension for 1/2" diameter shafts (5" L).	ZG-LMSA-1/2-5
	TFB(X) crankarm adaptor kit (includes ZG-113).	ZG-TF112
	TFB(X) crankarm adaptor kit (T bracket included).	ZG-TF2
	Mounting kit	ZG-TF3
	for TFB(X)	
	Weather shield 13x8x6" [330x203x152 mm] (LxWxH)	ZS-100
	Baseplate, for ZS-100	ZS-101
	Weather shield 406x213x102 mm [16x8-3/8x4"] (LxWxH)	ZS-150

Electrical installation



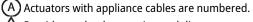
Marning! Live electrical components!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.



Meets cULus requirements without the need of an electrical ground connection.

Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.



A Provide overload protection and disconnect as required.



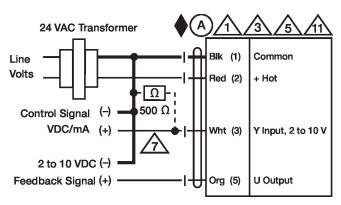
Actuators may also be powered by DC 24 V.

6 Only connect common to negative (-) leg of control circuits.

 Λ A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.

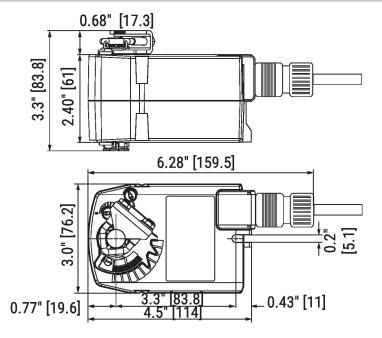
Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.

One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup, etc.



2...10 V / 4...20 mA Control

Dimensions





SECTION D

SUB-SECTION 4

OTHERS & MISC.





⚠ △ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- · This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- · Turn off all power supplying equipment before working on or inside the equipment.
- Use a properly rated voltage sensing device to confirm power is off.
 DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION
- · Only install this product on insulated conductors.

Failure to follow these instructions will result in death or serious injury.

A qualified person is one who has skills and knowledge related to the construction and operation of this electrical equipment and the installation, and has received safety training to recognize and avoid the hazards involved.

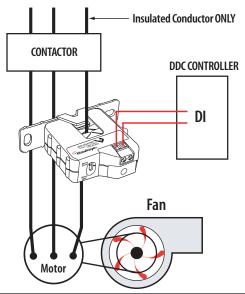
NEC2009 Article 100

No responsibility is assumed by Veris Industries for any consequences arising out of the use of this material.

NOTICE

- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- The installer is responsible for conformance to all applicable codes.
- Mount this product inside a suitable fire and electrical enclosure.

WIRING EXAMPLE



SPECIFICATIONS

Sensor Power	Induced from monitored conductor
Amperage Range	0.15 to 200A Continuous
Status Output Ratings	N.O. 1.0A@30VAC/DC not polarity sensitive
Insulation Class	600VAC RMS (UL), 300VAC RMS (CE)
Setpoint	Fixed at 0.15 A max. (60 Hz)
Frequency	50/60 Hz
Temperature Range	-15° to 40°C (5° to 104°F)
Humidity Range	10-90% RH non-condensing
Off State Resistance	Open switch represents 1+ MΩ
On State Resistance	Closed switch represents <200 mΩ
Terminal Block Wire Size	14 to 24 AWG (2.1 to 0.2 mm ²)
Terminal Block Torque	3.5 to 4.5 in-lb (0.4 to 0.5 N-m)
Agency Approvals	UL508, CE: EN61010-1
Installation Category	Cat. III, pollution degree 2

For CE compliance, conductor shall be insulated according to IEC 61010-1. The product design provides for functional insulation only. Listed for use with 75°C insulated conductors.

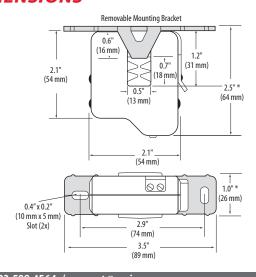
INSTALLATION



Disconnect and lock out power to the enclosure containing the condustor to be monitored.

- 1. Locate a mounting surface for the removable mounting bracket that will allow the monitored conductor to pass through the center window when it is installed and that will keep the product at least ½" (13 mm) from any uninsulated conductors. Determine cable routing for the controller connection, allowing wiring to reach the mounting location.
- 2. Drill holes to mount the bracket to the chosen surface using the included screws.
- Wire the output connections between the sensor and the controller (solid-state contact).
- Snap the sensor over the wire to be monitored clip the assembly to the mounting bracket.
- 5. Secure the enclosure and reconnect power.

DIMENSIONS





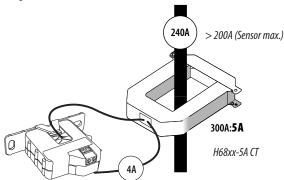
OPERATION

The H600 is a current-sensitive switching device that monitors current (amperage) in the conductor passing through it. A change in amperage in the monitored conductor that crosses the switch (setpoint) threshold plus the hysteresis value causes the resistance of the FET status output to change state, similar to the action of a mechanical switch. In this model, the setpoint is fixed at 150 mA AC max. (200 mA for 50 Hz operation). The status output is suitable for connection to building controllers or other appropriate data acquisition equipment operating at up to 30 volts. The H600 requires no external power supply to generate its output.

NOTES

For load currents greater than sensor maximum rating:

Use a 5 Amp (H68xx series) current transformer (CT) as shown. This technique can be combined with wrapping (see below) when added range is desired for a low current load on a high current source.





DANGER: 5A CTs can present hazardous voltages. Install CTs in accordance with manufacturer's instructions. Terminate the CT secondary before applying current.

CAUTION

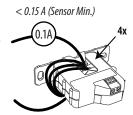
RISK OF EQUIPMENT DAMAGE

- Derate the product's maximum current for the number of turns through the sensing window using the following formula. Rated Max. Amps ÷ Number of Turns = Max. monitored Amps
- e.g.: 100A ÷ 4 Turns = 25 Amps max. in monitored conductor
- Failure to follow these instructions can result in overheating and permanent equipment damage.

For load currents less than sensor minimum rating:

Wrap the monitored conductor through the center window and around the sensor body to produce multiple turns through the center window. This increases the current measured by the transducer.

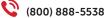
Program the controller to account for the extra turns. e.g., if four turns pass through the sensor (as shown) divide the normal controller reading by 4.



TROUBLESHOOTING

Problem	Solution
No Reading at Controller	Check for control voltage at sensor (<30V) Check for amperage in monitored conductor (> 0.15A @ 60Hz) Assure that sensor core mating surfaces are clean and that the core clamp is completely closed







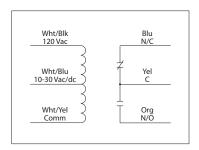


10 AMP PILOT CONTROL RELAY

Functional Devices, Inc.

RIBU1C

Enclosed Relay 10 Amp SPDT with 10-30 Vac/dc/120 Vac Coil

















SPECIFICATIONS

Relays & Contact Type: One (1) SPDT Continuous Duty Coil Expected Relay Life: 10 million cycles minimum mechanical

Operating Temperature: -30 to 140° F

Humidity Range: 5 to 95% (noncondensing)

Operate Time: 20ms

Relay Status: LED On = Activated

Dimensions: 1.70" x 2.80" x 1.50" with .50" NPT nipple

Wires: 16", 600V Rated

Approvals: UL Listed, UL916, UL864, C-UL

California State Fire Marshal, CE, RoHS

Housing Rating: UL Accepted for Use in Plenum, NEMA 1

Gold Flash: Yes Override Switch: No

Contact Ratings:

10 Amp Resistive @ 277 Vac 10 Amp Resistive @ 28 Vdc 480 VA Pilot Duty @ 240-277 Vac 480 VA Ballast @ 277 Vac Not rated for Electronic Ballast 600 Watt Tungsten @ 120 Vac (N/O) 240 Watt Tungsten @ 120 Vac (N/C) 1/3 HP @ 120-240 Vac (N/O) 1/6 HP @ 120-240 Vac (N/C) 1/4 HP @ 277 Vac (N/O) 1/8 HP @ 277 Vac (N/C)

Coil Current:

33 mA @ 10 Vac 13 mA @ 10 Vdc 35 mA @ 12 Vac 15 mA @ 12 Vdc 46 mA @ 24 Vac 18 mA @ 24 Vdc 55 mA @ 30 Vac 20 mA @ 30 Vdc 28 mA @ 120 Vac

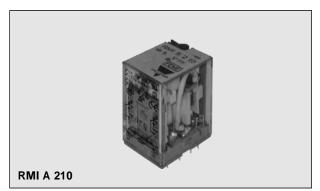
Coil Voltage Input:

10-30 Vac/dc ; 120 Vac ; 50-60 Hz Drop Out = 2.1 Vac / 2.8 VdcPull In = 9 Vac / 10 Vdc

Midi Industrial Relay Type RMI. 2-10 10A Monostable







- · High switching power
- Small size
- 2 poles configuration
- AC coils 6 to 230VAC
- DC coils 5 to 110VDC
- 3750VAC dielectric coil to contacts
- · Standard with LED, Push with arm and Flag
- IP 40

Type

- · Compliant with the CE low voltage directive
- TÜV, UL, CSA, IMQ approved

Product Description

The RMI relay (relay miniindustrial) can be used for a wide range of industrial applications.

Available in 2 change-over contact configuration. PCB, solder and plug-in terminals.

Approvals

(











Ordering Key

RMIA 21012DC/1

Terminal version
Contact code
Coil code
Options

Terminal version: A = Soldering terminals B = PCB terminals

Box content: 25 relays

Box size: (W 125 x D 165 x H 50) mm Weight: 850g (W 4.92 x D 6.50 x H 1.97) inches Weight: 29.98oz

Type Selection

Contact configuration		Contact rating	Contact code
2 change over contacts (DPDT {2-form C})		10A	210

Coil Characteristics, DC 0.9W

Coil Code	Newstern	@ +20°C(+68°F)		
	Nominal voltage VDC	Pick-up voltage VDC	Drop-out voltage DVC	Coil resistance Ω
5VDC	5	4.0	0.5	27.5 ±10%
6VDC	6	4.8	0.6	40.0 ±10%
12VDC	12	9.6	1.2	160.0 ±10%
24VDC	24	19.2	2.4	650.0 ±10%
48VDC	48	38.4	4.8	2600.0 ±15%
60VDC	60	48.0	6.0	11000.0 ±15%
110VDC	110	88.0	11.0	11000.0 ±15%



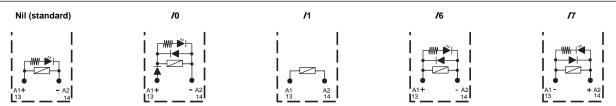
Coil Characteristics, AC 1.2VA

		@ +20°C(+68°F)		
Coil Code	Nominal voltage VAC	Pick-up voltage VAC	Drop-out voltage VAC	Coil resistance Ω
6VAC	6	4.8	1.8	40.0 ±10%
12VAC	12	9.6	3.6	160.0 ±10%
24VAC	24	19.2	7.2	650.0 ±10%
48VAC	48	38.4	14.4	2600.0 ±10%
115/120VAC	110-120	96.0	36.0	11000.0 ±15%
230VAC	220-240	176.0	66.0	11000.0 ±15%

Options

Nil = Standard with Push Arm -LED (A1+) (A2-)- Flag /4 = Plated Contacts Au > 5µm /0 = Diode against polarity reverse + free-wheeling Diode (A1+) (A2-) /5 = Flash Gilded Contacts Au > 1µm /1 = Without LED /6 = Free-Wheeling Diode (A1+) (A2-) /2 = Without Flag /7 = Free-Wheeling Diode (A1-) (A2+)

/2 = Without Flag /3 = Without Push Arm



Contact Characteristics

Contact rating (with resistive load) UL rating	10A - 250VAC / 30VDC 10A - 250VAC / 30VDC	Minimum Current Min. applicable load /4 and /5 versions	5mA @ 12VDC 1mA @ 6VDC
3	1/3HP @ 240VAC	Max. switch. voltage	250VAC / 30VDC @ 10A
Max. rating	10A - 250VAC / 30VDC	Max. switch. power	2500VA / 300W @ 10A
Material	AgCe	Life	
Initial contact resistance	50m Ω (@ 1A 6VDC)	Electrical life Mechanical life	1x10 ⁵ cycles (1800 Ops/h) 1x10 ⁷ cycles (1800 Ops/h)

Insulation

Test Voltage (1 min.) Between coil and contacts Between open contacts Contact/Contact Initial insulation resistance 3750VAC Vr.m.s 750VAC Vr.m.s 1250VA Vr.m.s 1.000MΩ - 500VAC	Insulation according to EN61810-5 Rated insulation voltage Impulsive insulation voltage Pollution degree Overvoltage category	250V 3.6kV 2
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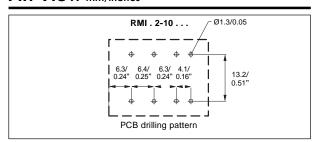
General Data

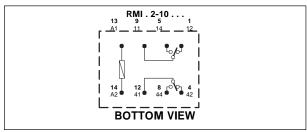
Nominal coil power	0.9W DC / 1.2VA AC	Shock resistance	
Operating time (At nominal voltage)	20ms max.	Functional Destructive	100m/s²/10g 11ms 1000m/s²/100g
Release time (At nominal voltage)	20ms max.	Humidity	35% to 95% RH non-condensing
Ambient temperature	-55° to +70°C (-67° to +158°F)	Terminals	PCB or Soldering Lugs (Plug-in)
Vibration resistance Construction	10 to 55Hz 1.0mm (0.04") Dust cover	Weight	~37g (~1.30oz)



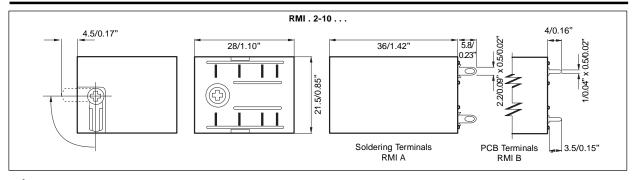
Pin View mm/inches

Wiring Diagram



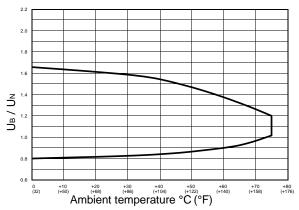


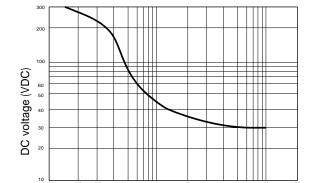
Dimensions mm/inches



Diagrams

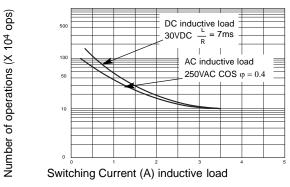
1 Coil Operating Range

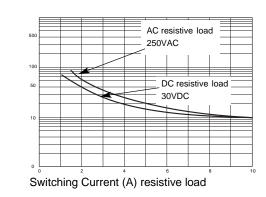




2 Max. DC load breaking capacity

3 Electrical life





DC Current(A)

Bases and Sockets

DIN rail sockets codes are **ZMI2NA**, **ZMI4NA**, **ZMI2SA**, **ZMI4SA**, **ZMI2GA**, **ZMI4GA**, **ZR08** and **ZDM14A** details and specifications from page 45 to 49 of industrial relays catalogue.

Number of operations (X 104 ops)

PCB sockets codes are ZC15/2A, ZC15/4A, ZC15/2 and ZC15/4 details and specifications on page 51 of industrial relays catalogue.

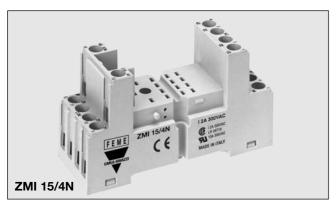
Specifications are subject to change without notice. Pictures are just an example. For special features and/or customization, please ask to our sales network

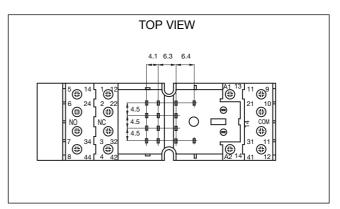


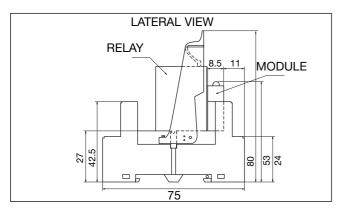
ZMI 15/2N

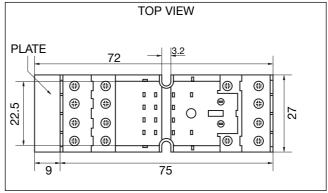
Sockets for RMI Relays

ZMI 15/2N and ZMI 15/4N









Contact Characteristics

Plastic Material	PA6 +GF - V2
Contact Material	Cu Zn33
Contact surface	6µm tin plated
Terminals	8µm zinc plated steel
Screws	5µm nickel plated 8.8 steel
CSA Rating	12A 300VAC
UL Rating	12A 150VAC
UL Rating	10A 300VAC

Operating temp.	-40 to +85°C
Insulation voltage	>2.5kV
Creepage and Clearance	Gr.C250, VDE 0110b / 2.79
Maximum Screw torque	0.8Nm
Max Wire section	
Flex / compact wire	2 x 2.5mm ² / AWG14
Cable End	2 x 1.5mm ²
Terminal Protection degree	P20 (EN60529)
Approvals	CE, UL, CSA

Ordering code 2 contacts version for RMI 2 10 xxx : ZMI2N Ordering code 4 contacts version for RMI 4 5 xxx : ZMI4N

Box content: 10 sockets, 10 labels Min Orderable Q.ty: 1box (10 pieces)

Box size: W 145 x D 80 x H 95 Weight: 650g

Optional Accessories (to be ordered separately if required)

Hold down spring6.73.00.61.4Min. Orderable Q.ty:1 bag (10 pieces)Metal Hold Down spring6.73.0057.0Min. Orderable Q.ty:1 bag (10 pieces)Labels6.73.00.61.3Min. Orderable Q.ty:1 bag (20 pieces)

Modules See related list page XXX



1085039

https://www.phoenixcontact.com/us/products/1085039

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Narrow Ethernet switch, five RJ45 ports with 10/100 Mbps on all ports, automatic data transmission speed detection, autocrossing function, and QoS

Your advantages

- RJ45 ports support a transmission speed of 10/100 Mbps
- · QoS-prioritized (Quality of Service) messages
- · Local diagnostic indicators with LEDs
- · Enhanced traffic prioritization for automation protocols
- PROFINET PTCP filter for reliable communication on PROFINET networks
- Energy-efficient Ethernet in accord. with IEEE 802.3az
- · PROFINET Conformance Class A for real-time data exchange
- Auto negotiation and autocrossing detection simplifies installation and setup

Commercial data

Item number	1085039
Packing unit	1 pc
Minimum order quantity	1 pc
Sales key	DN20
Product key	DNN116
GTIN	4055626834320
Weight per piece (including packing)	210.13 g
Weight per piece (excluding packing)	131 g
Customs tariff number	85176200
Country of origin	TW



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Technical data

Dimensions

Width	22.5 mm
Height	117 mm
Depth	84 mm

Notes

Note on application

Note on application	Only for industrial use
Utilization restriction	

EMC note

download area

EMC: class A product, see manufacturer's declaration in the

Polycarbonate fiber reinforced

DIN rail mounting

Material specifications Housing material

Mounting type

Mounting			

Interfaces

Ethernet (RJ45)

Number of interfaces	5
Connection method	RJ45
Note on the connection method	Auto negotiation and autocrossing
Transmission speed	10/100 Mbps
Transmission physics	Ethernet in RJ45 twisted pair
Transmission length	100 m (per segment)
Signal LEDs	Data receive, link status
No. of channels	5 (RJ45 ports)

Product properties

Product type	Switch
Product family	Unmanaged Switch 1000
MTTF	167.2 Years (MIL-HDBK-217F standard, temperature 25°C, operating cycle 100%)
	1627 Years (SN 29500 standard, temperature 25°C, operating cycle 21%)
	1526 Years (Telcordia standard, 25°C temperature, 21% operating cycle (5 days a week, 8 hours a day))
Switch functions	
Basic functions	Unmanaged switch

Autonegotiation



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	Store and Forward switching mode
PROFINET conformance class	Conformance-Class A
MAC address table	2k
Status and diagnostic indicators	LEDs: U _S , link and activity per port
Additional functions	100 BASE-TX/100BASE-FX (IEEE 802.3u)
	Quality of Service (QoS) prioritization (IEEE 802.1p)
	Energy-efficient Ethernet (IEEE 802.3az)
	10Base-T (IEEE 802.3)
ecurity functions	
Basic functions	Unmanaged switch
	Autonegotiation
	Store and Forward switching mode
etrical properties	
Maximum power dissipation for nominal condition	0.99 W (at 24 V DC)
Transmission medium	Copper
pply	
Supply voltage (DC)	24 V DC
Supply voltage (AC)	24 V AC (50/60 Hz)
Supply voltage range	9 V DC 32 V DC
	18 V AC 30 V AC (50/60 Hz)
Power supply connection	Via COMBICON, max. conductor cross section 2.5 mm
Residual ripple	3.6 V _{PP} (within the permitted voltage range)
Max. current consumption	110 mA (at 9 V DC)

Connection data

Connection technology

Connection name	Power supply
pluggable	yes

Power supply

1 owor cappry	
Connection method	Push-in spring connection
Conductor cross section, rigid	0.2 mm² 2.5 mm²
Conductor cross section, flexible	0.2 mm² 2.5 mm²
Conductor cross section AWG	24 12
Conductor cross section, flexible, with ferrule, with plastic sleeve	0.25 mm² 2.5 mm²
Conductor cross section flexible, with ferrule without plastic sleeve	0.25 mm² 2.5 mm²
Stripping length	10 mm

Environmental and real-life conditions

Ambient conditions



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Degree of protection	IP30
Ambient temperature (operation)	-10 °C 60 °C
Ambient temperature (storage/transport)	-40 °C 85 °C
Altitude	2000 m (maximum)
Permissible humidity (operation)	5 % 95 % (non-condensing)
Permissible humidity (storage/transport)	5 % 95 % (non-condensing)
Shock (operation)	30g (EN 60068-2-27)
Vibration (operation)	in acc. with IEC 60068-2-6: 5g, 150 Hz
Air pressure (operation)	79 kPa 108 kPa up to 2000 m above mean sea level (Without derating)
Air pressure (storage/transport)	79 kPa 108 kPa up to 2000 m above mean sea level (Without derating)

Standards and regulations

Free from substances that could impair the application of coating	In acc. with VW specification
Tree from substances that could impair the application of coating	in acc. with vvv specification

Approvals

Conformity/Approvals

, ,,	
UL, USA / Canada	UL 61010-1, UL 61010-2-201, UL 62368-1 Class I, Div. 2, Groups A, B, C, D, T4 Class I, Zone 2, Group IIC, T4
FCC	Title 47 Part 15 Subpart B:2018 Class A

EMC data

Electromagnetic compatibility	Conformance with EMC Directive 2014/30/EU
Conformance with EMC directives	EN 61000-6-2 EN 61000-4-2 (ESD) Criterion B
	EN 61000-6-2 EN 61000-4-3 (electromagnetic fields) Criterion A
	EN 61000-6-2 EN 61000-4-4 (EFT burst) Criterion A
	EN 61000-6-2 EN 61000-4-5 (surge) Criterion B
	EN 61000-6-2 EN 61000-4-6 (line noise immunity) Criterion A
	EN 61000-6-4 Class A
	EN 61000-6-4 Conducted noise emission Class A
	FCC/CFR 47, Part 15.109 Class A
Noise immunity	EN 61000-6-2:2019
Noise emission	
Standards/regulations	EN_61000-6-4:2019

System properties

Functionality

Basic functions	Unmanaged switch
	Autonegotiation
	Store and Forward switching mode

Signaling



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Status display	LEDs: U _S , link and activity per port



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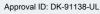
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Approvals

To download certificates, visit the product detail page: https://www.phoenixcontact.com/us/products/1085039



IECEE CB Scheme





IECEE CB Scheme

Approval ID: DK-91246-UL



UL Listed

Approval ID: E140403



cUL Listed

Approval ID: E140403



C

Approval ID: R-R-PCK-1085039



cUL Listed

Approval ID: E238705



UL Listed

Approval ID: E238705



CC-Link IE Field

Approval ID: NRT-IT-00068



cUL Listed

Approval ID: E196811



UL Listed

Approval ID: E196811

cULus Listed



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Classifications

UNSPSC 21.0

ECLASS

ECLASS-11.0	19170402
ECLASS-12.0	19170402
ECLASS-13.0	19170402
ETIM	
ETIM 9.0	EC000734
UNSPSC	

43222600



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Environmental product compliance

EU RoHS

Fulfills EU RoHS substance requirements	Yes
Exemption	7(a), 7(c)-l
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
SCIP	2cf6e074-8e85-4498-87aa-8a0ef94111a5
EF3.0 Climate Change	
CO2e kg	11.27 kg CO2e

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Functional Devices, Inc. | 101 Commerce Drive, Sharpsville, IN 46068

Shown

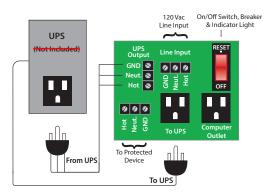
Without Cover

Email: sales@functionaldevices.com | Website: www.functionaldevices.com Toll Free: (800) 888-5538 | Office: (765) 883-5538 | Fax: (765) 883-7505

UNINTERUPTABLE POWER SUPPLY KIT

PSH600-UPS

600VA UPS Backup Power Control Center, 12" x 14" x 6" Metal Enclosure











SPECIFICATIONS

UPS

UPS: 600VA

Backup Time: 2.5 Min. @ Full 600 VA Load 10 Min. @ 1/2 Load

Power Consumption Up to 3 Amp @120 Vac

Max Load: 330 Watt Frequency: 50/60 Hz Temperature Rating of UPS: 32 to 104° F UPS Transfer Time: 6ms

Approvals: UL Listed, UL1778

PSH2RB10

Operating Temperature: $-30 \text{ to } 140^{\circ} \text{ F}$

Humidity Range: 5 to 95% (noncondensing)
Main Breaker ON/OFF: Switch / Breaker (10 Amp)

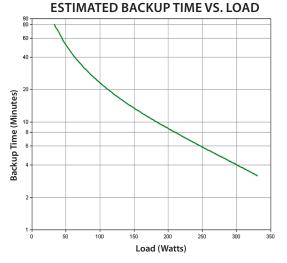
Approvals: UL Listed, UL916, C-UL, CE, RoHS Dimensions: 12.000" H x 14.000" W x 6.000" D

Metal Housing with Screw Cover

Origin: Made of US and non-US parts

Notes:

- To order without UPS, so that any other commercial UPS with appropriate ratings and within housing space limitations may be used, see model PSH2RB10.
- To order interface board for replacement or for separate use, order model PSMN2RB10.
- Average battery life: 3-5 years depending on the number of discharge cycles and environmental temperature
- UPS may change based on quality and availability

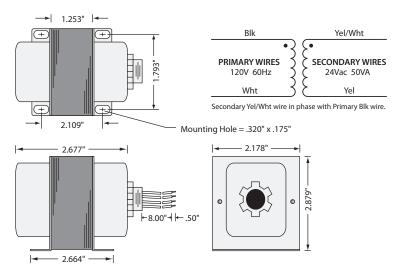


TRANSFORMER

Functional Devices, Inc.

TR50VA001

Transformer 50 VA, 120 to 24 Vac, Foot and Single Threaded Hub Mount







SPECIFICATIONS

VA Rating: 50 Frequency: 50/60 Hz

Mounting: Foot & Single Threaded Hub

Over Current Protection: 3 Amp Fuse (Fuse not field replaceable)

Dimensions: 2.677" x 2.178" x 2.879" (w/ .500" NPT Hub)

Wire Length: 8" Typical w/ .5" Strip Operating Temperature: -30 to 140° F MTBF: 100,000 Hours @ 77° F

Construction: Split-Bobbin
Approvals: Class 2 UL5085-3 Listed, C-UL, CE, RoHS



Compact Industrial LTE Router

InRouter 305

- 4G
- · Wi-Fi
- Security
- · Cloud-Managed
- · Rich Industrial Interfaces



The IR305 is an IoT cellular router that integrates 4G LTE, Wi-Fi, and VPN technologies to provide easy, reliable, and secure Internet connectivity. With features such as 4G wireless wide area network and Wi-Fi wireless local area network, it offers uninterrupted access to multiple networks. With comprehensive security and intelligent software services, it enables efficient and secure networking, providing enterprises with safe and reliable data links for digital networking.







Features and Advantages

Diverse access methods covering all scenarios

IR305 has the capability to access the Internet through cellular, wired, and Wi-Fi connections, catering to different network environments. It provides differentiated cellular network services based on varying business requirements.



• "Always-on" connectivity

The IR305 comes with 4G/wired/Wi-Fi backup, cellular link failover, dual SIM switching, VRRP, multi-layer detection mechanism, and other features, providing a reliable and robust connection to ensure your network stability and reliability.



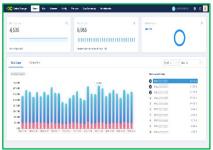
Secure Network Connection

The IR305 is equipped with firewall policies, access control, built-in VPN, data encryption, enhanced Wi-Fi security, 802.1x and other features, effectively ensuring the security of the network.

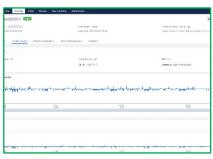


Device Manager-Cloud management

The IR305 connects to the InHand Device Manager remote device management cloud platform to manage tens of thousands of distributed site devices in real time and grasp device status anytime and anywhere, making management more economical and more efficient!





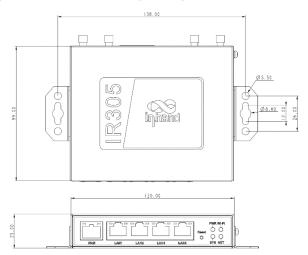


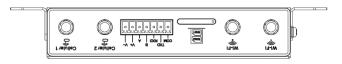
Take control

Real-time monitoring

Critical Status

Dimensions (mm)





Industr	rial Tern	ninal				
IR305						
СОМ	DIO4	DIO3	D1O2	DIO1	V+	V-
Ю					Pow	er supply
IR305-	s					
GND	TXD	RXD	В	A	V+	V-
RS232			RS485		Pow	er supply

Dimensions: 120*99*25 (mm)



InRouter305 Datasheet

Product Specifications

	vare Specifications				
lardware Platform					
PU	580MHz				
RAM	128MB DDR2				
LASH	64MB SPI				
nterface					
thernet Port	5*10/100Mbps fast Ethernet port, RJ45, WAN/LAN/VLAN port, 1.5KV network isolation transformer protection				
Power Supply	DC9-36V, over-curre industrial terminal	DC9-36V, over-current protection, anti-reverse connection, 2 PIN industrial terminal			
O. (Optional)	Support 4*IO (DO o	r IO can be configur	ed)		
erial port *Optional)	1*RS232 + 1*RS485				
Alternatives for I/O	or Serial port				
Reset	Pinhole reset butto	n			
ilM Card	Drawer-type slot*1,		SIM		
ым сага Vi-Fi			الاا ا		
(Optional)	IEEE 802.11b/g/n, 3			~	
GNSS (Optional)	Support GPS/ GLON Positioning accurac		eo/ QZS:	>	
Antenna Connector	4G: SMA x 1; Wi-Fi Note: North Amer GPS model: SMA GPS antenna o	ica models: 2 x SMA s: 1 x RP-SMA Wi-Fi	4G ante	enna connectors	
Fround Terminal	Supports				
Mechanical Specs					
Dimensions	120x99x25mm	Weight		354g	
nstallation	Panel mounting, ra mounting	Protection Rat	ing	IP30	
Housing	Metal	Cooling		Fanless	
Power rate					
itandby power	120mA-200mA@12\	V			
Vorking power	150mA-320mA@12\	/			
Peak power	320mA@12V				
Vi-Fi Transmit Pow	er				
ransmit Power					
Ambient Environme	nt				
torage	-40 ~ 85℃	Operating	-20~	70℃	
'emperature		Temperature	-20.0		
mbient Humidity	5~95% (no condens	sing)			
ndicator					
ED	Power, Status, Cellu	ılar, Wi-Fi			
MC					
tatic	EN61000-4-2,	level 3			
Radiation Electric Fie					
Pulsed Electric Field	EN61000-4-4,	level 3			
iurge	EN61000-4-5,	level 3			
	EN61000-4-6,level 3				
Conducted Disturba mmunity		2,level 3			
mmunity ihock Wave Resistar	nce EN61000-4-12				
mmunity		, horizontal / vertical	400A/	m (>level 2)	
mmunity Shock Wave Resistar Power Frequency Magnetic Field		, horizontal / vertical	400A/i	m (>level 2)	
mmunity shock Wave Resistar Power Frequency Jagnetic Field Resistance		, horizontal / vertical Vibration Resistance		m (>level 2)	
mmunity shock Wave Resistar Power Frequency //agnetic Field Resistance Physical Specs	EN61000-4-8,	Vibration			

InRouter 305 Softwa	are Specifications				
Network Connection					
Network Access	APN, VPDN				
Access	CHAP/PAP				
Authentication	Girary A				
Network Type	GSM/GPRS/EDGE, UMTS/HSPA+/EVDO/TD-SCDMA/, TDD LTE/FDD LTE (Please refer to the Ordering Guide for frequencies)				
LAN protocol	ARP, Ethernet				
WAN protocol	Static IP, DHCP, PPPoE				
Network Protocol					
IP Application	IPv4, Ping, Trace, DHCP Server, DHCP Relay, DHCP Client, DNS relay, DDNS, Telnet, IP Passthrough				
IP Routing	Static routing, OSPF dynamic routing				
NAT	Supports network address translation				
Security					
Network Security	Stateful Packet Inspection (SPI), DoS attack defense; Multicast filter/Ping probe packet, Access Control List (ACL); Content URL filter, port mapping, virtual IP mapping, IP-MAC binding; 802.1x				
Data Security	Supports PPTP, L2TP, GRE, IPSEC VPN (IKEv1, IKEv2), OPENVPN, DMVPN, WireGuard, ZeroTier Supports CA digital certificate				
Reliability					
Hot Backup	VRRP hot backup				
Link Detection	Sends heartbeat packets to detect, auto redials when disconnected				
Dual SIM Failover	Supports dual SIM failover				
Embedded Watchdog	Device runs self-detection, auto recovers from malfunctions				
WLAN (Optional)					
Protocol	IEEE 802.11b/g/n				
Rate	Up to 300Mbps				
Security	Open system, shared key, WPA/WPA2 certification WEP/TKIP/AES encryption				
Transmission Distance	80 meters by line of sight (Actual transmission distance depends on environment of the site.)				
Intelligence					
Integrated DTU Functions	TCP, UDP transparent transmission mode, TCP Server mode Supports conversion of Modbus RTU to Modbus TCP bridge Supports DCUDP, DCTCP mode				
Network Manageme	ent				
QoS Management	Bandwidth limit, IP speed limit				
Configuration	Telnet, web, ssh and console				
Update	Web, DeviceManager				
Log	Local system log, remote log, and serial export of log. Power down saving of important logs.				
SMS Functions	Status query, restart				
Dial-on-demand	Dial-on-demand, data / SMS activation				
Network management	Supports InHand DeviceManager, batch management Add the user experience plan to access The InHand Networks cloud platform to enjoy efficient and convenient services				
SNMP	SNMP vI/v2c/v3, supports SNMP TRAP				
Traffic Management	Supports data traffic threshold, traffic statistics and traffic alarm				
Alarm	System restart alarm, LAN port online/offline alarm, data traffic alarm, SIM card failure alarm ,etc.				
Maintenance Tools	Ping, route tracking, network speed test				
Status Query	System status, modem status, network connection status, and routing status				
	-1				



Ordering Guide

Model code: IR305- <wmnn>-<wlan na="">-<s na="">-</s></wlan></wmnn>					
Model	<wmnn>: Cellular Type & Module</wmnn>	<wlan na="">: Wi-Fi</wlan>	<s na="">: Serial/IO</s>	<g na="">: GNSS</g>	
IR305-FQ58-< WLAN /NA>-<\$/NA>- <g na=""></g>	(For Europe & APAC, CAT 4) FDD: B1/B3/B7/B8/B20/B28A TDD: B38/B40/B41 WADMA: B1/ BB GSM: B3/ B8	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*IO</na>	G: GNSS <na>: no GNSS</na>	
IR305-FQ53-< WLAN /NA>- <s na=""></s>	(For Europe & APAC, CAT 1) FDD: B1/B3/B7/B8/B20/B28A WCDMA: B1/B8	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*IO</na>		
IR305-FF38- <wlan na="">-<s na="">-<g na=""></g></s></wlan>	(For North America, AT&T, VzW, LTE CAT4) FDD: B2/B4/B5/B12/B13/B17/B66/B71 WCDMA: B2/B4/B5	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*IO</na>	G: GNSS <na>: no GNSS</na>	
IR305-FQ33- <wlan na="">-<s na=""></s></wlan>	(For North America, AT&T, VzW, LTE CATI) FDD: B2/ B4/ B5/ B12/B13/ B25/ B26 WCDMA: B2/B4/B5	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*10</na>		
IR305-FQ78- <wlan na="">-<s na=""></s></wlan>	(For Australia, Latin America, LTE CAT4) FDD: B1/B2/B3/B4/B5/B7/B8/B28 TDD: B4-0 WCDM&: B1/B2/B5/B8 GSM: B2/B3/B5/B8	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*IO</na>		
IR305-EN00- <wlan na="">-<s na=""></s></wlan>	NA	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*IO</na>		
IR305-NRQ2- <wlan na=""><s na=""></s></wlan>	(For China SG) SG NR NSA: n/41/n78/n79 SG NR SA: n/1/28*/n/41/n77/n78/n79 LTE-FDD: B1/83/B5/B8 LTE-TDD: B34/838/B39/B40/B41 WCDMA: B1/B5/B8	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*10</na>		
IR305-LQ20- <wlan na="">-<s na=""></s></wlan>	(For China CAT4) FDD: BI/B3/B5/B8 TDD: B34/B36/B39/B40/B41 WADMA: BI/B5/B8 GSM: B3/B8	WLAN: Wi-Fi <na>: no Wi-Fi</na>	S: 1*RS232+1*RS485 <na>: 4*IO</na>		

Example: IR305-FQ58-WLAN: Five Ethernet ports IR305 series cellular router, support IPSec / PPTP / L2TP / OPEN VPN.

Note: Users are asked to join InHand User Experience Plan at first time login. If user agreed to join, the router will connect to InHand DeviceManager portal. If users want to disable it, please go to Services->User Experience Plan to change the setting.



InHand Remote Operation and Maintenance Solution

InConnect is a simple "plug & play" service that builds secure remote networks for your machines (IPCs, IP cameras, PLCs, HMIs, RTUs, controllers, etc.). Engineers can use InConnect to realize remote maintenance, program downloads, and log diagnostics. InConnect helps enterprises quickly connect to globally distributed business locations, empowering enterprises in their IT infrastructure and digital transformation initiatives.



InConnect Service

- Centralized management
- · Efficient zero touch deployment
- Simplified network configuration
- Multi-dimensional security



4G Industrial Router IR302

- Multilink Backup & Dual SIM failover
- VPN networking
- Serial Port, I/O
- EMC Level 2
- IP30, -20~70°C, DC 9~36V

About Us

In Hand Networks is a leading IoT solutions provider founded in 2001, dedicated to driving digital transformation across industries and empowering customers to unlock their full potential and achieve accelerated growth.

We specialize in delivering industrial-grade connectivity solutions for diverse sectors, such as enterprise networks, industrial and building IoT, digital energy, smart commerce, and mobility. Our comprehensive product portfolio and services cater to various applications worldwide, including smart manufacturing, smart grid, intelligent transportation, smart retail, etc. With a global footprint spanning over 60 countries, we serve customers in China, the United States, France, Germany, the United Kingdom, Italy, and beyond.



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