

TW PROTOCOL SERIES

Modbus and BACnet Protocol Communication



The TWLP Series features embedded BACnet and Modbus communication protocols to communicate temperature readings to a building automation system controller. The setpoint slider and pushbutton override options offer additional local input.

SPECIFICATIONS

Input Voltage	Class 2; 12 to 30 Vdc, 24VAC, 50/60Hz, 100 mA max.
Operating Temp	0 to 50 °C (32 to 122 °F)
Housing Material	High impact ABS plastic , UL 94 V0
Protocol	BACnet or Modbus (selectable)
Connection	2-wire RS-485
Data Rate	9600, 19200, 38400, 57600 (Modbus), bps (selectable); 9600, 19200, 38400, 76800 (BACnet), bps (selectable)
Parity	None/Odd/Even (selectable-Modbus); None (BACnet)
Address Range	1 to 127
Setpoint Slider Resolution (Optional)	1% full scale
Override Button (Optional)	Remotely readable and resettable
Sensor Type	Solid-state, integrated circuit
Accuracy	±0.5 °C (±.9 °F) typical
Resolution	0.1 °C (0.2 °F)
Range	10 to 35 °C (50 to 95 °F)
WARRANTY	
Limited Warranty	5 years
AGENCY APPROVALS	



EMC Conformance: Low voltage directive 2006/95/EC and EMC directive 2004/108/EC.
EMC Special Note: Connect this product to a DC distribution network or an AC/DC power adaptor with proper surge protection (EN 61000-6-1:2007 specification requirements).

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

BACnet and Modbus

Embedded BACnet and Modbus communication protocols... provides ease of integration

Network configuration

Eliminates the costs of home run wiring and analog inputs required by traditional sensors

Multiple baud rates

Configurable to multiple baud rates...ensures network compatibility

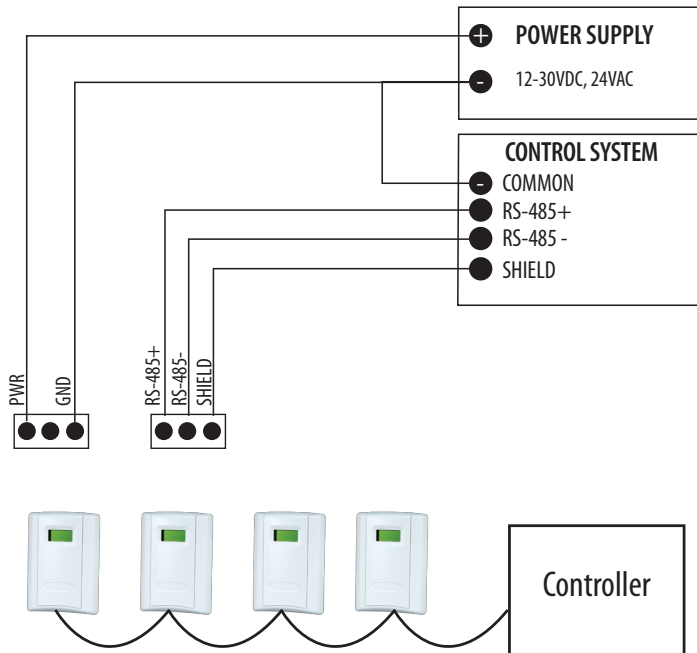
Setpoint and override options

Setpoint and override activation represented in protocol... eliminates costly wiring and inputs

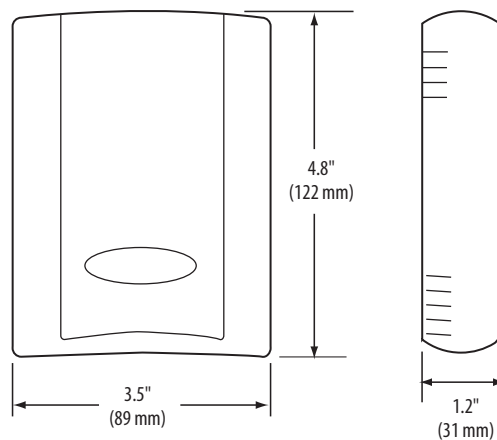
APPLICATIONS

- Temperature control in office buildings and schools with systems utilizing BACnet or Modbus protocol

WIRING DIAGRAM



DIMENSIONAL DRAWING



ORDERING INFORMATION

Local Display	Protocol	Temp. Cal. Cert.	Option	Housing
TW <input type="checkbox"/>	<input type="checkbox"/> P <input type="checkbox"/> X <input type="checkbox"/> X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
L = LCD X = No display	= Protocol	X = No 1 = 1 pt. cal. cert. 2 = 2 pt. cal. cert.	Blank = None 1 = Pushbutton override 2 = Set point slider 3 = Pushbutton override + set point slider	Blank = Cloud white B = Black

Example:

TW L P X X 1 3



THERMISTOR TABLE

Class	Pt RTD		Balco RTD	THERMISTOR				
	100 Ohm	1000 Ohm	1000 Ohm	10k Type 2	10k Type 3	10k Dale	10k "G" US	20k
Accuracy	±0.3°C	±0.3°C	±1% @70°C	±1.0°C	±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
Temp. Response*	PTC	PTC	PTC	NTC	NTC	NTC	NTC	NTC

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

STANDARD RTD AND THERMISTOR VALUES (Ohms Ω)

°C	°F	100 Ohm	1000 Ohm	1000 Ohm	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		B	C	I	D	H	J	R	M

To compute Linitemp Temperature
 mV reading/10 - 273.15 = Temperature in °C

