

Leviton's BACnet Option

Native BACnet/MSTP

Leviton ZMAX lighting control panels support digital communications to facilitate the extension of control to include interoperation with building automation systems and other intelligent field devices. Digital communications is RS485 master/slave token passing using the BACnet[®] protocol.

We have built in provisions for an individual BACnet device ID and a unique read-only description for each panel. While some other manufacturers Device ID description properties are writable many BMS don't support writing to description properties.

We also support all 16 BACnet priorities. Since BACnet is truly a "native" protocol and not an option, the BACnet priority array is core to the ZMAX control architecture. Any input can use layered priorities to create sophisticated control scenarios.

Other supported features included with ZMAX as a standard:

- a) Supports MS/TP MAC addresses in the range of 0 – 127 plus auto detects baud rates of 9600k, 38400k and 76800k bits per second.
- b) Supports 1000 groups. These groups are network wide and accessed as BO instance 1000-1999.
- c) Input relays are represented as binary output objects in the instance range of 1 – 254 per master panel. The state of each relay is readable and writable by the BAS via the object present value property.
- d) Inputs are represented by BI objects for Occupancy Sensors, LV and digital switches and contact closures and AI objects for Photocells
- e) We support many sophisticated options including daylight configuration, astronomical time clock, timed overrides, and can be adapted to any control scenario.

ZMAX can be completely configured from the front panel or with free software over USB or optional Modem and Ethernet. Configuration software may be installed on the BMS workstation if desired.

BACnet/MSTP specifications:

MAC address range 1 to 127

Baud rates 9600, 19200, 38400 (Note: 76800 are not currently supported).

Device ID range: 1 to 9999

Cable: RS485 compatible shielded twisted pair. This is the same cable type that is used for Leviton's proprietary protocol Lumanet or USITT DMX512 (Belden 9829, 1502, or other RS485 compatible).

Control Points

Object	Instance	Control Point		Present Value
Analog Output (AO)	1...252	RELAY 01...252	Read/Write	0% (inactive) - 100% (active); Relinquished
Binary Output (BO)	1...252	RELAY 01...252	Read/Write	Active; Inactive; Relinquished
Binary Output (BO)	1000....1999	GROUP 1000...1999	Read/Write	Active; Inactive; Relinquished
Binary Input (BI)	1...240	Switch, Occupancy Sensor or Contact Closure Input 1...240	Read Only	Active; Inactive
Analog Input (AI)	1...240	Photocell 1...240	Read Only	0-255 Foot Candles

Priorities

Since BACnet may control the relays at any priority, it is vitally important to understand how priorities are used in ZMAX and how they may impact the integration in BAS systems. Each relay in ZMAX has 16 priority levels. This is known as the "priority array" for each relay.

Priority	Default in ZMAX
1- Highest	Internal Main Bypass Switch (cannot be change)
2	Emergency Power (cannot be changed)
3	Internal Relay Bypass (cannot be changed)
4	Front panel Override- Front Panel ALL ON button
5	
6	
7	Photocell
8	LV and Digital Switches, Schedule, Lumanet, Red Relay Manual Pushbuttons
9	
10	
11	
12	
13	
14	
15	
16-Lowest	

Each Priority may be individually controlled by being set to ON, OFF, or RELEASED (Relinquished). The highest priority that is not released will determine the state of the relay.

Depending on the desired BAS control application, the priority in which the BAS controls the relay is very important.

BACnet MS/TP Connections

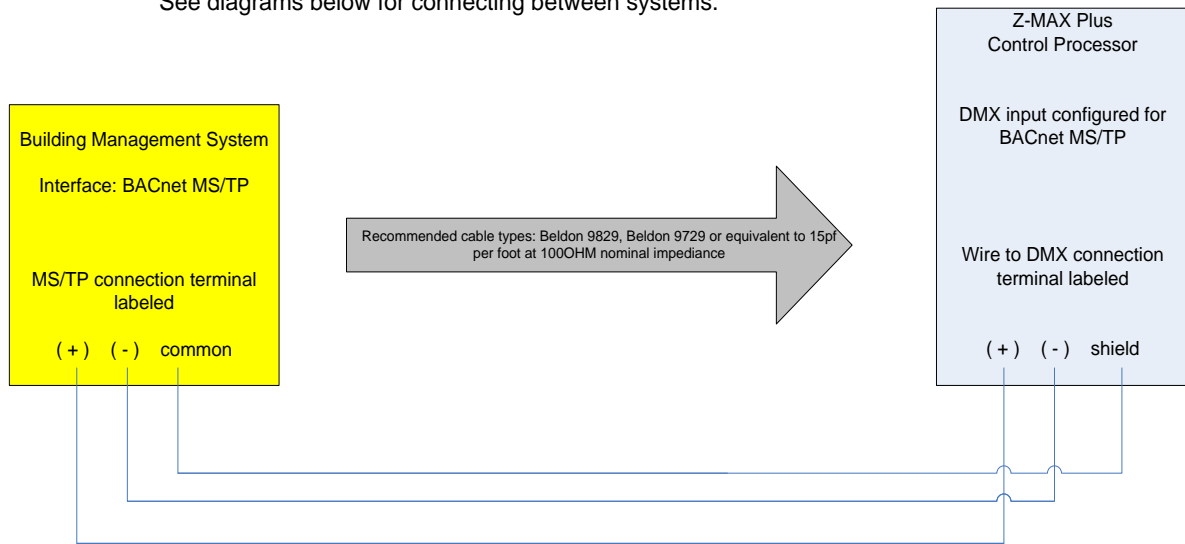
BACnet/MSTP uses a twisted pair of wires. The connection method will primarily be landed on DMX +/- terminals within the Z-MAX Plus panel.

Note: There may be alternate connection ports, if DMX is already in use.

Connect MSTP +/- to corresponding DMX +/- terminal. Connect common or shield to common terminal.

Note: connector terminal locations may vary. The installer should consult the installation guide or installation drawings for specific locations.

See diagrams below for connecting between systems.



Connect MSTP +/- from the BMS System interface to corresponding DMX +/- terminal of the Z-MAX Plus cabinet.

Connect common or shield to common terminal.

See block diagram above for general connection methods. Terminals will be labeled in respective devices.