

Cambium PMP/PTP 450i Series Hazardous Location Guide

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About this guide

This guide identifies the specific requirements that must be met by the installer and operator of the Cambium Networks PMP/PTP 450i ATEX/HAZLOC Series of radio products when the products are intended for use in Hazardous Locations.

Hazardous Locations are those covered by the ATEX regulations in Europe and the HAZLOC regulations in the USA.

Version information

Document number and version: pmp-1345_004v000 (September 2023).

User documentation

For full PMP/PTP 450i installation planning instructions and a list of components, download the *450 Series User Guide* from: <https://support.cambiumnetworks.com/files/pmp450i/>

Important safety information



Warning

To prevent fire and explosions when installing or operating the PMP/PTP 450i Series in hazardous locations, observe the instructions in this guide.

Limiting EIRP

Installation and operation of these products in locations where exposure to hazardous gasses is expected will be subject to EIRP limiting by the PMP/PTP 450i ATEX/HAZLOC series of radio products. Exceeding the EIRP limits will compromise safety.

The EIRP limit depends on the gas class/gas group prevalent in the operating location.

Installing connectorized ODUs

As shipped by the manufacturer, the equipment is set to meet the most stringent EIRP limits assuming an integrated antenna. Special care is therefore needed when operating connectorized versions of the radio with external antennas.

Checking labels

Only those products marked with the qualification labels shown in [Product labels](#) on page 8 may be used in hazardous locations.

Special conditions

PMP/PTP 450i

1. Connection and disconnection of terminals and plugs when the equipment is energised is strictly prohibited.
2. Only ATEX certified AC + DC Enhanced Power Injector models (EMT16ATEX0052X / IECEX EMT 16.0029X) provided by Cambium Networks Ltd may be used in conjunction with the equipment.
3. The connections into the hazardous areas from the AC + DC Enhanced Power Injector (EMT16ATEX0052X / IECEX EMT 16.0029X) or via the LPU (EMT16ATEX0051X / IECEX EMT 16.0028X) are at incendive energy levels and so they shall be made using protective shielded cable that provides protection from impact and damage in accordance with EN/IEC 60079-14.
4. Clean equipment with a damp or anti-static cloth only.
5. User supplied antenna not to cause the radio output power to exceed the RF limits specified in EN/IEC 60079-0 cl. 6.6.1. – IIC = 2 W, IIB = 3.5 W, IIA = 6 W.
6. The AUX connection should be fitted with the supplied metal blanking plug when not used.
7. Connections to the AUX output are incendive and would require special precautions as per no 3.
8. The equipment is not intended for repair by the user. Repair of this equipment shall be carried out by Cambium or Cambium's authorised representative.
9. It is the responsibility of the user to take suitable precautions to prevent exposure to aggressive chemicals that may react with metals or the polymeric materials used in the construction of this equipment.

Allowed operating envelope

The PMP/PTP 450i ATEX/HAZLOC Series of radio products have been certified for operation in the following hazardous locations:

ATEX

The products have been approved under an 'Intrinsic Safety' assessment as defined in EN/IEC 60079-11:2012. Approval is given by IECEX certificate number IECEX EMT 16.0001X and ATEX certificate number EMT16ATEX0003X, issued by Element Materials Limited, with the specific level of coverage shown below.

- II 3 G Ex ic IIC T4 Gc
- II - Equipment group (surface applications)
- 3 - Equipment category (infrequent exposure)
- G - Atmosphere (Gas)
- ic - Protection concept (intrinsic safety)
- IIC - Gas group (up to and including Hydrogen and Acetylene)
- T4 - Temperature class (135°C)
- Gc - Equipment Protection Level

HAZLOC

The products have been assessed and found compliant with the requirements of ANSI 12.12.01 and CSA C22.2 No. 213 for the following conditions.

The approval is given by MET Labs under File Reference E113068, with the specific level of coverage shown below.

- Complies with ANSI 12.12.01 and CSA C22.2 No. 213
- Class I - Gases, Vapors and Liquids (surface applications)
- Div - 2 (Infrequent Exposure)
- Gas Groups - A, B, C, D (up to and including Hydrogen and Acetylene)
- Operating Temperature Code - T4 (135°C)

Part numbers and product labels

Part numbers

In order to meet specific radio regulations in the USA, Canada and the EU, Cambium supplies products approved for USA, Canada, EU and the rest of the world under different models and part numbers. These models and part numbers are shown in [Table 1](#) below.

Table 1 PMP/PTP 450i ATEX/HAZLOC ODU models/part numbers

ODU model / Part number	Description
ODU model	
5085CHH 5085CJH	450i Connectorized ATEX/HAZLOC
5085HH 5085JH	450i Integrated 90 Degree Sector ATEX/HAZLOC
5095HH 5095JH	450i Integrated High Gain Directional ATEX/HAZLOC
Part Number	
C050045A009A C050045A009B	5 GHz PMP 450i Conn Access Point (ROW), ATEX/HAZLOC
C050045A010A C050045A010B	5 GHz PMP 450i Conn Access Point (FCC), ATEX/HAZLOC
C050045A011A C050045A011B	5 GHz PMP 450i Conn Access Point (EU), ATEX/HAZLOC
C050045A012A C050045A012B	5 GHz PMP 450i Integrated Access Point, 90 degree (ROW), ATEX/HAZLOC
C050045A013A C050045A013B	5 GHz PMP 450i Integrated Access Point, 90 degree (FCC), ATEX/HAZLOC
C050045A014A C050045A014B	5 GHz PMP 450i Integrated Access Point, 90 degree (EU), ATEX/HAZLOC
C050045A017A C050045A017B	5 GHz PMP 450i Conn Access Point (IC), ATEX/HAZLOC
C050045A018A C050045A018B	5 GHz PMP 450i Integrated Access Point, 90 degree (IC), ATEX/HAZLOC
C050045A019A C050045A019B	5 GHz PMP 450i Conn Access Point (DES Only), ATEX/HAZLOC
C050045A020A C050045A020B	5 GHz PMP 450i Integrated Access Point, 90 degree (DES Only), ATEX/HAZLOC

ODU model / Part number	Description
C050045C003A C050045C003B	5 GHz PMP 450i Conn Subscriber Module, ATEX/HAZLOC
C050045C004A C050045C004B	5 GHz PMP 450i Integrated High Gain Antenna, ATEX/HAZLOC
C050045B009A C050045B009B	5 GHz PTP 450i END, Connectorized (ROW), ATEX/HAZLOC
C050045B010A C050045B010B	5 GHz PTP 450i END, Integrated High Gain Antenna (ROW), ATEX/HAZLOC
C050045B011A C050045B011B	5 GHz PTP 450i END, Connectorized (FCC), ATEX/HAZLOC
C050045B012A C050045B012B	5 GHz PTP 450i END, Integrated High Gain Antenna (FCC), ATEX/HAZLOC
C050045B013A C050045B013B	5 GHz PTP 450i END, Connectorized (EU), ATEX/HAZLOC
C050045B014A C050045B014B	5 GHz PTP 450i END, Integrated High Gain Antenna (EU), ATEX/HAZLOC
C050045B017A C050045B017B	5 GHz PTP 450i END, Connectorized (IC), ATEX/HAZLOC
C050045B018A C050045B018B	5 GHz PTP 450i END, Integrated High Gain Antenna (IC), ATEX/HAZLOC
C050045B019A C050045B019B	5 GHz PTP 450i END, Connectorized (DES Only), ATEX/HAZLOC
C050045B020A C050045B020B	5 GHz PTP 450i END, Integrated High Gain Antenna (DES Only), ATEX/HAZLOC

Product labels

The PMP/PTP 450i ATEX/HAZLOC Series radio products can be identified by their qualification labels; some regional examples are shown below, along with the controlled text.

Year of manufacture can be identified using the MSN or ESN. Contact your Cambium representative for confirmation if necessary.

Figure 1 P/N C050045A009B

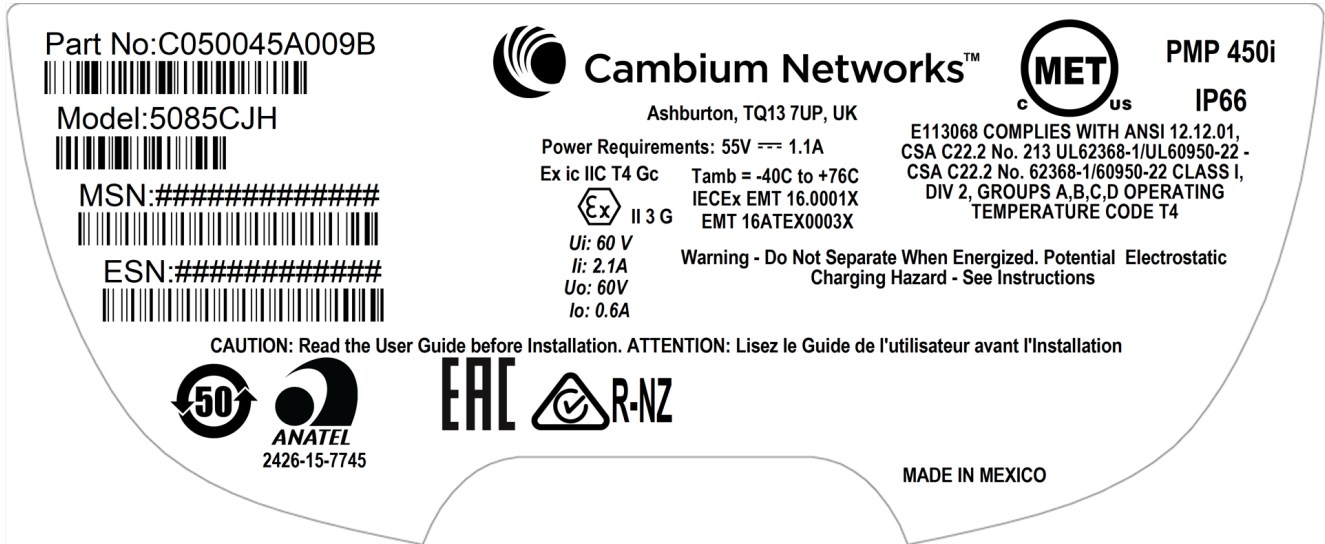


Figure 2 P/N C050045A012B

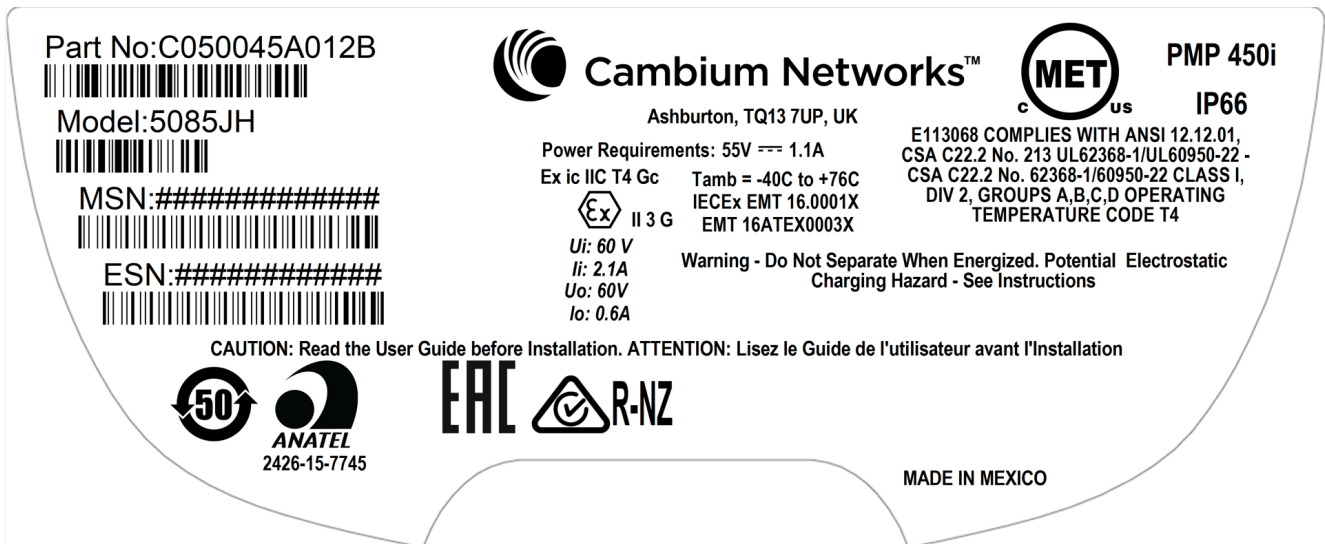


Figure 3 P/N C050045B010B

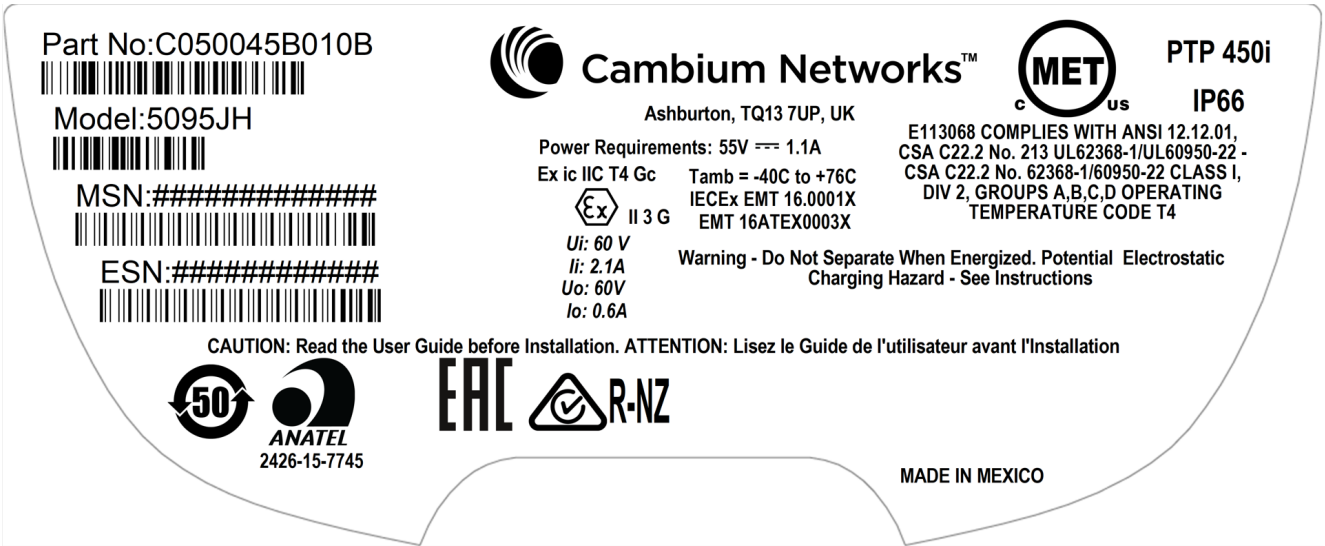
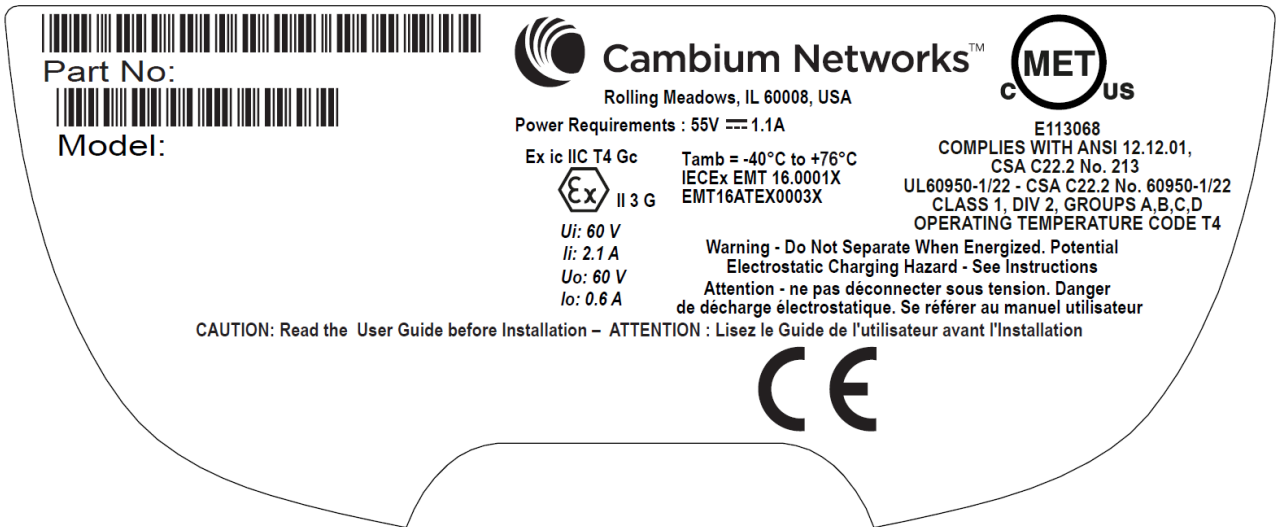


Figure 5 PMP/PTP 450i Certification Label Controlled Text with CE



Installation and operating requirements

Environmental requirements

PMP 450i and PTP450i radios comply with the reduced circuit separation requirements of EN/IEC 60079-11:2012 Annex F. The equipment is rated to function at ambient temperatures between -40C to +76C. At all temperatures the equipment is protected by enclosures rated to IP66 dust and water protection.

Dielectric strength

PMP 450i and PTP450i radios comply with the dielectric strength test voltages of EN/IEC 60079-11:2012 section 6.3.13.

General requirements

ATEX regulatory environments

Installation should be in accordance with the requirements of EN/IEC 60079-14 as applicable.

HAZLOC regulatory environments

Installation should be in accordance with the National Electrical Code (NEC) and relevant OSHA standard.

Warnings

Before installing these products, read [Important safety information](#) on page 4.

Transmit power limitations for radio regulations

All of the PMP/PTP 450i Series of radio products have to meet local radio regulations, whether or not the products are of the ATEX/HAZLOC-approved variety. Local radio regulations do vary considerably around the world; Cambium provides country specific settings and regulatory bands to meet those requirements.

Regulatory rules generally limit the maximum conducted power, conducted power spectral density, effective isotropic radiated power (EIRP) or EIRP density that can be used in various applications.

PMP/PTP 450i ATEX/HAZLOC radio products operate in the 4.9 GHz, 5.1 GHz, 5.2 GHz, 5.4 GHz and 5.8 GHz frequency bands. Consult local regulators or the Cambium sales team to determine which bands are available for use in the country or territory where the link will be installed.

EIRP limits for hazardous locations

The ATEX and HAZLOC standards limit the EIRP as shown in [Table 2](#).

Table 2 EIRP limits from ATEX and HAZLOC standards

Gas group		Typical gas type	Maximum EIRP (Watt)	Maximum EIRP (dBm)
ATEX	HAZLOC			
IIA	D	Propane	6	37.7
IIB	C	Ethylene	3.5	35.4
IIC	B	Hydrogen	2	33.0
IIC	A	Acetylene	2	33.0

Overall transmit power limit

The ODU applies the more restrictive of the wireless regulatory limit and the ATEX/HAZLOC limit. In some cases, (for example FCC U-NII-2C) the wireless regulation is more restrictive than the HAZLOC limit.

Changing the ATEX/HAZLOC EIRP limit

By default PMP/PTP 450i Series ATEX/HAZLOC units are restricted to 2 W EIRP, suitable for ATEX gas group IIC or HAZLOC gas groups A and B. To operate in an environment with a less hazardous gas the professional installer must select the correct Gas Group for the intended installation.



Note

It is not possible to completely remove the ATEX/HAZLOC EIRP limit in an ATEX/HAZLOC unit.

Operation with connectorized antennas

The PMP/PTP 450i Connectorized ODUs can only be used with an external or connectorized antenna. When using a connectorized antenna, ensure that the external antenna gain is correctly configured in the web-based interface under External Gain, in the **Configuration > Radio** page. The user must set this value to the overall antenna gain, including any RF cable loss between the ODU and the antenna.



Warning

The PMP/PTP 450i ODU calculates the maximum transmitted power as a function of the configured external antenna gain. To maintain the EIRP within safe limits for the hazardous environment, ALWAYS configure External Gain (inclusive of RF cable loss) attributes correctly.

Contact us

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