3.3 PoE Injector

The PoE injector box is designed to offer a single cable solution for connecting both data and the DC power supply to the IP-20C system.

Note:	An AC-power PoE Injector option is also available. Contact your Ceragon representative for details.

To do so, the PoE injector combines 48VDC input and GbE signals via a standard CAT5E cable using a proprietary Ceragon design.

The PoE injector can be ordered with a DC feed protection, as well as EMC surge protection for both indoor and outdoor installation options. It can be mounted on poles, walls, or inside racks.

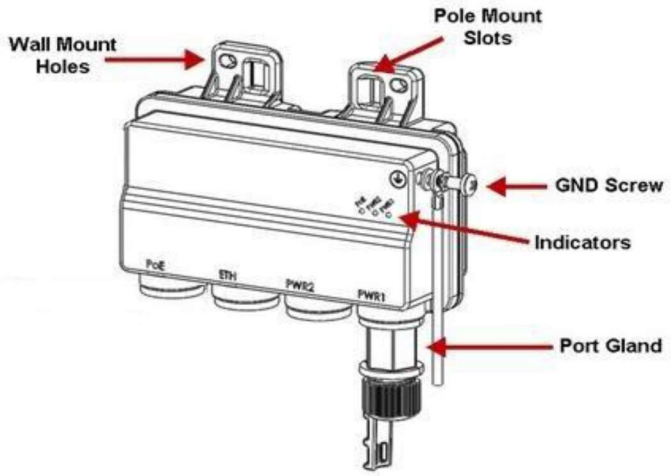

Figure 23: PoE Injector

Two models of the PoE Injector are available:

- **PoE_Inj_AO_2DC_24V_48V** – Includes two DC power ports with power input ranges of -(18-60)V each.
- **PoE_Inj_AO** – Includes one DC power port (DC Power Port #1), with a power input range of -(40-60)V.

3.3.1 PoE Injector Interfaces

- DC Power Port 1 -(18-60)V or ±(40-60)V
- DC Power Port 2 -(18-60)V
- GbE Data Port supporting 10/100/1000Base-T
- Power-Over-Ethernet (PoE) Port
- Grounding screw

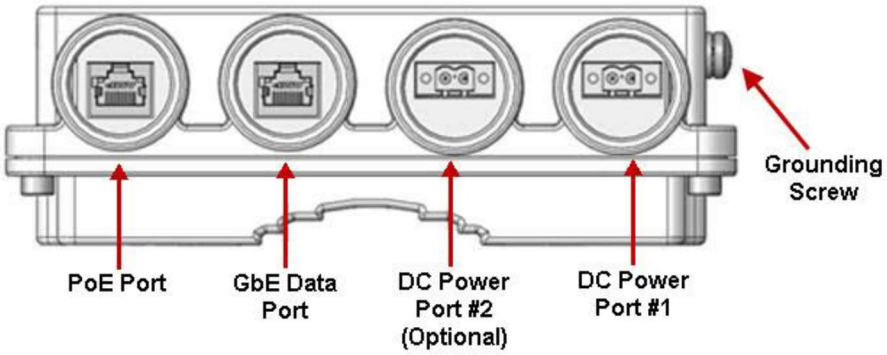

Figure 24: PoE Injector Ports

3.4 Voltage Alarm Thresholds and PMs

The allowed power input range for the IP-20C is -40V to -60V. An undervoltage alarm is triggered if the power goes below a defined threshold, and an overvoltage alarm is triggered if the power goes above a defined threshold. The default thresholds are:

- Undervoltage Raise Threshold: 32V
- Undervoltage Clear Threshold: 34V
- Overvoltage Raise Threshold: 60V
- Overvoltage Clear Threshold: 58V

These thresholds are configurable.

IP-20C also provides PMs that indicate, per 15-minute and 24-hour periods:

- The number of seconds the unit was in an undervoltage state during the measured period.
- The number of seconds the unit was in an overvoltage state during the measured period.
- The lowest voltage during the measured period.
- The highest voltage during the measured period.

8.17 Antenna Specifications

- Direct Mount:

CommScope (VHLP), RFS, Xian Putian (WTG), and Radio Wave

- Remote Mount:

Table 69: Antenna Specifications, Remote Mount

Frequency (GHz)	Waveguide Standard	Waveguide Flange	Antenna Flange
5.7/6	WR137	PDR70	UDR70
7/8	WR112	PBR84	UBR84
10/11	WR90	PBR100	UBR100
13	WR75	PBR120	UBR120
15	WR62	PBR140	UBR140
18-26	WR42	PBR220	UBR220
28-38	WR28	PBR320	UBR320
42	WR22	UG383/U	UG383/U

If a different antenna type (CPR flange) is used, a flange adaptor is required. Please contact your Ceragon representative for details.

8.18 Power Input Specifications

Table 70: Power Input

Standard Input	-48 VDC
DC Input range	-40 to -60 VDC

8.19 Power Consumption Specifications

Table 71: Power Consumption

Maximum Power Consumption	5.7-6 GHz	7-8 GHz	11 GHz	13-15 GHz	18-24 GHz	26-42 GHz
2+0 Operation	65W	75W	65W	55W	48W	55W
1+0 Operation (one of the carriers is muted)	40W	50W	53W	41W	39W	41W
Both carriers are muted	15W	25W	41W	27W	30W	27W

Note: Typical values are 5% less than the values listed above.

8.20 Power Connection Options

Table 72: Power Connection Options

Power Source and Range	Data Connection Type	Connection Length	DC Cable Type / Gage
Ext DC -(40.5 ÷ 60)VDC	Optical	≤ 100m	18AWG
		100m ÷ 300m	12AWG
	Electrical	≤ 100m	18AWG
PoE_Inj_AO (All outdoor PoE Injector, -40 ÷ 60VDC)	Electrical	≤ 100m (13 GHz and above) ≤ 75m (5.7-11 GHz)	CAT5e (24AWG)
PoE_Inj_AO_2DC_24V_48V (All outdoor PoE Injector, -(18 ÷ 60)VDC[35], DC input redundancy)	Electrical	≤ 100m	CAT5e (24AWG)

[35] Optional.

8.21 PoE Injector Specifications

8.21.1 Power Input

Table 73: PoE Injector Power Input

Standard Input	-48
DC Input range	-(18/40.5 to 60) VDC

8.21.2 Environmental

- Operating: ETSI EN 300 019-1-4 Class 4.1
  - Temperature range for continuous operating temperature with high reliability: **-33°C to +55°C**
  - Temperature range for exceptional temperatures; tested successfully, with limited margins: **-45°C to +60°C**
  - Humidity: 5%RH to 100%RH
    IEC529 IP66
- Storage: ETSI EN 300 019-1-1 Class 1.2
- Transportation: ETSI EN 300 019-1-2 Class 2.3

8.21.3 Standards Compliance

Table 74: PoE Injector Standards Compliance

Specification	Standard
EMC	EN 301 489-1, EN 301 489-4, Class A (Europe) FCC 47 CFR, part 15, class B (US) ICES-003, Class B (Canada) TEC/EMI/TEL-001/01, Class A (India)
Safety	EN 60950-1 IEC 60950-1 UL 60950-1 CSA-C22.2 No.60950-1 EN 60950-22 UL 60950-22 CSA C22.2.60950-22

8.21.4 Mechanical

Table 75: PoE Injector Standards Compliance

Module Dimensions	(H)134mm x (W)190mm x (D)62mm
Module Weight	1kg