



Conduit® PoE Application Note

For Conduit 3AC (MTCDT3AC) models with Power Method Options C or E.

For Conduit IP67 (MTCDTIP) Base Station models with -266 or -267 in the model number.

For Conduit IP67 Series 200 Base Station (MTCDTIP2) all models.

For Conduit AP (MTCAP2) models with -042 or -002 and POE in the model number.

Terminology

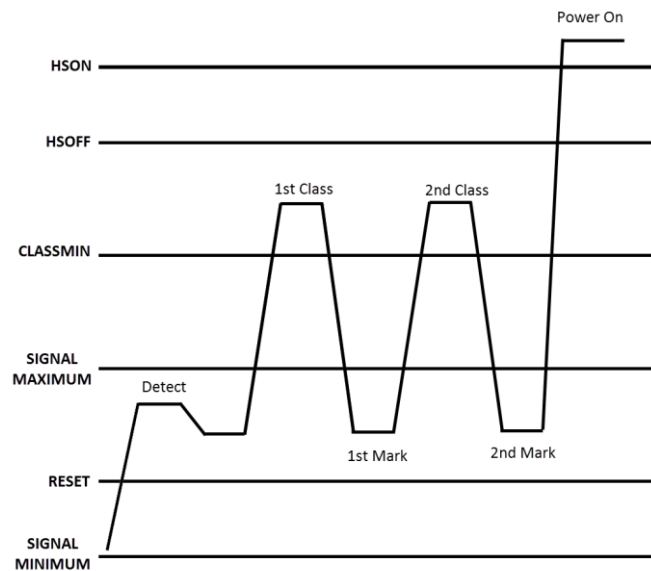
Term	Description
PoE	Power over Ethernet (802.3af). Provides DC power and high speed data through a single RJ45 connector.
PoE+	Power over Ethernet higher power (802.3at) (MTCDTIP and MTCDT3AC only).
PSE	Power source equipment, also called an injector or supply.
PD	Power device, for example the MTCDTIP or 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 and MTCDT3AC 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.



Requirements

For device specific PoE power requirements refer to your device's documentation.

Recommended PSE

The following PSEs have been tested and work with the models listed below:

- For standard MTCDTIP -266 and -267 models and MTCDTIP2:
 - Pihong PoE29W-1AT
 - Microsemi PD-9001GR/AC =35W
 - Trendnet TPE-115GI = 30W
- For MTCAP2 -042 and -002 models:
 - TRENDnet Gigabit PoE+ Injector TPE-115GI (Version v2.1R)
Note: This is a Class A PoE injector. Using a Class A PoE injector changes the system classification to Class A.
- For MTCDT3AC models (Note: To retain Gigabit Ethernet speed capability)
 - Pihong POE36U-1AT-R (GE compliant)

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 and MTCDTIP2 only*)
- Ground loops affecting the 802.3at protocol and interfering with capacitance detection.

Note: (*MTCDTIP and MTCDTIP2 only*) If the power LED lights up and then shuts off, the PSE is not providing enough power.