TL70 Pro Ethernet Modular Tower Light Product Manual

Original Instructions
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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

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Chapter 1 Features



Banner's TL70 Pro Ethernet Modular Tower Light is a 70 mm, modular LED indicator with bright and uniform light. The modularity gives the user flexibility to customize tower lights as needed and change positions in the field. The TL70 is also available preassembled for easy installation.

- Modbus TCP/IP, EtherNetIP, and PROFINET control allows access to full color, flashing, and dimming settings, as well as advanced animations and audible tones
- Up to five indicator segments and one audible segment in one device
- Rugged, water-resistant IP65 and IP66 housing with UV-stabilized material
- Bright, uniform indicator segments appear gray when off to eliminate false indications from ambient light
- Simple and fast connection with M12 quick-disconnect connector

Models

Segment Models

Model	Description
SG-TL70P-L	RGB light segment
SG-TL70P-A	Audible segment

Base Models

Model	Description
B-TL70POE-QPD	Power over Ethernet (PoE) base module with 475 mm (18.7 in) cable with a 4-pin D-Code M12 female quick-disconnect connector
B-TL70PE-Q2PE	Ethernet base module with dual cables: • One 475 mm (18.7 in) cable with a 4-pin D-Code M12 female quick-disconnect connector • One 475 mm (18.7 in) cable with a 4-pin A-Code M12 male quick-disconnect connector

Pre-Assembled Models

Model	Description
TL70POE3QPD	Power over Ethernet (PoE) with three RGB segments
TL70POE3AQPD	Power over Ethernet (PoE) with three RGB segments and an audible segment
TL70PE3Q2PE	Ethernet with three RGB segments
TL70PE3AQ2PE	Ethernet with three RGB segments and an audible segment

Specifications

Supply Voltage

Power over Ethernet models: 42.5 V DC to 57 V DC
PoE (Class 0 - 802.3af, 802.3at Type 1)
Ethernet models: 18 V DC to 30 V DC

Supply Current

Device	Typical Current (mA) per Device						Max Current (mA)
	18 V DC	24 V DC	30 V DC	42.5 V DC	50 V DC	57 V DC	
PoE base	-	-	-	40	35	30	50
Ethernet base	60	45	40	-	-	-	75

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Device	Typical Current (mA) per Device						Max Current (mA)
	18 V DC	24 V DC	30 V DC	42.5 V DC	50 V DC	57 V DC	
Light and Audible segment	110	85	75	45	40	35	125

Environmental Rating
IP65, IP66

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Initial Startup Time
30 seconds

Construction
Bases, segments, and covers: polycarbonate

Connections
See "Wiring" on page 8

Operating Temperature
–40 °C to +50 °C (–40 °F to +122 °F)

95% at +50 °C maximum relative humidity (non-condensing)

Audible Alarm
Tone 0: 1.7 kHz ± 250 Hz oscillation frequency; maximum intensity (typical) 81 dB at 1 m (3.3 ft)

Tone 1: 2.2 kHz ± 250 Hz oscillation frequency; maximum intensity (typical) 100 dB at 1 m (3.3 ft)

Tone 2: 2.7 kHz ± 250 Hz oscillation frequency; maximum intensity (typical) 104 dB at 1 m (3.3 ft)

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 0.5 mm amplitude, 5 minutes sweep, 30 minutes dwell)

Meets IEC 60068-2-27 requirements (Shock: 15G 11 ms duration, half sine wave)

Certifications
Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

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Default Light Segment Characteristics

Color	Dominant Wavelength (nm) or Color Temperature (CCT)	Color Coordinates[1]		Lumen Output Per Segment (Typical at 25 °C)
		X	Y	
Green	532	0.181	0.735	34.8
Red	621	0.691	0.308	15.4
Yellow	578	0.473	0.474	21
Blue	467	0.137	0.056	27.6
White	5700K	0.328	0.337	29.7
Cyan	492	0.150	0.334	20.9
Magenta	-	0.379	0.177	18.7
Amber	590	0.552	0.414	6.6
Rose	-	0.508	0.230	9.3
Lime Green	565	0.393	0.535	23.8
Sky Blue	485	0.146	0.241	14.1
Orange	600	0.611	0.370	24.1
Violet	-	0.212	0.091	19.6
Spring Green	509	0.157	0.553	12.7

FCC Part 15 Class A for Unintentional Radiators

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

(Part 15.21) Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Industry Canada ICES-003(A)

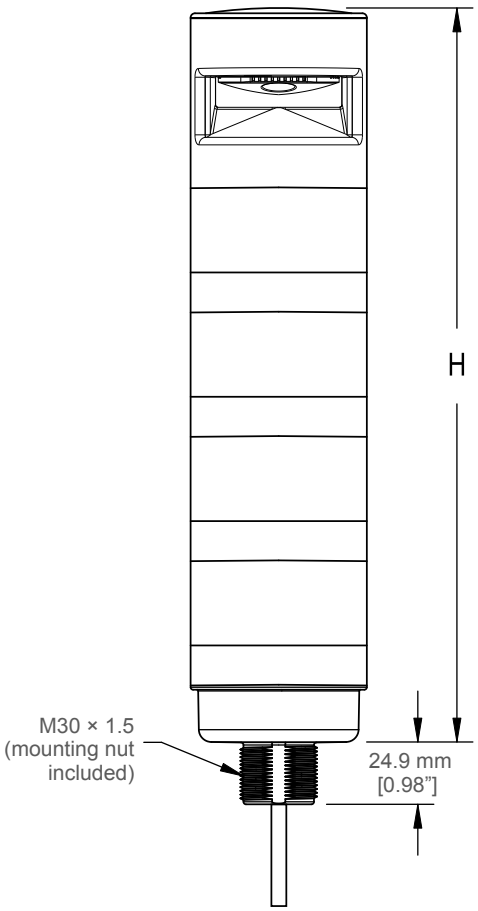
This device complies with CAN ICES-3 (A)/NMB-3(A). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(A). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

[1] Refer to CIE 1931 chromaticity diagram or color chart to show equivalent color with indicated color coordinates. Actual coordinates may differ by 10%.

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Dimensions



Model	Height (H)
1 light module	87.6 mm (3.45 in)
1 light module, 1 audible module	144.3 mm (5.68 in)
2 light modules	137.3 mm (5.41 in)
2 light modules, 1 audible module	194 mm (7.64 in)
3 light modules	187 mm (7.36 in)
3 light modules, 1 audible module	243.7 mm (9.59 in)
4 light modules	236.7 mm (9.32 in)
4 light modules, 1 audible module	293.4 mm (11.55 in)
5 light modules	286.4 mm (11.28 in)
5 light modules, 1 audible module	343.1 mm (13.51 in)

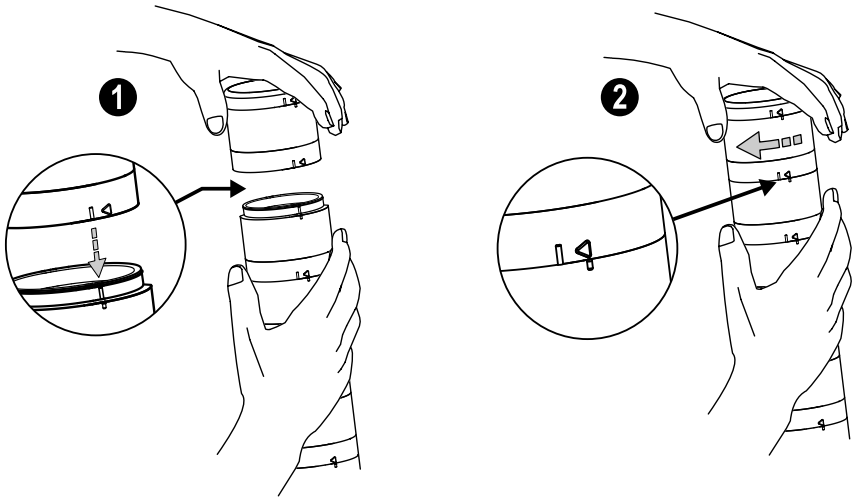
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Chapter 2 Installation Instructions

Assembling the Modules



IMPORTANT:

- Do not assemble or swap segments while the unit is powered on.
- Ensure power is off when assembling or swapping segments.

To assemble the modules:

1. Align the notches on each module and press together.
2. Rotate the top module clockwise to lock into place (notches shown in the locked position).

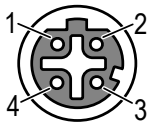
NOTE: DIP switches should remain in the default off position.

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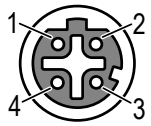
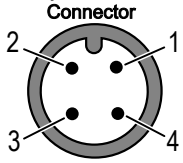
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Chapter 3 Wiring

Wiring for Power over Ethernet (PoE) Models

Pinout	Pin	Connection (802.3af mode A, mixed DC and data)
475 mm (18.7 in) cable with 4-pin D-Code M12 Female Quick-Disconnect Connector 	1	TX+ / DC-
	2	RX+ / DC+
	3	TX- / DC-
	4	RX- / DC+

Wiring for Ethernet Models

Pinout	Pin	Connection
475 mm (18.7 in) cable with 4-pin D-Code M12 Female Quick-Disconnect Connector 	1	TX+
	2	RX+
	3	TX-
	4	RX-
475 mm (18.7 in) cable with 4-pin A-Code M12 Male Quick-Disconnect Connector 	1	Brown wire: 18 V DC to 30 V DC
	2	White wire: Unused
	3	Blue wire: DC common
	4	Black wire: Unused

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Chapter 4 Configuration Instructions

Modbus TCP and EtherNet/IP Configuration

By default, the TL70 Pro Ethernet Tower Light is configured to communicate via Modbus TCP or EtherNet/IP without the need to connect the device to a computer for setup.

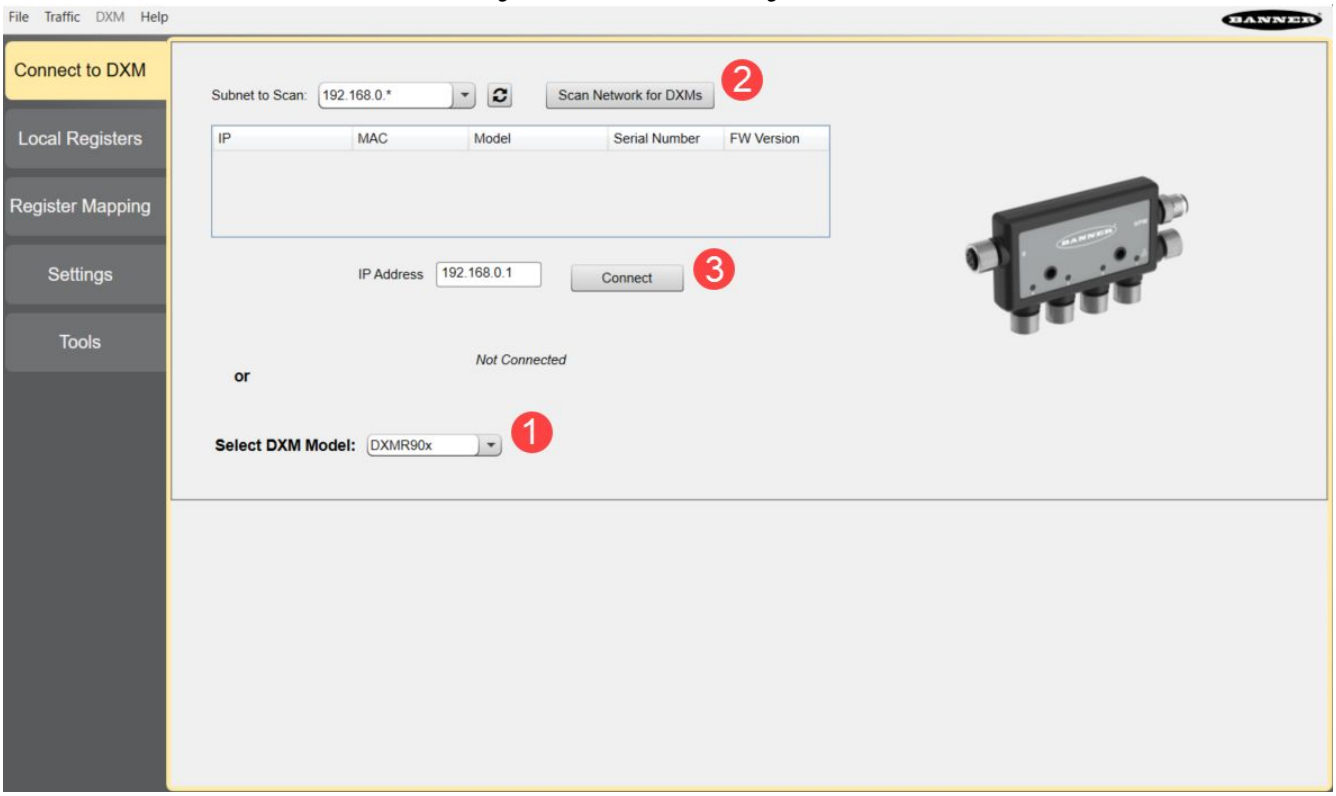
Plug the tower light into a switch, and use the default IP address of 192.168.0.1 and subnet mask of 255.255.255.0 to connect via Modbus TCP or EtherNet/IP.

Connecting to the Device with DXM Configuration Software

Connect the TL70 Ethernet Tower Light to the computer directly or through a switch.

1. Open the DXM Configuration Software and select `DXMR90x` from the **Select DXM Model** drop-down menu.
2. Click **Scan Network for DXMs** to find the correct IP Address, or enter the IP Address directly if it is known.
3. Click **Connect**.

Connecting a Device to the DXM Configuration Software



For connection troubleshooting and additional instruction, refer to the DXM Configuration Software Manual, PN 209933.

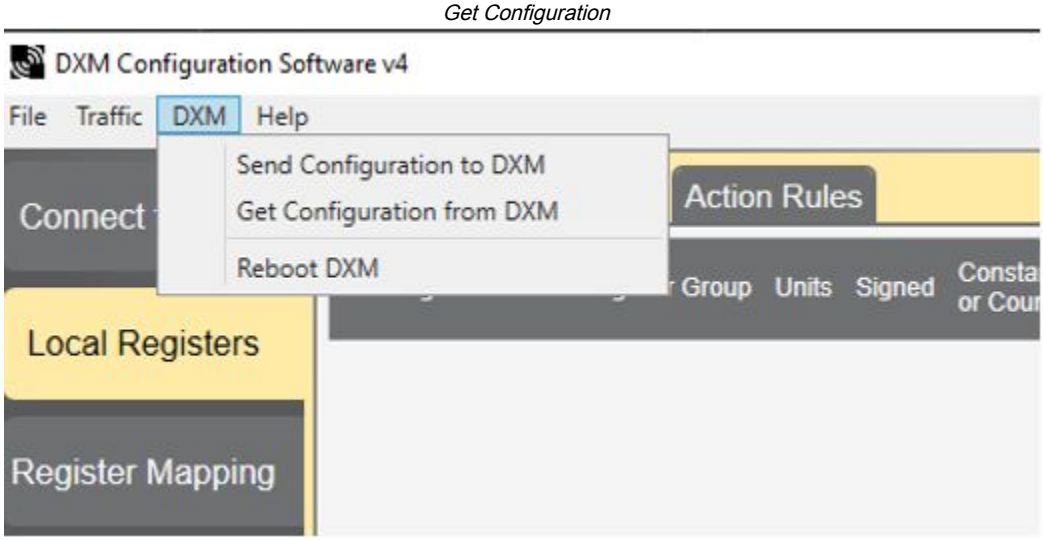
Retrieving the Configuration from the Device

Import the tower light configuration before making any changes to the program.

Select **DXM › Get Configuration from DXM** in the toolbar menu to save the configuration to the computer and import it into the software.

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Get Configuration

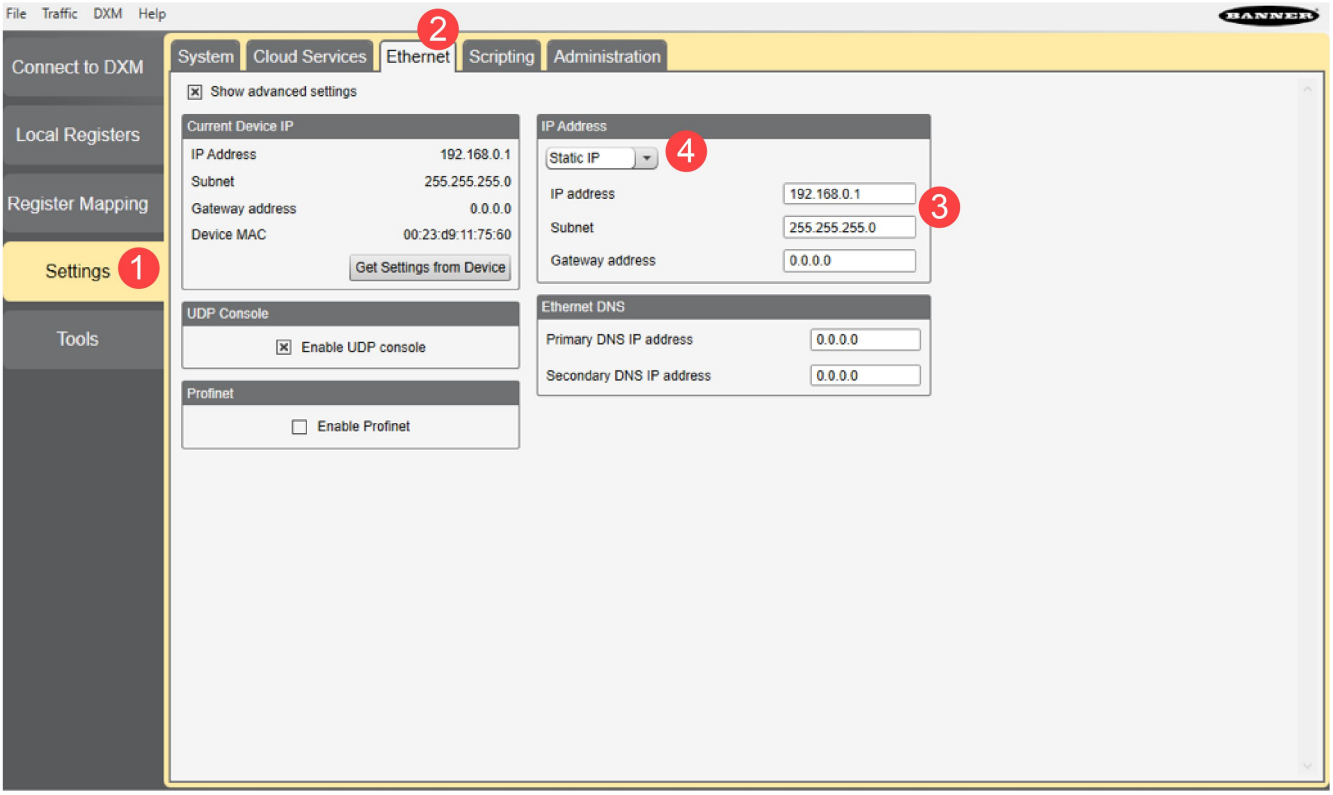


Changing the IP Address

To change the IP address:

1. Select **Settings**.
2. Select **Ethernet**.
3. Enter the desired IP address and subnet.
4. Choose either Static or DHCP from the drop-down menu.

Changing the IP Address



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Save and Upload the Configuration File

After making any changes to the configuration, you must save the configuration files to your computer, then upload it to the device.

Changes to the XML file are not automatically saved. Save your configuration file before exiting the software and before sending the XML file to the device to avoid losing data. If you select **DXM › Send XML Configuration to DXM** before saving the configuration file, the software will prompt you to choose between saving the file or continuing without saving the file.

1. Save the XML configuration file to your hard drive by going to the **File › Save As** menu.
2. Go to the **DXM › Send XML Configuration to DXM** menu.

   After the file transfer is complete, the device reboots and begins running the new configuration.

Ethernet Map

PLC Address	EIP Outputs	EIP Output Options	Alternate - Basic Mode	Alternate - Basic Mode Options
0	Restore Factory Configuration	1 = Soft Reset, 2 = Hard Reset (with comms)	-	-
1	Segment 1 Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Demo	Basic Mode Segment 1 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
2	Segment 1 Color 1	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	Basic Mode Segment 2 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation

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PLC Address	EIP Outputs	EIP Output Options	Alternate - Basic Mode	Alternate - Basic Mode Options
3	Segment 1 Color 2	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	Basic Mode Segment 3 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
4	Segment 1 Color 1 Intensity	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	Basic Mode Segment 4 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
5	Segment 1 Color 2 Intensity	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	Basic Mode Segment 5 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
6	Segment 1 Speed	0 = Slow 1 = Medium 2 = Fast 3 = Custom	Basic Mode Basic Audible	0 = Off, 1 = Basic On
7	Segment 1 Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	-	-
8	Segment 2 Animation	Same as Segment 1	-	-
9	Segment 2 Color 1		-	-
10	Segment 2 Color 2		-	-
11	Segment 2 Color 1 Intensity		-	-
12	Segment 2 Color 2 Intensity		-	-
13	Segment 2 Speed		-	-
14	Segment 2 Pattern		-	-
15	Segment 3 Animation	Same as Segment 1	-	-

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PLC Address	EIP Outputs	EIP Output Options	Alternate - Basic Mode	Alternate - Basic Mode Options
16	Segment 3 Color 1		-	-
17	Segment 3 Color 2		-	-
18	Segment 3 Color 1 Intensity		-	-
19	Segment 3 Color 2 Intensity		-	-
20	Segment 3 Speed		-	-
21	Segment 3 Pattern		-	-
22	Segment 4 Animation	Same as Segment 1	-	-
23	Segment 4 Color 1		-	-
24	Segment 4 Color 2		-	-
25	Segment 4 Color 1 Intensity		-	-
26	Segment 4 Color 2 Intensity		-	-
27	Segment 4 Speed		-	-
28	Segment 4 Pattern		-	-
29	Segment 5 Animation	Same as Segment 1	-	-
30	Segment 5 Color 1		-	-
31	Segment 5 Color 2		-	-
32	Segment 5 Color 1 Intensity		-	-
33	Segment 5 Color 2 Intensity		-	-
34	Segment 5 Speed		-	-
35	Segment 5 Pattern		-	-
36	Audible Type	0 = Off 1 = Tone 2 = Sync	-	-
37	Audible Volume	0 = Off 1 = Low 2 = Medium 3 = High	-	-
38	Audible Tone	0 = Freq 1 1 = Freq 2 2 = Freq 3	-	-
39	Custom Speed	dHz	-	-
40	Custom Intensity	0-100%	-	-
41	Operation Mode Write	1 = Basic Mode, 2 = Advanced Mode	-	-
42	Address Command	1 =Write IP 2 = Write Subnet 3 = Write IP & Subnet	-	-
43	IP_1	IP Byte 1	-	-
44	IP_2	IP Byte 2	-	-
45	IP_3	IP Byte 3	-	-
46	IP_4	IP Byte 4	-	-
47	Subnet_1	Subnet Byte 1	-	-

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PLC Address	EIP Outputs	EIP Output Options	Alternate - Basic Mode	Alternate - Basic Mode Options
48	Subnet_2	Subnet Byte 2	-	-
49	Subnet_3	Subnet Byte 3	-	-
50	Subnet_4	Subnet Byte 4	-	-
51	Segment 1 Basic Color	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	-	-
52	Segment 1 Basic Flash Speed	0 = Standard 1 = Fast 2 = Slow 3 = Custom	-	-
53	Segment 1 Basic Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Demo	-	-

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PLC Address	EIP Outputs	EIP Output Options	Alternate - Basic Mode	Alternate - Basic Mode Options
54	Segment 1 Basic Color 1	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	-	-
55	Segment 1 Basic Color 2	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	-	-
56	Segment 1 Basic Intensity 1	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	-	-
57	Segment 1 Basic Intensity 2	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	-	-

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PLC Address	EIP Outputs	EIP Output Options	Alternate - Basic Mode	Alternate - Basic Mode Options
58	Segment 1 Basic Speed	0 = Slow 1 = Medium 2 = Fast 3 = Custom	-	-
59	Segment 1 Basic Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	-	-
60	Segment 2 Basic Color	Same as Segment 1	-	-
61	Segment 2 Basic Flash Speed		-	-
62	Segment 2 Basic Animation		-	-
63	Segment 2 Basic Color 1		-	-
64	Segment 2 Basic Color 2		-	-
65	Segment 2 Basic Intensity 1		-	-
66	Segment 2 Basic Intensity 2		-	-
67	Segment 2 Basic Speed		-	-
68	Segment 2 Basic Pattern		-	-
69	Segment 3 Basic Color	Same as Segment 1	-	-
70	Segment 3 Basic Flash Speed		-	-
71	Segment 3 Basic Animation		-	-
72	Segment 3 Basic Color 1		-	-
73	Segment 3 Basic Color 2		-	-
74	Segment 3 Basic Intensity 1		-	-
75	Segment 3 Basic Intensity 2		-	-
76	Segment 3 Basic Speed		-	-
77	Segment 3 Basic Pattern		-	-
78	Segment 4 Basic Color	Same as Segment 1	-	-
79	Segment 4 Basic Flash Speed		-	-
80	Segment 4 Basic Animation		-	-
81	Segment 4 Basic Color 1		-	-
82	Segment 4 Basic Color 2		-	-
83	Segment 4 Basic Intensity 1		-	-
84	Segment 4 Basic Intensity 2		-	-
85	Segment 4 Basic Speed		-	-
86	Segment 4 Basic Pattern		-	-
87	Segment 5 Basic Color	Same as Segment 1	-	-
88	Segment 5 Basic Flash Speed		-	-
89	Segment 5 Basic Animation		-	-
90	Segment 5 Basic Color 1		-	-
91	Segment 5 Basic Color 2		-	-
92	Segment 5 Basic Intensity 1		-	-

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PLC Address	EIP Outputs	EIP Output Options	Alternate - Basic Mode	Alternate - Basic Mode Options
93	Segment 5 Basic Intensity 2		-	-
94	Segment 5 Basic Speed		-	-
95	Segment 5 Basic Pattern		-	-
96	Basic Audible Type	0 = Off 1 = Tone 2 = Sync	-	-
97	Basic Audible Volume	0 = Off 1 = Low 2 = Medium 3 = High	-	-
98	Basic Audible Tone	0 = Freq 1 1 = Freq 2 2 = Freq 3	-	-

EIP Inputs

PLC Address	Description	Data Range	Notes
0	Number of Segments	0…5	-
1	Operation Mode	1 or 2	1 = Basic, 2 = Advanced
2	Banner Name_01	0…65535	ASCII
3	Banner Name_02	0…65535	
4	Banner Name_03	0…65535	
5	Banner Name_04	0…65535	
6	Banner Name_05	0…65535	
7	Banner Name_06	0…65535	
8	Banner Name_07	0…65535	
9	Banner Name_08	0…65535	
10	Banner Name_09	0…65535	
11	Banner Name_10	0…65535	
12	Product Name_01	0…65535	ASCII
13	Product Name_02	0…65535	
14	Product Name_03	0…65535	
15	Product Name_04	0…65535	
16	Product Name_05	0…65535	
17	Product Name_06	0…65535	
18	Product Name_07	0…65535	
19	Product Name_08	0…65535	
20	Product Name_09	0…65535	
21	Product Name_10	0…65535	
22	Product Name_11	0…65535	
23	Product Name_12	0…65535	
24	Product Name_13	0…65535	

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PLC Address	Description	Data Range	Notes
25	Product Name_14	0…65535	
26	Product Name_15	0…65535	
27	Product Name_16	0…65535	
28	Item H	0…65535	-
29	Item L	0…65535	-
30	Serial Number 1 (H)	0…65535	-
31	Serial Number 2	0…65535	-
32	Serial Number 3	0…65535	-
33	Serial Number 4 (L)	0…65535	-
34	Firmware PN H	0…65535	-
35	Firmware PN L	0…65535	-
36	Firmware Version H	0…65535	-
37	Firmware Version L	0…65535	-
38	Firmware Build Number H	0…65535	-
39	Firmware Build Number L	0…65535	-
40	User Defined Tag_01	0…65535	User-defined data space
41	User Defined Tag_02	0…65535	
42	User Defined Tag_03	0…65535	
43	User Defined Tag_04	0…65535	
44	User Defined Tag_05	0…65535	
45	User Defined Tag_06	0…65535	
46	User Defined Tag_07	0…65535	
47	User Defined Tag_08	0…65535	
48	User Defined Tag_09	0…65535	
49	User Defined Tag_10	0…65535	
50	User Defined Tag_11	0…65535	
51	User Defined Tag_12	0…65535	
52	User Defined Tag_13	0…65535	
53	User Defined Tag_14	0…65535	
54	User Defined Tag_15	0…65535	
55	User Defined Tag_16	0…65535	

Modbus TCP Register Map

Name	Register	With Offset	Description	Holding Register Representation	Access
Read only	0	1	Number of segments Read	#1 - 5	-
	1	2	Mode Read	1 = Basic Mode, 2 = Advanced Mode	RO
Modbus Addressing	600	601	Baud Rate	0 = 9600 1 = 19200 2 = 38400	WO
	601	602	Parity	1 = None 2 = Odd 3 = Even	WO

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Name	Register	With Offset	Description	Holding Register Representation	Access
	602	603	Address	1 - 254	WO
	603	604	Reserved	NA	WO
	604	605	Factory Reset	1 = Soft Reset, 2 = Hard Reset (with comms)	WO
Device Information	605-614	606-615	Banner Name	0..65535	RO
	615-630	616-631	Product Name	0..65535	RO
	631	632	Item H	0..65535	RO
	632	633	Item L	0..65535	RO
	633	634	Serial Number 1 (H)	0..65535	RO
	634	635	Serial Number 2	0..65535	RO
	635	636	Serial Number 3	0..65535	RO
	636	637	Serial Number 4 (L)	0..65535	RO
	637	638	Firmware PN H	0..65535	RO
	638	639	Firmware PN L	0..65535	RO
	639	640	Firmware Version H	0..65535	RO
	640	641	Firmware Version L	0..65535	RO
	641	642	Firmware Build Number H	0..65535	RO
	642	643	Firmware Build Number L	0..65535	RO
	643-658	644-659	User Define Tag	0..65535	RO
Basic Mode Control	5000	5001	Segment 1 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation	RW
	5001	5002	Segment 2 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation	RW
	5002	5003	Segment 3 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation	RW
	5003	5004	Segment 4 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation	RW
	5004	5005	Segment 5 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation	RW
	5005	5006	Basic Audible	0 = Off, 1 = Basic On	RW

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Name	Register	With Offset	Description	Holding Register Representation	Access
Advanced Mode Control	5000	5001	Segment 1 Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Demo	RW
	5001	5002	Segment 1 Color 1	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	RW
	5002	5003	Segment 1 Color 2	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	RW

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Name	Register	With Offset	Description	Holding Register Representation	Access
	5003	5004	Segment 1 Color 1 Intensity	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	RW
	5004	5005	Segment 1 Color 2 Intensity	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	RW
	5005	5006	Segment 1 Speed	0 = Slow 1 = Medium 2 = Fast 3 = Custom	RW
	5006	5007	Segment 1 Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	RW
	5007	5008	Segment 2 Animation	-	RW
	5008	5009	Segment 2 Color 1	-	RW
	5009	5010	Segment 2 Color 2	-	RW
	5010	5011	Segment 2 Color 1 Intensity	-	RW
	5011	5012	Segment 2 Color 2 Intensity	-	RW
	5012	5013	Segment 2 Speed	-	RW
	5013	5014	Segment 2 Pattern	-	RW
	5014	5015	Segment 3 Animation	-	RW
	5015	5016	Segment 3 Color 1	-	RW
	5016	5017	Segment 3 Color 2	-	RW
	5017	5018	Segment 3 Color 1 Intensity	-	RW
	5018	5019	Segment 3 Color 2 Intensity	-	RW
	5019	5020	Segment 3 Speed	-	RW
	5020	5021	Segment 3 Pattern	-	RW
	5021	5022	Segment 4 Animation	-	RW
	5022	5023	Segment 4 Color 1	-	RW
	5023	5024	Segment 4 Color 2	-	RW
	5024	5025	Segment 4 Color 1 Intensity	-	RW
	5025	5026	Segment 4 Color 2 Intensity	-	RW
	5026	5027	Segment 4 Speed	-	RW
	5027	5028	Segment 4 Pattern	-	RW
	5028	5029	Segment 5 Animation	-	RW
	5029	5030	Segment 5 Color 1	-	RW

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Name	Register	With Offset	Description	Holding Register Representation	Access
	5030	5031	Segment 5 Color 2	-	RW
	5031	5032	Segment 5 Color 1 Intensity	-	RW
	5032	5033	Segment 5 Color 2 Intensity	-	RW
	5033	5034	Segment 5 Speed	-	RW
	5034	5035	Segment 5 Pattern	-	RW
	5035	5036	Audible State	0 = Off 1 = Tone 2 = Sync	RW
	5036	5037	Audible Volume	0 = Off 1 = Low 2 = Medium 3 = High	RW
	5037	5038	Audible Tone	0 = Freq 1 1 = Freq 2 2 = Freq 3	RW
	5038	5039	Custom Speed	dHz	RW
	5039	5040	Custom Intensity	0-100%	RW
Operating Mode	5040	5041	Operation Mode Write	1 = Basic Mode, 2 = Advanced Mode	WO
Basic Mode Segment 1 Configuration	5110	5111	Basic Color	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	RW
	5111	5112	Basic Flash Speed	0 = Standard 1 = Fast 2 = Slow 3 = Custom	RW

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Name	Register	With Offset	Description	Holding Register Representation	Access
	5112	5113	Basic Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Demo	RW
	5113	5114	Basic Color 1	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	RW
	5114	5115	Basic Color 2	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White	RW

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Name	Register	With Offset	Description	Holding Register Representation	Access
	5115	5116	Basic Intensity 1	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	RW
	5116	5117	Basic Intensity 2	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom	RW
	5117	5118	Basic Speed	0 = Slow 1 = Medium 2 = Fast 3 = Custom	RW
	5118	5119	Basic Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random	RW
Segment Mode Segment 2 Configuration	5120	5121	Basic Color	-	RW
	5121	5122	Basic Flash Speed	-	RW
	5122	5123	Basic Animation	-	RW
	5123	5124	Basic Color 1	-	RW
	5124	5125	Basic Color 2	-	RW
	5125	5126	Basic Intensity 1	-	RW
	5126	5127	Basic Intensity 2	-	RW
	5127	5128	Basic Speed	-	RW
	5128	5129	Basic Pattern	-	RW
Segment Mode Segment 3 Configuration	5130	5131	Basic Color	-	RW
	5131	5132	Basic Flash Speed	-	RW
	5132	5133	Basic Animation	-	RW
	5133	5134	Basic Color 1	-	RW
	5134	5135	Basic Color 2	-	RW
	5135	5136	Basic Intensity 1	-	RW
	5136	5137	Basic Intensity 2	-	RW
	5137	5138	Basic Speed	-	RW
	5138	5139	Basic Pattern	-	RW
Segment Mode Segment 4 Configuration	5140	5141	Basic Color	-	RW
	5141	5142	Basic Flash Speed	-	RW
	5142	5143	Basic Animation	-	RW
	5143	5144	Basic Color 1	-	RW
	5144	5145	Basic Color 2	-	RW

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Name	Register	With Offset	Description	Holding Register Representation	Access
	5145	5146	Basic Intensity 1	-	RW
	5146	5147	Basic Intensity 2	-	RW
	5147	5148	Basic Speed	-	RW
	5148	5149	Basic Pattern	-	RW
Segment Mode Segment 5 Configuration	5150	5151	Basic Color	-	RW
	5151	5152	Basic Flash Speed	-	RW
	5152	5153	Basic Animation	-	RW
	5153	5154	Basic Color 1	-	RW
	5154	5155	Basic Color 2	-	RW
	5155	5156	Basic Intensity 1	-	RW
	5156	5157	Basic Intensity 2	-	RW
	5157	5158	Basic Speed	-	RW
	5158	5159	Basic Pattern	-	RW
Basic Segment Audio Configuration	5160	5161	Audible State	0 = Off 1 = Tone 2 = Sync	RW
	5161	5162	Audible Volume	0 = Off 1 = Low 2 = Medium 3 = High	RW
	5162	5163	Audible Tone	0 = Freq 1 1 = Freq 2 2 = Freq 3	RW

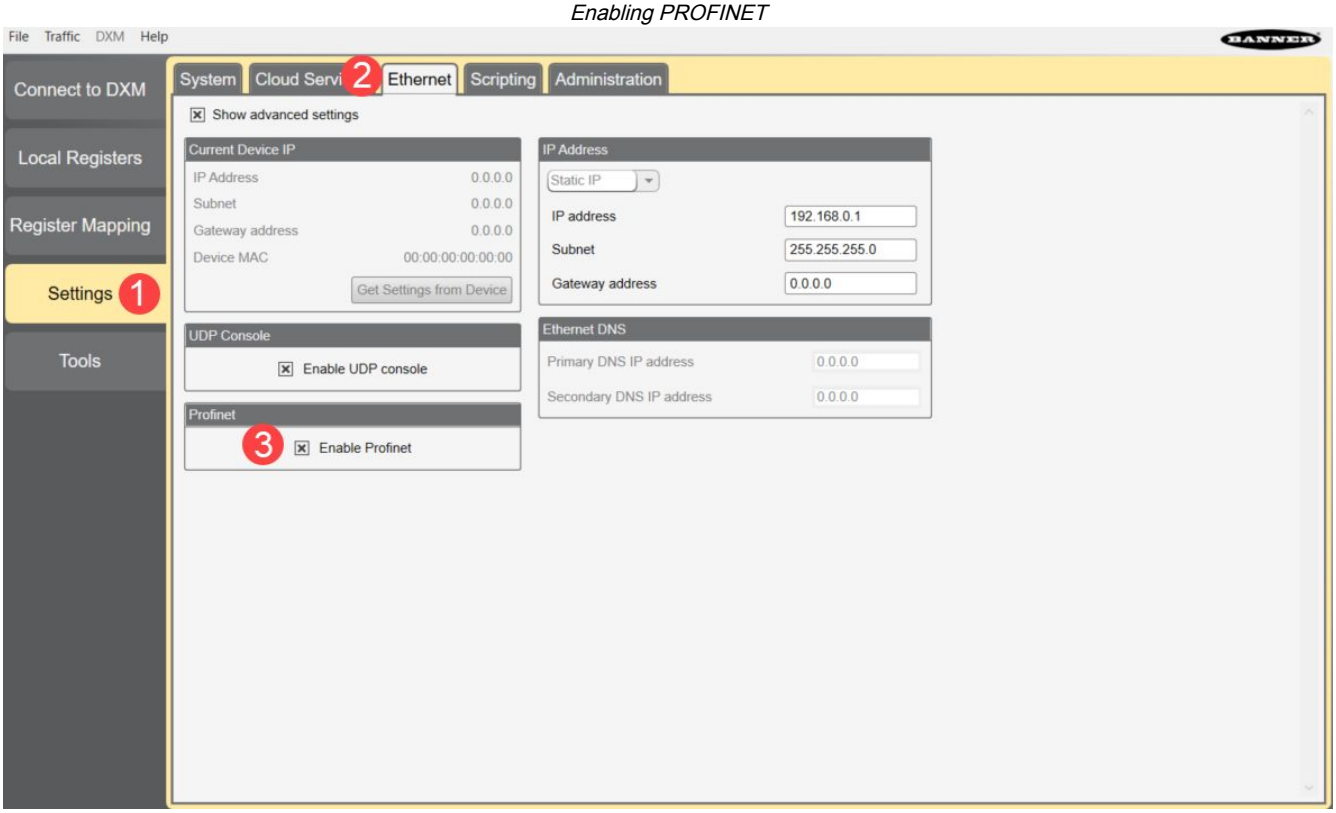
PROFINET Configuration

After connecting to the TL70 and uploading the configuration via the DXM configuration software:

1. Select **Settings**.
2. Select **Ethernet**.
3. Check `Enable Profinet`.

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Enabling PROFINET



When complete, select **File › Save**, and then select `DXM` and `Send Configuration to DXM` to send the PROFINET-enabled configuration to the tower light. The tower light can now be connected over PROFINET.

PROFINET Map

Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
1	Read only	0-1	1	Number of segments Read	#1 - 5
		2-3	2	Mode Read	1 = Basic Mode, 2 = Advanced Mode
3	Device Information	186-205	606-615	Banner Name	0..65535
		206-237	616-631	Product Name	0..65535
		238-239	632	Item H	0..65535
		240-241	633	Item L	0..65535
		242-243	634	Serial Number 1 (H)	0..65535
		244-245	635	Serial Number 2	0..65535
		246-247	636	Serial Number 3	0..65535
		248-249	637	Serial Number 4 (L)	0..65535
		250-251	638	Firmware PN H	0..65535
		252-253	639	Firmware PN L	0..65535
		254-255	640	Firmware Version H	0..65535
		256-257	641	Firmware Version L	0..65535
		258-259	642	Firmware Build Number H	0..65535
		260-261	643	Firmware Build Number L	0..65535
		262-293	644-659	User Define Tag	0..65535

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Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
7	Basic Mode Control	0-1	5001	Segment 1 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
		2-3	5002	Segment 2 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
		4-5	5003	Segment 3 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
		6-7	5004	Segment 4 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
		8-9	5005	Segment 5 State	0 = Off 1 = Basic On 2 = Basic Flash 3 = Animation
		10-11	5006	Basic Audible	0 = Off, 1 = Basic On
7	Advanced Mode Control	0-1	5001	Segment 1 Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Demo

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Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
		2-3	5002	Segment 1 Color 1	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White
		4-5	5003	Segment 1 Color 2	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White
		6-7	5004	Segment 1 Color 1 Intensity	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom
		8-9	5005	Segment 1 Color 2 Intensity	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom

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Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
		10-11	5006	Segment 1 Speed	0 = Slow 1 = Medium 2 = Fast 3 = Custom
		12-13	5007	Segment 1 Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random
		14-15	5008	Segment 2 Animation	-
		16-17	5009	Segment 2 Color 1	-
		18-19	5010	Segment 2 Color 2	-
		20-21	5011	Segment 2 Color 1 Intensity	-
		22-23	5012	Segment 2 Color 2 Intensity	-
		24-25	5013	Segment 2 Speed	-
		26-27	5014	Segment 2 Pattern	-
		28-29	5015	Segment 3 Animation	-
		30-31	5016	Segment 3 Color 1	-
		32-33	5017	Segment 3 Color 2	-
		34-35	5018	Segment 3 Color 1 Intensity	-
		36-37	5019	Segment 3 Color 2 Intensity	-
		38-39	5020	Segment 3 Speed	-
		40-41	5021	Segment 3 Pattern	-
		42-43	5022	Segment 4 Animation	-
		44-45	5023	Segment 4 Color 1	-
		46-47	5024	Segment 4 Color 2	-
		48-49	5025	Segment 4 Color 1 Intensity	-
		50-51	5026	Segment 4 Color 2 Intensity	-
		52-53	5027	Segment 4 Speed	-
		54-55	5028	Segment 4 Pattern	-
		56-57	5029	Segment 5 Animation	-
		58-59	5030	Segment 5 Color 1	-
		60-61	5031	Segment 5 Color 2	-
		62-63	5032	Segment 5 Color 1 Intensity	-
		64-65	5033	Segment 5 Color 2 Intensity	-
		66-67	5034	Segment 5 Speed	-
		68-69	5035	Segment 5 Pattern	-
		70-71	5036	Audible Type	0 = Off 1 = Tone 2 = Sync

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Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
		72-73	5037	Audible Volume	0 = Off 1 = Low 2 = Medium 3 = High
		74-75	5038	Audible Tone	0 = Freq 1 1 = Freq 2 2 = Freq 3
		76-77	5039	Custom Speed	dHz
		78-79	5040	Custom Intensity	0-100%
7	Operating Mode	80-81	5041	Operation Mode Write	1 = Basic Mode, 2 = Advanced Mode
7	Basic Mode Segment 1 Configuration	220-221	5111	Basic Color	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White
		222-223	5112	Basic Flash Speed	0 = Standard 1 = Fast 2 = Slow 3 = Custom
		224-225	5113	Basic Animation	0 = Off 1 = Steady 2 = Flash 3 = Two Color Flash 4 = 50/50 5 = 50/50 Rotate 6 = Chase 7 = Intensity Sweep 8 = Demo

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Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
		226-227	5114	Basic Color 1	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White
		228-229	5115	Basic Color 2	0 = Green 1 = Red 2 = Orange 3 = Amber 4 = Yellow 5 = Lime Green 6 = Spring Green 7 = Cyan 8 = Sky Blue 9 = Blue 10 = Violet 11 = Magenta 12 = Rose 13 = White
		230-231	5116	Basic Intensity 1	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom
		232-233	5117	Basic Intensity 2	0 = High 1 = Medium 2 = Low 3 = Off 4 = Custom

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Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
		234-235	5118	Basic Speed	0 = Slow 1 = Medium 2 = Fast 3 = Custom
		236-237	5119	Basic Pattern	0 = Normal 1 = Strobe 2 = 3-Pulse 3 = SOS 4 = Random
7	Segment Mode Segment 2 Configuration	240-241	5121	Basic Color	-
		242-243	5122	Basic Flash Speed	-
		244-245	5123	Basic Animation	-
		246-247	5124	Basic Color 1	-
		248-249	5125	Basic Color 2	-
		250-251	5126	Basic Intensity 1	-
		252-253	5127	Basic Intensity 2	-
		254-255	5128	Basic Speed	-
		256-257	5129	Basic Pattern	-
7	Segment Mode Segment 3 Configuration	260-261	5131	Basic Color	-
		262-263	5132	Basic Flash Speed	-
		264-265	5133	Basic Animation	-
		266-267	5134	Basic Color 1	-
		268-269	5135	Basic Color 2	-
		270-271	5136	Basic Intensity 1	-
		272-273	5137	Basic Intensity 2	-
		274-275	5138	Basic Speed	-
		276-277	5139	Basic Pattern	-
7	Segment Mode Segment 4 Configuration	280-281	5141	Basic Color	-
		282-283	5142	Basic Flash Speed	-
		284-285	5143	Basic Animation	-
		286-287	5144	Basic Color 1	-
		288-289	5145	Basic Color 2	-
		290-291	5146	Basic Intensity 1	-
		292-293	5147	Basic Intensity 2	-
		294-295	5148	Basic Speed	-
		296-297	5149	Basic Pattern	-
7	Segment Mode Segment 5 Configuration	300-301	5151	Basic Color	-
		302-303	5152	Basic Flash Speed	-
		304-305	5153	Basic Animation	-
		306-307	5154	Basic Color 1	-
		308-309	5155	Basic Color 2	-
		310-311	5156	Basic Intensity 1	-

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Slot	Name	Profinet Byte #	Local Registers	Description	Holding Register Representation
		312-313	5157	Basic Intensity 2	-
		314-315	5158	Basic Speed	-
		316-317	5159	Basic Pattern	-
7	Basic Segment Audio Configuration	320-321	5161	Audible Type	0 = Off 1 = Tone 2 = Sync
		322-323	5162	Audible Volume	0 = Off 1 = Low 2 = Medium 3 = High
		324-325	5163	Audible Tone	0 = Freq 1 1 = Freq 2 2 = Freq 3

Tower Light Segment Modes

Basic Segment Mode

Use a single run time register per LED segment to set it to Off, On, Flash, or Animation mode.

Use a single run time register for an audible segment to set it to Off or On.

Use additional configuration registers to change color, intensity, flash speed, and select animation type on LED segments and change volume and tone on audible segment.

Advanced Segment Mode

Use multiple run time registers per LED segment to control color, intensity, flash, and other animation types.

Use multiple run time registers for an audible segment to control sync, volume, and tone settings.

Use additional configuration registers to create custom intensity and flash speeds.

LED Segment Control

Animation	Description
Off	Segment is off
Steady	Color 1 is solid on at defined intensity
Flash	Color 1 flashes at defined speed, color intensity, and pattern
Two Color Flash	Color 1 and Color 2 flash alternately at defined speed, color intensities, and pattern
50/50	Color 1 is displayed on 50% of the segment and Color 2 is displayed on the other 50% of the segment at the defined color intensities
50/50 Rotate	Color 1 is displayed on 50% of the segment and Color 2 is displayed on the other 50% of the segment while rotating at the defined speed and color intensities
Chase	Color 1 is displayed as a single spot against the background of Color 2 while rotating at the defined speed, color intensities, and rotational direction
Intensity Sweep	Color 1 repeatedly increases and decreases intensity between 0% to 100% at defined speed and color intensity
Demo	Demo sequence cycles through several sets of colors and configurations to highlight example applications

Audible Segment Control

Setting	Description
Audible State	Sets the segment to off, on, or synced to flash pattern of last LED segment
Audible Volume	Defines the volume of the audible tone

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Setting	Description
Audible Tone	Defines the audible tone frequency

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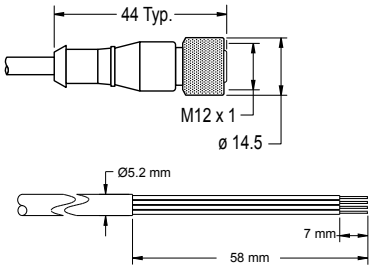
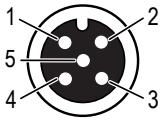
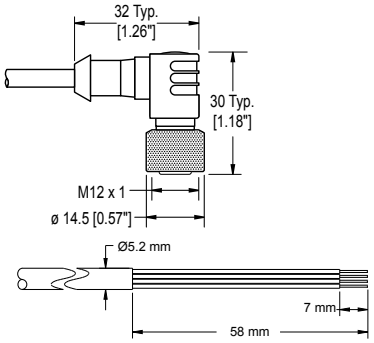
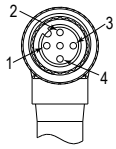
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Chapter 5 Accessories

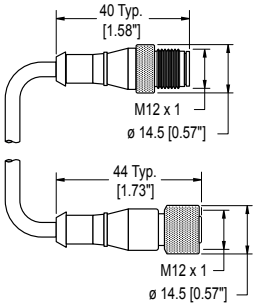
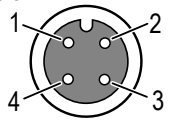
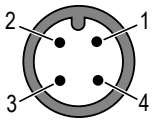
Cordsets

4-Pin Single-Ended, M12 Female Cordsets

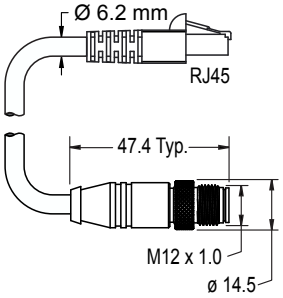
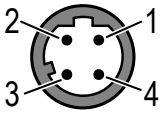
Model	Length	Style	Dimensions	Pinout (Female)
MQDC-406	2 m (6.56 ft)	Straight		
MQDC-415	5 m (16.4 ft)			
MQDC-430	9 m (29.5 ft)			
MQDC-450	15 m (49.2 ft)			
MQDC-406RA	2 m (6.56 ft)	Right-Angle		
MQDC-415RA	5 m (16.4 ft)			
MQDC-430RA	9 m (29.5 ft)			
MQDC-450RA	15 m (49.2 ft)			

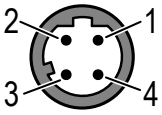
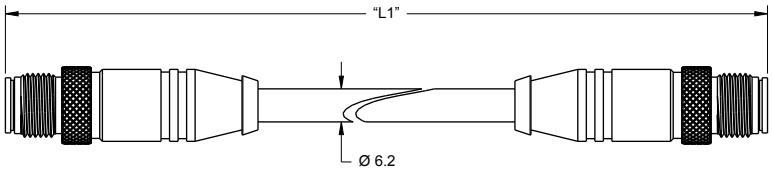
1 = Brown
2 = White
3 = Blue
4 = Black
5 = Unused

4-Pin Double-Ended, M12 Female-M12 Male Cordsets

Model	Length	Style	Dimensions	Pinout
MQDEC-401SS	0.31 m (1 ft)	Male Straight/ Female Straight		Female  Male  1 = Brown 2 = White 3 = Blue 4 = Black
MQDEC-403SS	0.91 m (2.99 ft)			
MQDEC-406SS	1.83 m (6 ft)			
MQDEC-412SS	3.66 m (12 ft)			
MQDEC-415SS	4.58 m (15 ft)			
MQDEC-420SS	6.10 m (20 ft)			
MQDEC-430SS	9.14 m (30.2 ft)			
MQDEC-450SS	15.2 m (49.9 ft)			

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4-Pin D-Code Double-Ended, M12 Male-RJ45 Male, Shielded Cordsets				
Model	**Length**	**Dimensions**	**RJ45 Pinout (Male)**	**M12 Pinout (Male)**
STP-M12D-403	0.9 m (2.95 ft)		 1 = White/Orange 2 = Orange 3 = White/Blue 6 = Blue	 1 = White/Orange 2 = White/Blue 3 = Orange 4 = Blue
STP-M12D-406	1.83 m (6 ft)			
STP-M12D-415	4.57 m (15 ft)			
STP-M12D-430	9.14 m (30 ft)			

4-Pin D-Code Double-Ended M12 Male to M12 Male Shielded Cordset				
Model	**Length "L1"**	**Style**	**Pinout**	
M12D-M12D-4M	4 m (13.1 ft)	Male Straight / Male Straight		1 = White / Orange 2 = White / Blue 3 = Orange 4 = Blue
				

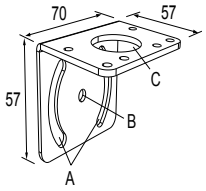
Mounting Brackets

All measurements are listed in millimeters, unless noted otherwise. The measurements provided are subject to change.

SMB30MM

- 12-gauge stainless steel bracket with curved mounting slots for versatile orientation
- Clearance for M6 (¼ in) hardware
- Mounting hole for 30 mm sensor
- CAD Files: DXF, PDF, IGS, STP

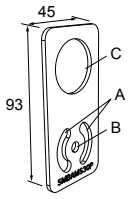
Hole center spacing: A=51, A to B=25.4
Hole size: A=42.6 × 7, B=ø 6.4, C=ø 30.1



SMBAMS30P

- Flat SMBAMS series bracket
- 30 mm hole for mounting sensors
- Articulation slots for 90°+ rotation
- 12-gauge 300 series stainless steel
- CAD Files: DXF, PDF, IGS, STP

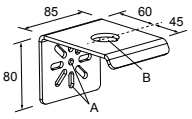
Hole center spacing: A=26.0, A to B=13.0
Hole size: A=26.8 × 7.0, B=ø 6.5, C=ø 31.0



SSA-MBK-EEC1

- Single 30 mm hole
- 8 gauge steel, black finish (powder coat)
- Front surface for customer-applied labels
- CAD Files: DXF, PDF, IGS, STP

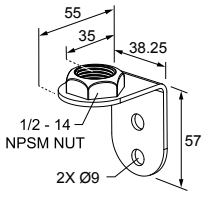
Hole size: A = ø 7 , B = ø 30



LMBE12RA35

- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 35 mm
- CAD Files: DXF, PDF, IGS, STP

Hole center spacing: 20.0



Continued on page 37

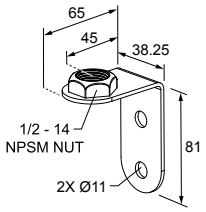
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Continued from page 36

LMBE12RA45

- Direct mounting of stand-off pipe, with common bracket type
- Zinc-plated steel
- 1/2-14 NPSM nut
- Mounting distance from the wall to the center of the 1/2-14 NPSM nut is 45 mm
- CAD Files: DXF, PDF, IGS, STP

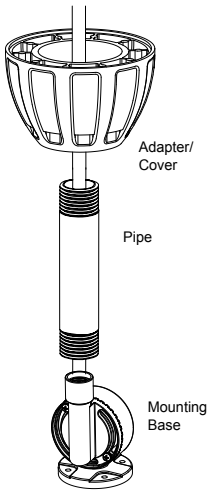
Hole center spacing: 35.0



Elevated Mount System

Single-cable models (suffix QPD) are compatible with the Elevated Mount System. Dual-cable models (suffix Q2PE) are incompatible with the Elevated Mount System. This applies to both base models and pre-assembled models. See Models for more detailed model numbers.

Example Assembly for a TL70 Tower Light

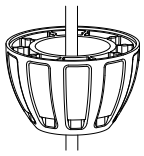


This example uses:

1. Adapter/Cover (SA-M30 shown)
2. Pipe
3. Mounting Base (SA-FFB12 shown)

Other compatible parts are listed in the following tables.

Adapters/Covers

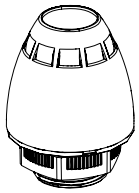
Adapter/Cover Model	Description	
SA-M30 - Black polycarbonate	• Streamlined black PC or Gray PC thread cover • Covers the outer M30 threads on the light's base • Typically used for the TL70 Tower Light and K90 series • Mounting hardware included • CAD files: DXF, PDF, IGS, STP	
SA-M30C - Gray polycarbonate		

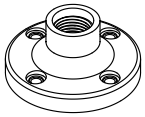
Pipes

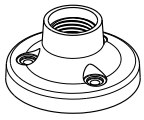
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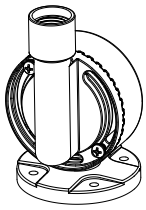
Black Anodized Aluminum, ½ in. NPT Pipe Models	Clear Anodized Aluminum, ½ in. NPT Pipe Models	Description
SOP-E12-150A, 150 mm (6 in) long	**SOP-E12-150AC**, 150 mm (6 in) long	• Elevated-use stand-off pipe • Threaded at both ends • Compatible with most industrial environments • CAD Files: ◦ **SOP-E12-150A**: DXF, PDF, IGS, STP ◦ **SOP-E12-300A**: DXF, PDF, IGS, STP ◦ **SOP-E12-600A**: DXF, PDF, IGS, STP ◦ **SOP-E12-900A**: DXF, PDF, IGS, STP
SOP-E12-300A, 300 mm (12 in) long	**SOP-E12-300AC**, 300 mm (12 in) long	
SOP-E12-600A, 600 mm (24 in) long	-	
SOP-E12-900A, 900 mm (36 in) long	**SOP-E12-900AC**, 900 mm (36 in) long	

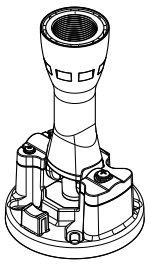
Bottom Covers and Mounting Bases

Mounting Base Model	Description	
SA-E12M30 - Black acetal **SA-E12M30C** - White UHMW	• Streamlined black acetal or white UHMW mounting base adapter/cover • Adapter from ½ in. NPSM/DN15 pipe to 30 mm (1-3/16 in) drilled hole • Mounting hardware included • CAD files: DXF, PDF, IGS, STP	

Mounting Base Model	Description	
SA-F12	• Die-cast zinc base with black paint • Elevated-use stand-off pipes (½ in, NPSM/DN15) • M5 mounting hardware and nitrile gasket included • CAD files: DXF, PDF, IGS, STP	

Mounting Base Model	Description	
SA-F12-3	• Black polycarbonate • Elevated-use stand-off pipes (½ in, NPSM/DN15) • M4 mounting hardware and nitrile blend gasket included • CAD files: DXF, PDF, IGS, STP	

Mounting Base Model	Description	
SA-FFB12 - Black polycarbonate **SA-FFB12C** - Gray polycarbonate	• For use with ½ in. stand-off pipes • 110° rotation • Stainless steel hardware • CAD files: DXF, PDF, IGS, STP	

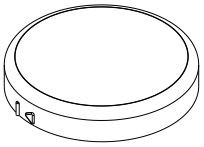
Mounting Base Model	Description	
SOKTL150R4	• Black polycarbonate • Foldable stand model with upright and 90° folding states • Elevated-use stand-off pipes (½ in, NPSM/DN15) • Mounting hardware included • CAD files: DXF, PDF, IGS, STP	

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LMB Sealed Right Angle Bracket

Model	Description	Construction	
LMB30RA CAD Files: DXF, PDF, IGS, STP	**Direct-Mount Models:** Bracket kit with base, 30 mm adapter, set screw, fasteners, O-rings, and gaskets.	Black polycarbonate	
LMBE12RA CAD Files: DXF, PDF, IGS, STP	**Pipe-Mount Models:** Bracket kit with base, ½-14 pipe adapter, set screw, fasteners, O-rings, and gaskets. For use with stand-off pipe (listed and sold separately).	Black polycarbonate	

Top Replacement Cover

C-TL70 Replacement Top Cover • Black polycarbonate housing • Fits TL70 tower lights • IP65 rated • CAD Files: DXF, PDF, IGS, STP	

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Chapter 6 Product Support and Maintenance

Clean with Mild Detergent and Warm Water

Wipe down the device with a soft cloth dampened with a mild detergent and warm water solution. Do not use any other chemicals for cleaning.

Repairs

Contact Banner Engineering for troubleshooting of this device. **Do not attempt any repairs to this Banner device; it contains no field-replaceable parts or components.** If the device, device part, or device component is determined to be defective by a Banner Applications Engineer, they will advise you of Banner's RMA (Return Merchandise Authorization) procedure.

> **IMPORTANT:** If instructed to return the device, pack it with care. Damage that occurs in return shipping is not covered by warranty.

Contact Us

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For worldwide locations and local representatives, visit www.bannerengineering.com.

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