



Conduit® PoE Application Note

For Conduit IP67 (MTCDTIP) models with -266, -267, -270, or -275 in the model number.

For Conduit AP (MTCAP2) models with POE in the model number.

Terminology

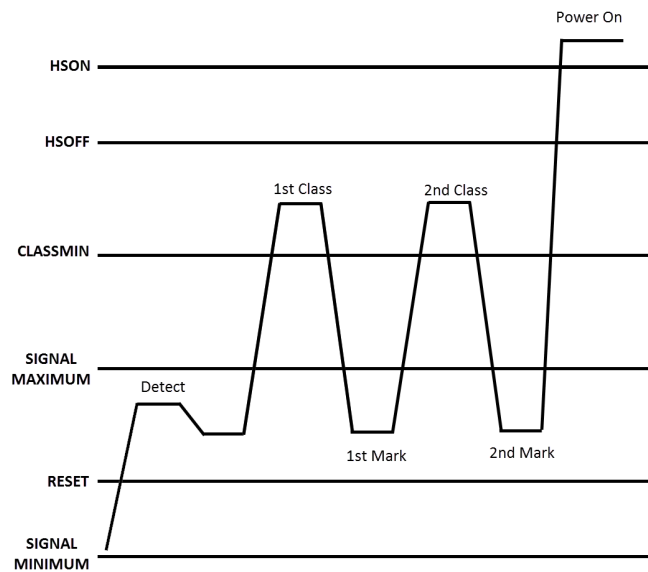
Term	Description
PoE	Power over Ethernet (802.3af). Provides DC power and high speed data through a single RJ45 connector.
PoE+	Power over Ethernet higher power (802.3at) (MTCDTIP only).
PSE	Power source equipment, also called an injector or supply.
PD	Power Device, for example the MTCDTIP or MTCAP2.
802.3af or 802.3at Type 1	PoE device with power rating up to 13W (MTCAP2).
802.3at Type 2	PoE device with power rating above 13 W and MUST be 25W or greater to turn on the device (MTCDTIP only).

Detection and Classification

During the detection and classification process the PSE looks for a 25kΩ signature resistor which identifies the device as a PD. The process varies depending on whether the PSE is Type 1 or Type 2.

A Type 1 PSE, after a successful PoE detection, may apply a classification probe voltage of 15.5V to 20.5V and measure current.

A Type 2 PSE probes for power classification twice, as shown. The PoE supply on the MTCDTIP recognizes this and pulls a pin up to VCC to signal the load detect circuit that Type 2 power is available. Otherwise it does not pull up on the pin, indicating that only Type 1 power is available.



Recommended PSE

The following PSEs have been tested and work with the MTCDTIP and MTCAP2:

- For standard MTCDTIP -266 and -267 models and MTCAP2 -042 models:
 - Phihong PoE29W-1AT
 - Microsemi PD-9001GR/AC =35W
 - Trendnet TPE-115GI = 30W
- For V2.1 MTCDTIP -270 and -275 models:
 - Intellinet Network Solutions Part Number 561235

PoE Standards

For more information about POE, refer to the relevant IEEE standards: IEEE 802.3af, IEEE 802.3at, and IEEE 802.3bt. IEEE 802.3bt-2018 is the current standard. These standards contain technical details you may find useful.

Troubleshooting

Problem: Device fails to power up:

Possible Causes:

- PSE underpowered.
- PSE not 802.3at compliant. (MTCDTIP only)
- Ground loops affecting the 802.3at protocol and interfering with capacitance detection.

Note: (*MTCDTIP only*) If the power LED lights up and then shuts off, the PSE is not providing enough power.