Prepare the installation of your Powered By PoE HMI

PoE, is a technology that allows both power and data to be transmitted over standard Ethernet cables. This technology simplifies installations and reduces the need for additional power sources, making it an ideal solution for a wide range of applications. The powered by PoE devices are growing, WIFI access points, IP cameras, IP Phones, IoT devices etc. are all using PoE technology. Upon 802.11bt specification published, almost every device that consume less than 70W can be powered by PoE and powered by PoE devices keep growing. 802.11bt makes larger size LCD screen HMI powered by PoE possible. PoE brings tremendous benefits to plant floor automation. Beside saving the time and manpower in installation; PoE gives the flexibility in installation as well. HMI can be placed wherever Ethernet cables can reach without worrying the power source. All powered by PoE HMI can be powered on / off via PoE switches. Power backup are centralized providing to PoE switches only, eliminating scattering UPS to individual HMI.

It is important to verify what type of PoE switches and Ethernet cables required to power your PoE powered devices before installation begins. Power over Ethernet (PoE) specs refer to the standards and power levels used to deliver both data and power over Ethernet cables. PoE standards like IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt (PoE++) define the amount of power that can be transmitted and the type of cables that can be used. Please refer to the table below:

PoE Types and Specifications Overview

Category	Type 1 (PoE)	Type 2 (PoE+)	Type 3 (PoE++)	Type 4 (PoE++)
IEEE Standard	802.3af	802.3at	802.3bt	802.3bt
Max Power at PSE	15.4 W	30 W	60 W	90-100 W
Max Power at PD	12.95 W	25.5 W	51 W	71-90 W
Voltage Range	44-57 V	50-57 V	50-57 V	52-57 V
Current Per Pair	350 mA	600 mA	600 mA	960 mA
Twisted Pairs Used	2 Pairs	2 Pairs	4 Pairs	4 Pairs
Cable Type Required	Cat3+	Cat5+	Cat5e+	Cat5e+
Max Distance	100 m	100 m	100 m	100 m
Data Rate Supported	10/100 Mbps	10/100/1000 Mbps	10/100/1000 Mbps	10/100/1000 Mbps

Standards:
IEEE 802.3af (PoE), IEEE 802.3at (PoE+), and IEEE 802.3bt (PoE++) define the protocols and power levels.

Power Levels:
PoE provides up to 15.4W, PoE+ up to 30W, and PoE++ up to 60W or 90W.

Twisted Pairs:
PoE and PoE+ use two twisted pairs of wires, while PoE++ can use four pairs.

Cable Types:
PoE can use Cat3 or better, while PoE+ requires Cat5 or better. PoE++ requires Cat5e or better.

Voltage:
PoE typically provides a voltage range of 37-57V, while PoE+ and PoE++ have slightly higher voltage ranges.

Distance:
PoE can deliver power over a maximum distance of 100 meters.

Data Rate:
PoE supports 10/100/1000 Mbps data rates, with some higher-end PoE standards supporting faster speeds like 2.5GBASE-T, 5GBASE-T, and 10GBASE-T.