OPTIMIZER
UNITARY CONTROLLER

Honeywell 230 VAC Unitary Controllers provide flexible, freely programmable, demand-led control that delivers tangible benefits to reduce energy spending while driving new levels of functionality and efficiency in today's buildings.

These new controllers offer BACnet™ IP, BACnet™ T1L, or BACnet™ MS/TP as their backbone communication protocol and Sylk™, Modbus RTU as embedded integration protocols, flexible universal input/output (UIOs), power relays, and choppers.

They offer performance-based engineering with Niagara 4 and enable Single-Tool-Engineering throughout the whole Building Management System with cost-effective installation. The integrated Bluetooth® Low Energy (BLE) capability enables an easy pairing with mobile apps.

Honeywell Unitary Controllers are available in large and small housing options.

FEATURES AND HIGHLIGHTS

SIMPLE AND FLEXIBLE ENGINEERING

- UIOs configurable as analog input, binary input, binary output and analog output.
- High inrush current relays.
- Choppers support increased current compared to standard Triac outputs.
- Sylk™ bus two-wire polarity insensitive interface connects to Honeywell Sylk™ wall modules without hardware I/O.
- Modbus RTU for integration.
- Daisy chain ethernet connection ensures reliable data speed over greater distance.
- Engineering tools including function block library and sample application templates ensuring a consistent experience from the room, plant controllers, and supervisor.

EFFICIENCY AND SAFETY ON SITE

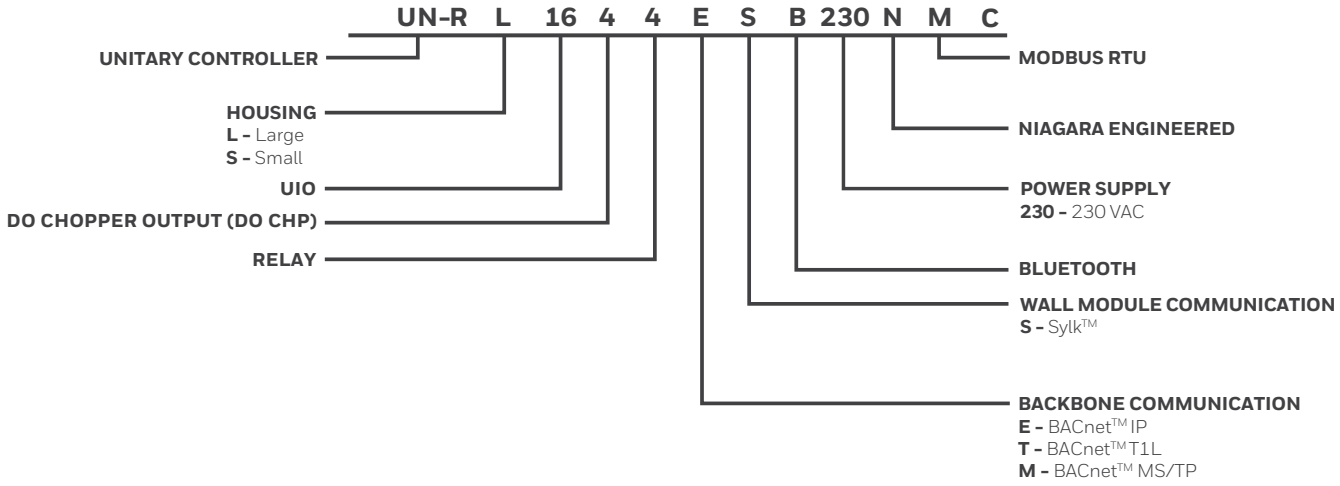
- Easy to install into fuse box (DIN43880) or on DIN rail, surface mount.
- Optional terminal covers for protection.
- Color-coded, removable terminal blocks to simplify wiring and replacement.
- Live debugging and fast differential download for application changes to limit downtime to a minimum.
- Power failure detection and data recovery.
- Easy pairing with mobile apps via integrated Bluetooth® Low Energy (BLE) independent of local IT infrastructure and without needing to open the ceiling for recalibration.

EASY UPGRADE TO IP

- RJ45 and twisted pair T1L available as IP communication standards.
- Increased network speeds compared to traditional building automation systems.
- Support of standard BMS and IT protocols, such as BACnet™, offering an open system for interconnectivity.
- Possibility to reuse installed wiring as T1L uses two-core twisted pair cables with screw terminals.
- Honeywell T1L devices support daisy chains with distances between devices of up to 984 ft. (300 m), way above the 328 ft. (100 m) limit of standard RJ45 ethernet and allowing greater wiring lengths.

Honeywell

CONTROLLER PART NUMBERS DESCRIPTION



PART NUMBERS

UNITARY CONTROLLER PART NUMBERS

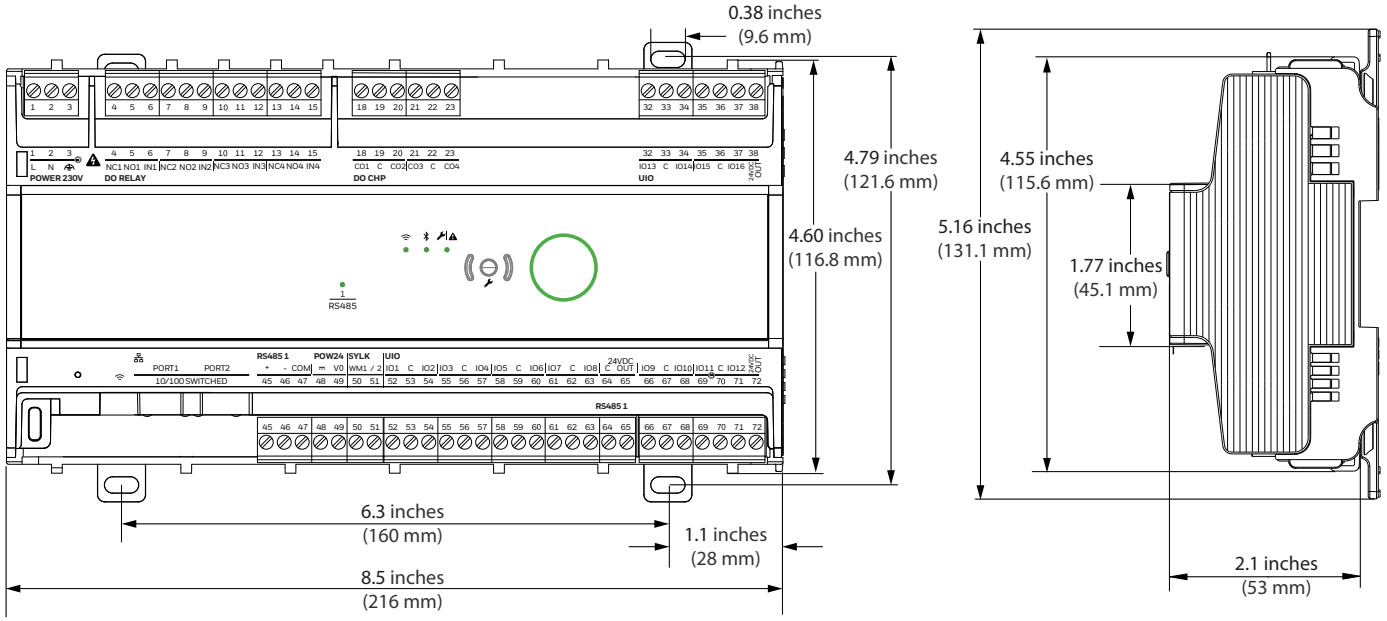
PART NUMBER	HOUSING	UNIVERSAL IO	DO CHOPPER OUTPUT (DO CHP)	RELAY	COMMUNICATION	SYLK™ BUS	BLUETOOTH
UN-RS0844ES230NMC	Small	8	4	4	BACnet™ IP	Yes	No
UN-RS0844ESB230NMC	Small	8	4	4	BACnet™ IP	Yes	Yes
UN-RS0844MS230NMC	Small	8	4	4	BACnet™ MS/TP	Yes	No
UN-RS0844MSB230NMC	Small	8	4	4	BACnet™ MS/TP	Yes	Yes
UN-RS0844TS230NMC	Small	8	4	4	BACnet™ T1L	Yes	No
UN-RS0844TSB230NMC	Small	8	4	4	BACnet™ T1L	Yes	Yes
UN-RL1644ES230NMC	Large	16	4	4	BACnet™ IP	Yes	No
UN-RL1644ESB230NMC	Large	16	4	4	BACnet™ IP	Yes	Yes
UN-RL1644MS230NMC	Large	16	4	4	BACnet™ MS/TP	Yes	No
UN-RL1644MSB230NMC	Large	16	4	4	BACnet™ MS/TP	Yes	Yes
UN-RL1644TS230NMC	Large	16	4	4	BACnet™ T1L	Yes	No
UN-RL1644TSB230NMC	Large	16	4	4	BACnet™ T1L	Yes	Yes

ACCESSORIES/REPLACEMENT PARTS

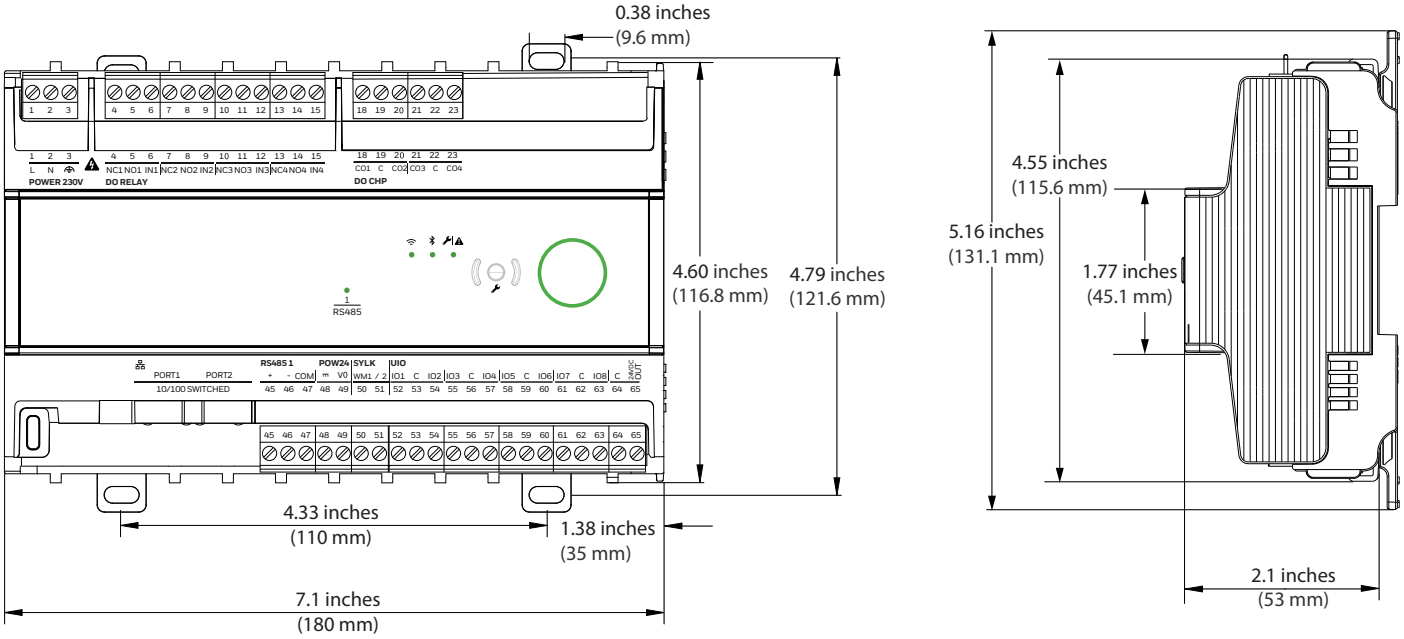
PARAMETER	SPECIFICATION
CW-Cov-L-Unitary	Terminal cover for the L-version of the unitary controller (sold in pack of 10)
CW-Cov-S-Unitary	Terminal cover for the S-version of the unitary controller (sold in pack of 10)
10BASE-T1L-ADAPT	IP-T1L single pair media adapter that allows converting 10BASE-T traffic to 10BASE-T1L (with power supply)
10BASE-T1L-ADAPT-0	IP-T1L single pair media adapter that allows converting 10BASE-T traffic to 10BASE-T1L (without power supply)
SCRW-TB-UNI-L	Set of removable terminal blocks covering all models of Unitary controllers
IO-JUMPER-4-10	4-pin relay output Jumper Bar to connect 4 relays IN terminals (sold in pack of 10)

DIMENSIONS AND WEIGHTS

LARGE HOUSING



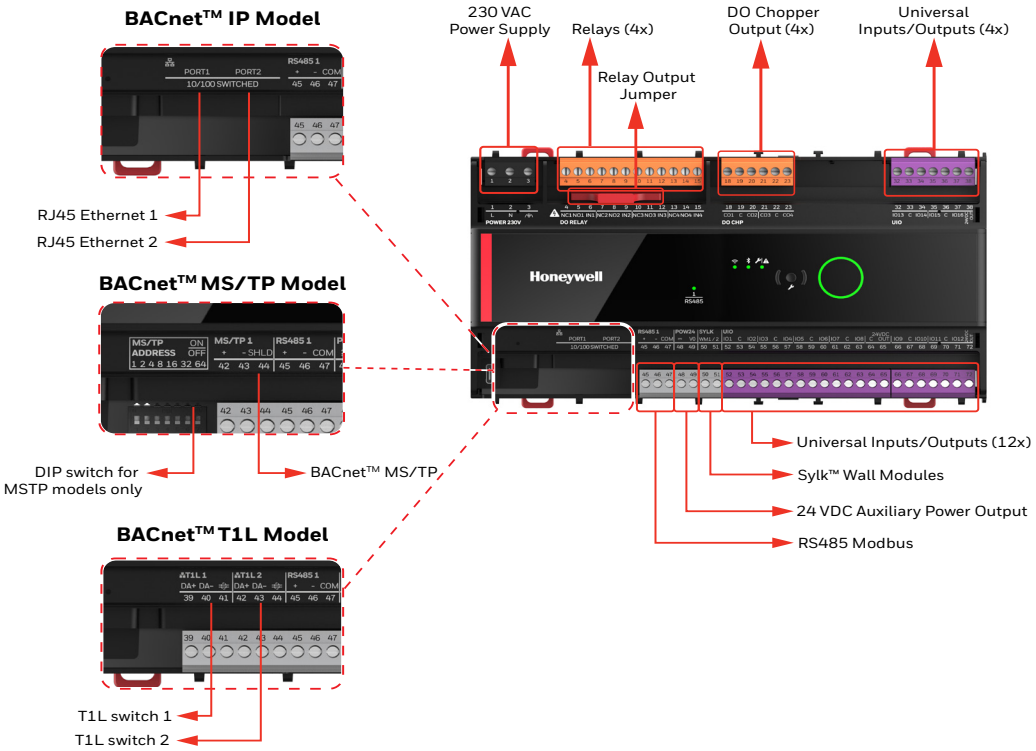
SMALL HOUSING



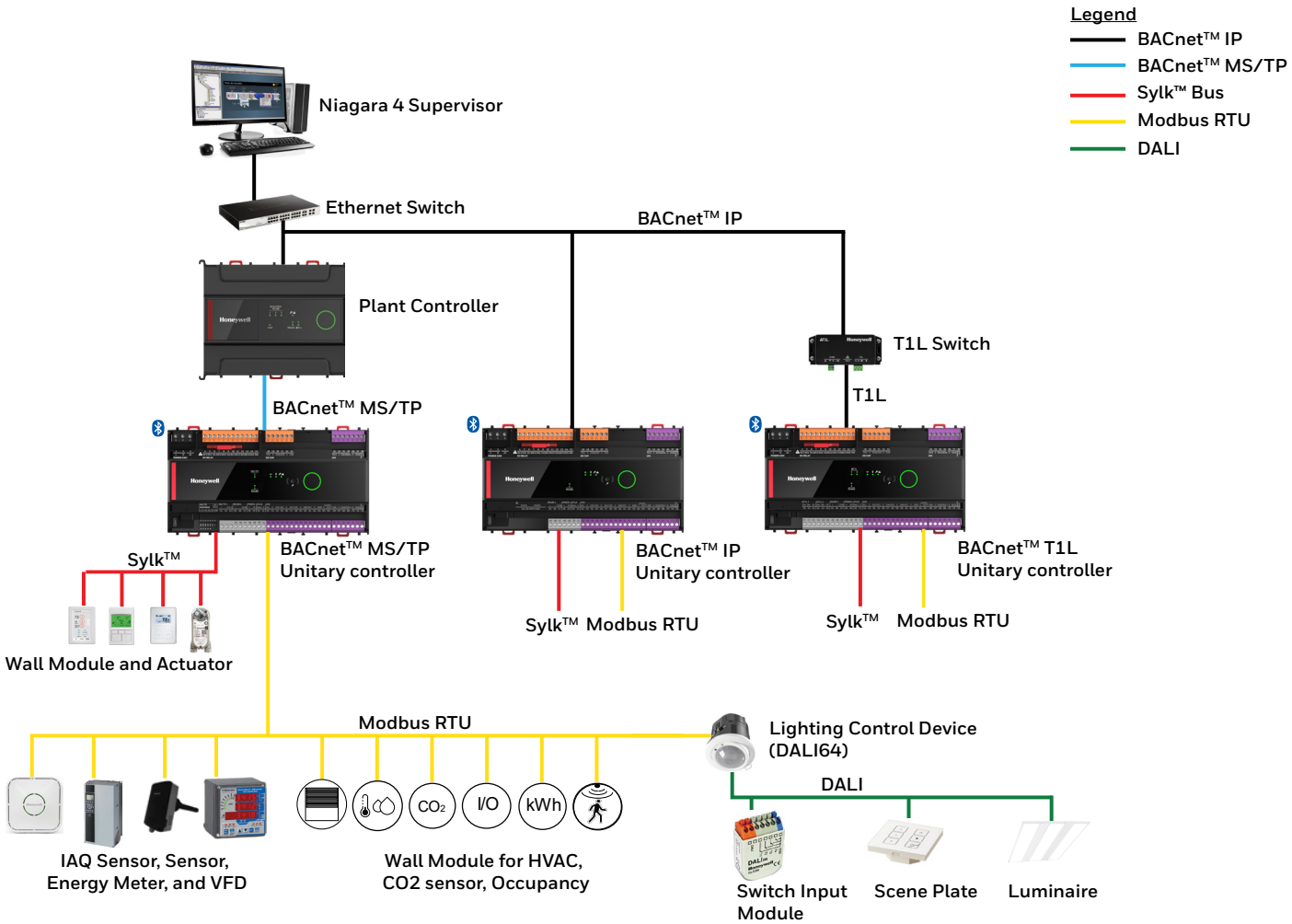
All dimensions are in inches (mm).

WEIGHT AND DIMENSIONS	
PARAMETER	**SPECIFICATION**
Dimension (L x W x H)	Large - 8.5 x 4.79 x 2.1 inches (216 x 121.6 x 53 mm) Small - 7.1 x 4.79 x 2.1 inches (180 x 121.6 x 53 mm)
Weight	Large - 1.54 lbs. (700 grams) Small - 1.32 lbs. (600 grams)
Mounting	Mounting in fuse boxes (DIN43880), on DIN rails or surface mounted with optional protection covers.

HARDWARE OVERVIEW



SYSTEM OVERVIEW



* Devices subject to local availability. Contact your local sales representative for information on available devices in your region.

PRODUCT SPECIFICATION

HARDWARE

PARAMETER	SPECIFICATION
CPU	Crossover processor NXP I.MRT, Cortex M7
Memory capacity	16 MB QSPI Flash, 16 MB SDRAM
Ethernet	BACnet™ IP: 2 x RJ45 Ethernet ports with a protection that allows loop topology to continue the communication with other controllers even if one node fails, when used with an RSTP supporting device.
Real Time Clock	24 hours backup after power failure After 24 hours, the time will reset to factory default time until the user performs a BACnet™ Time Sync
Small LEDs	Transmission or reception of communication signal (green)
Large LEDs	Controller status (Green, Yellow and Red)

ELECTRICAL

PARAMETER	SPECIFICATION
Rated Input Voltage	230 VAC ± 10 %
Maximum Nominal Power Consumption (for IP, MS/TP, and T1L models)	**Small:** BACnet™ IP, BACnet™ T1L : 45 VA BACnet™ MS/TP : 60 VA **Large:** BACnet™ IP, BACnet™ T1L : 60 VA BACnet™ MS/TP : 75 VA
Full Load Power Consumption (Maximum load including external loads, Sylk™, Communication, Bluetooth, Universal IO output, 24 VDC output, and load on the Choppers) for IP, MS/TP, and T1L.	**Small:** BACnet™ IP : 170 VA BACnet™ MS/TP, T1L : 200 VA **Large:** BACnet™ IP : 200 VA BACnet™ MS/TP and T1L : 210 VA
Frequency Range	50/60 Hz
Auxiliary Power Output	24 VDC at 75 mA
Type of loads	Resistive or inductive loads
Impulse Voltage	4000 V (4 kV)
Material Group	IIIb
Period of electric stress across insulating parts	Long
Classes of control function	Class A control
Type of Output Waveform	Rectangle

SUPPORTED DEVICES*

Sylk™ Wall Modules	TR42, TR42-H, TR42-CO2, TR42-H-CO2, TR71, TR71-H, TR75, TR75-H, TR75-HE, TR120 (TR75-E), and TR120-H (emulation mode only).
Sylk™ Sensor	TR40, TR40-H, TR40-CO2, TR40-H-CO2, TR50, C7400S
Sylk™ Actuators	MS3103, MS3105, MS3110, and MS3120
Non Sylk™ Actuators	M6410C & M7410A/C, ML6420A, MT4-024 & MT8-024, M400-Ax & M800-Ax, MVN643A, N05010 (0 to 10 VDC mode), N0524 (3-point control), S0524-2POS, S05010 (0 to 10 VDC mode)
Hardwired Wall Modules	TR21, TR22, TR23, TR24, T7460 A, B, C, D, E, F and T7770 A, B, C, D, E, F, G
Modbus Devices	Modbus RTU devices from any manufacturer (including Honeywell Modbus devices, for example DALI64MODPSUF/S, TR50, and TR80) can be used.

* Devices subject to local availability. Contact your local sales representative for information on available devices in your region.

OPERATIONAL ENVIRONMENT

PARAMETER	SPECIFICATION
Storage Temperature	-40 °F to 150 °F (-40 °C to 66 °C)
Operating Temperature	-40 °F to 149 °F (-40 °C to 65 °C) with 0.6 A cumulated across all chopper outputs. -40 °F to 122 °F (-40 °C to 50 °C) with 1.5 A cumulated across all chopper outputs.
Humidity	5 % to 95 % RH., non-condensing
Protection	IP20, NEMA 1
Pollution degree	2
Additional tests conducted	Ball Pressure and Glow wire test

CHOPPER OUTPUT (CHP)

Chopper works with maximum 24 VAC, 50/60 Hz

Type 1

Ambient temperature	Constant current shared across all 4 outputs	Inrush current for 0.1 sec shared across all 4 outputs
Up to 50 °C	1.5 A	3.5 A
Between 50 °C and 65 °C	0.6 A	3.5 A

WIRE GAUGE RANGE

PARAMETER	SPECIFICATION
Chopper/Auxiliary output	26-18 AWG
Relay	18-14 AWG

PRODUCT SPECIFICATION

RELAYS

PARAMETER	SPECIFICATION
Contact Rating	Up to 277 VAC / 230 VAC (+20 %).
	3 contacts per relay (normally open (NO), normally closed (NC), common (IN)).
	10 A constant current on normally open (NO) contact and 100 A inrush for 100 ms.
	Total current across all relays is limited to 12 A if all commons are connected via a relay jumper.
Output	240/277 VAC, 50/60 Hz, or 24 VDC, 12 A Max. total common (10 A Max. per Relay)
Number of Automatic Cycles	40000 cycles for contact A (NO) 6000 cycles for contact C (CO)
Type of disconnection or interruption provided by each circuit.	
Relay outputs can be used as dry contact output.	
Type 1.C	

UNIVERSAL IO

PARAMETER	SPECIFICATION
AI	16-bit A/D resolution • 0(2)...10 V direct/reverse or 0(4)...20 mA input. • Sensors: 10K Ohm NTC Type II, 10K Ohm NTC Type III, 10K3A1, 20K Ohm NTC, PT100, PT1000, NI1000TK5000, NI1000 Class B DIN43760, PT3000, 100 Ohm to 100K Ohm resistive (custom characteristic). • Hardwired wall modules*: space temperature, space temperature setpoint, fan speed override, occupancy mode override.
BI	• Dry contact binary input with direct/reverse. • Pulse input with maximum frequency 100 Hz, minimum pulse width 5 ms. Compatible with the S0* interface for pulse counters.
AO	• Voltage output with 0(2)...11 V direct/reverse with -3 mA ...+20 mA. • Current output with 0(4)...20 mA direct/reverse. • Hardwired wall modules*: LED Control.
DO	0...10 VDC at 20 mA binary output with direct/reverse.

* Devices subject to local availability. Contact your local sales representative for information on available devices in your region.

COMMUNICATION

PARAMETER	SPECIFICATION
Protocol supported	• BACnet™ IP (RJ45 ,T1L) • BACnet™ MS/TP* • Modbus RTU (Modbus client) • Bluetooth (Optional)
IP Addressing Modes	• Dynamic: DHCP and Link-local • Static: Assigned
Sylk™	2-wire, polarity-insensitive
*Auto Baud rate detection is provided only for the BACnet™ MS/TP controllers.	

T1L COMMUNICATION

PARAMETER	SPECIFICATION
10BASE-T1L Standard	802.3cg-2019
Connection	Screw terminal, auto MDI-X
Cable Type	Single twisted pair, 18AWG, shielded or unshielded. Belden 74040NH, 9841NH or equivalent.
Distance	Maximum 984 ft. (300 m) to Honeywell T1L controller in daisy chain. Maximum 2,952 ft. (900 m) to any other T1L device without a daisy chain.
Transmission speed	10 Mbps

STANDARDS AND APPROVALS

CE mark
BACnet™ BTL®-Listed; IP, T1L and MS/TP Unitary models as BACnet™ Advanced Application Controller (B-AAC);
UL 916
UL/ULC 60730-1
FCC/IC Product Class B
Plenum tested (according to UL 2043)

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