IXARO-Net-POE-Transmitter

Manual

Version 2014-07-20

1. Description

The IXARO-NET transmitter is equipped with an Ethernet interface to be directly connected to a local network. The power is also supplied over the Ethernet cable (Power Over Ethernet = POE).

There are two power levels of the transmitter, IXARO NET 10L with 10mW power and IXARO-NET P500 rated at 500mW for higher range. Here is a table for comparison of the models:

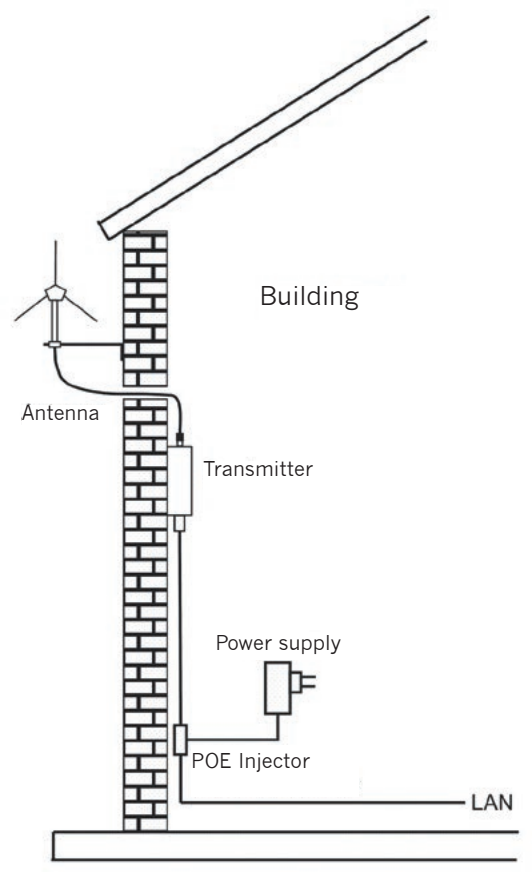
Modell	IXARO-NET 10L	IXARO-NET P500
Transmit power	10 mW (SRD)	500 mW (DMR 446)
Frequency range	433.5 MHz	446,15625 MHz
Transmit range light buildings	600 m	2 km
Maximum rage free field	2 km	5 km

Massive buildings lower the range substantially. The range within buildings is also lowered. The propagation of radio waves in the UHF-Frequency range is quasi optically. This means reception is possible in every location from where the antenna is visible. Diffraction and reflection allows limited reception also behind obstacles (about 50 Meter behind the edge of a building when using IXARO L10). When massive buildings separate the areas that should have reception multiple IXARO transmitters can be used that cover each an individual area.

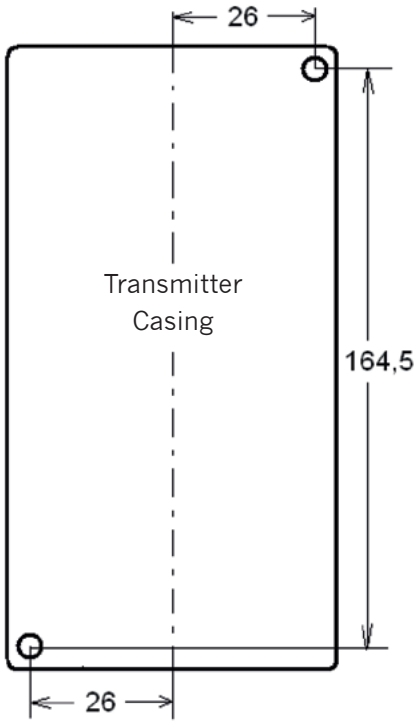
2. Hardware-Installation

The transmitters are meant to be installed within buildings. The antenna has to be mounted outside when an outdoor area shall be covered. A feedthrough in the wall is needed for the antenna cable. The cable shall be as short as possible to avoid lpower loss in the cable. The antenna is connected to the transmitter by a BNC connector which requires a feedthroug hole of 15mm at least. The transmitter is screwed to the wall by two screws in the upper left and lower right edge of the casing.

Fig. 1
IXARO-NET 10L transmitter with standard antenna for 433.5 MHz. The antenna is mounted on the wall of the building. The antenna cable (1,5 m) leads to the transmitter within the building.



Mounting of the Ixaro system at the building



Position of the drill holes for the transmitter (in mm)

The antenna shall be mounted as high as possible but still below the roof edge. When mounting above the roof, lightning protection will be needed. The antenna must be mounted on a spacer to keep a minimum distance of 170mm from the wall. The wall should be nonmetallic.

For connection of the transmitter to the network a RJ45 socket is mounted at the lower side of the transmitters casing.

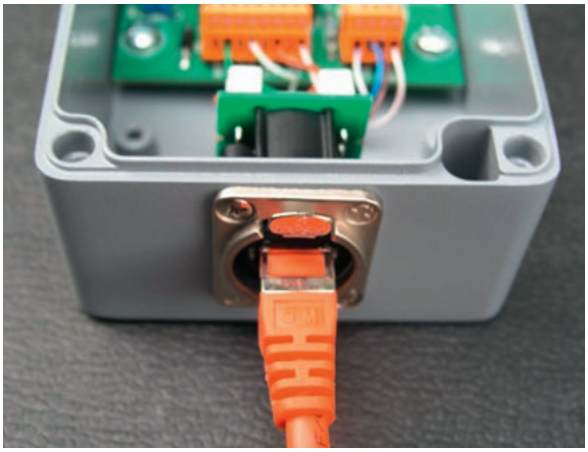


Fig. 3: Connection using a standard RJ45-plug

Fig. 4: Connection using the metal plug NE8MC

The standard Rj45 connector may be plugged in this socket (Fig.3). There is also a more robust metal plug named NE8MC from the ETHERCON series of the manufacturer NEUTRIK (Fig.4). The metal mantle houses a standard RJ45 connector. For mounting instructions see supplement. The metal plug is similar to the XLR plug. The plug can only be pulled when the metal lever is pressed to the socket. The connection is tight for dust but not watertight.

Power supply of the IXARO-NET transmitter by POE (Power Over Ethernet) offers the advantage that no mains socket is needed where the transmitter is mounted. Power supply works according norm IEEE 802.3af over the spare leads of the network cable. In deviation from the norm there is only a maximum voltage of 32Volt permitted. We recommend usage of the 18Volt power supply delivered with the transmitter. The power is injected in the network cable where this leads to the vicinity of a mains socket by the delivered power injector (Fig. 5).

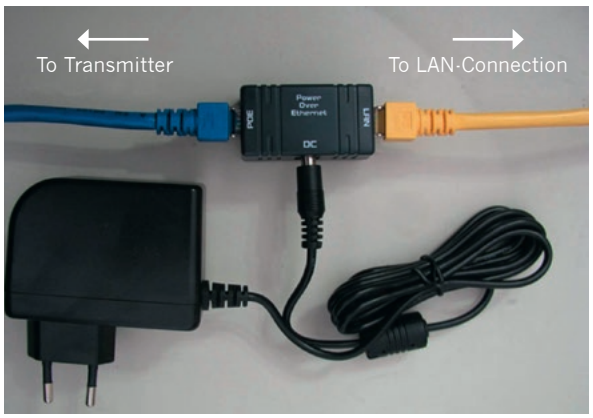


Fig. 5
Power injection by the POE adaptor. The injector is mounted within the cable leading from a network access point to the transmitter. The power is delivered by a wall plug to the socket “DC”. The transmitter is connected to the side named „POE“.

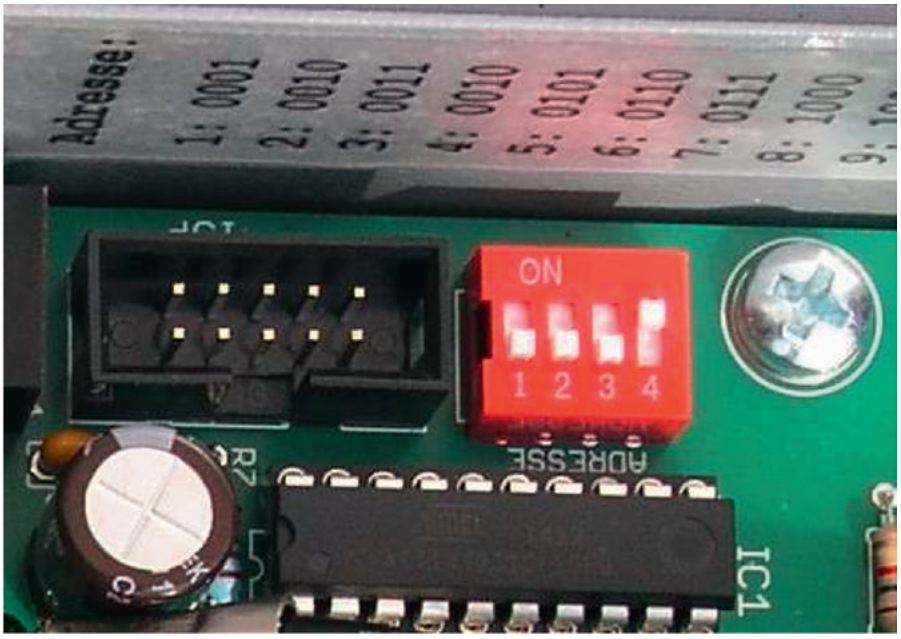


Fig. 6
The DIP-Switch (marked red) for setting of the device number. It is set to „1“ in this example (switch 4 in position “ON”).

2.1 Setting of the device numbere

There is a DIP-switch for the device number within the transmitter (Fig. 6). By this number the software identifies the transmitter in a system with multiple transmitters. The number is entered in binary code. The rightmost switch is the lowest significant bit. Position „ON“ of a switch represents a logical “one”. The device number in Fig. 7 reads therefore as „1“ . This is the default setting on delivery of the transmitter. If there is a single transmitter in the system it should have number „1“. In a two transmitter system the next transmitter has number “2“ = 0010 in binary code. A third transmitter would have number “3“ = 0011 and so on. A table of the binary numbers is printed on a sticker within the casing. A maximum of 9 transmitter is supported.

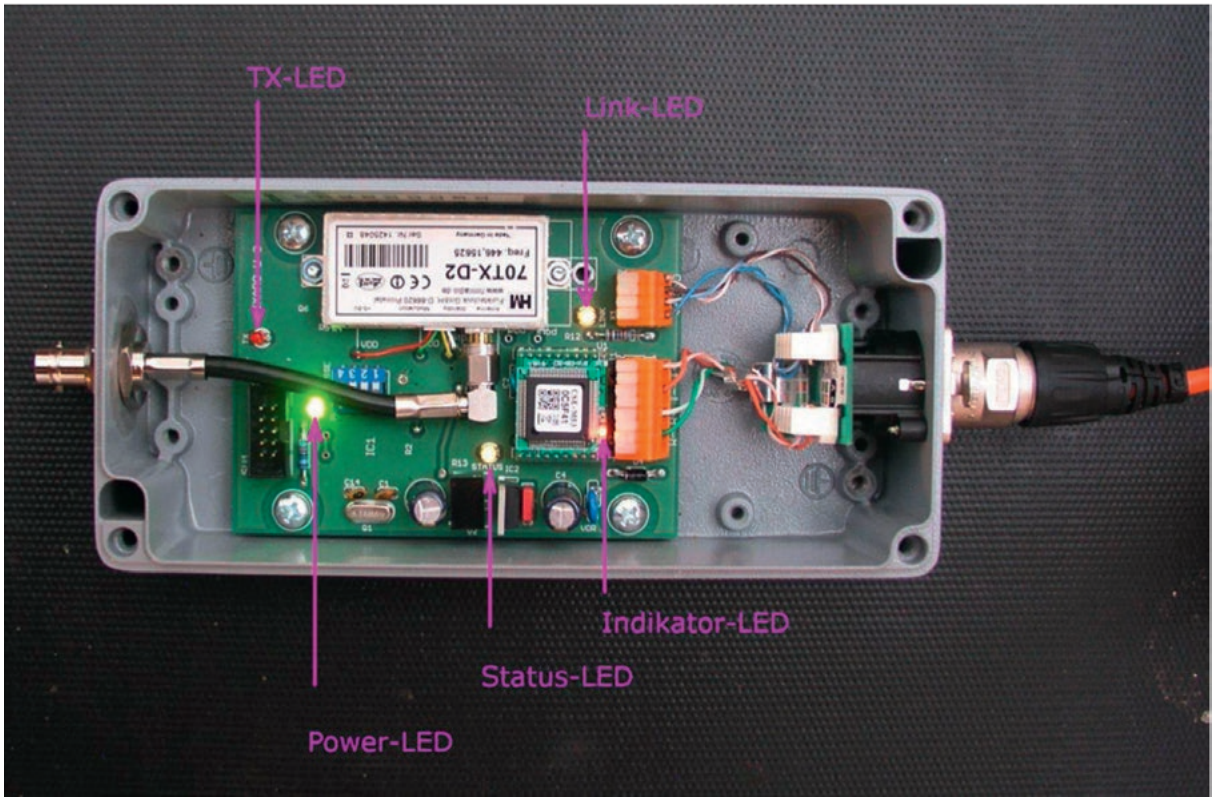


Fig. 7: Location of the diagnostic LED's

2.2 Location and meaning of the diagnostic LED´s

There are several LED´s on the transmitters circuit board to indicate the working state of the transmitter which may be used in error diagnostics (Fig.7).

Power-LED green:	lights when power supply is present TX-LED red: lights during transmission of a message
Indicator-LED red:	on the interface module, blinks slowly when the network interface works
Link-LED yellow:	lights when the transmitter is connected properly to the network cable
Status-LED yellow:	lights when the transmitter is in use by the software, blinks when there is no connection

When the Link-LED is not lighted for example, the transmitter is not connected properly to the cable (confused or broken wires). The Status-LED lights when there is an active Telnet session with between transmitter and controlling software.

Fig. 8
Ethernet-Interface module CSE-M53 in the transmitter. The last six digits of the MACaddress) are printed on the label (0C1624 in this example).

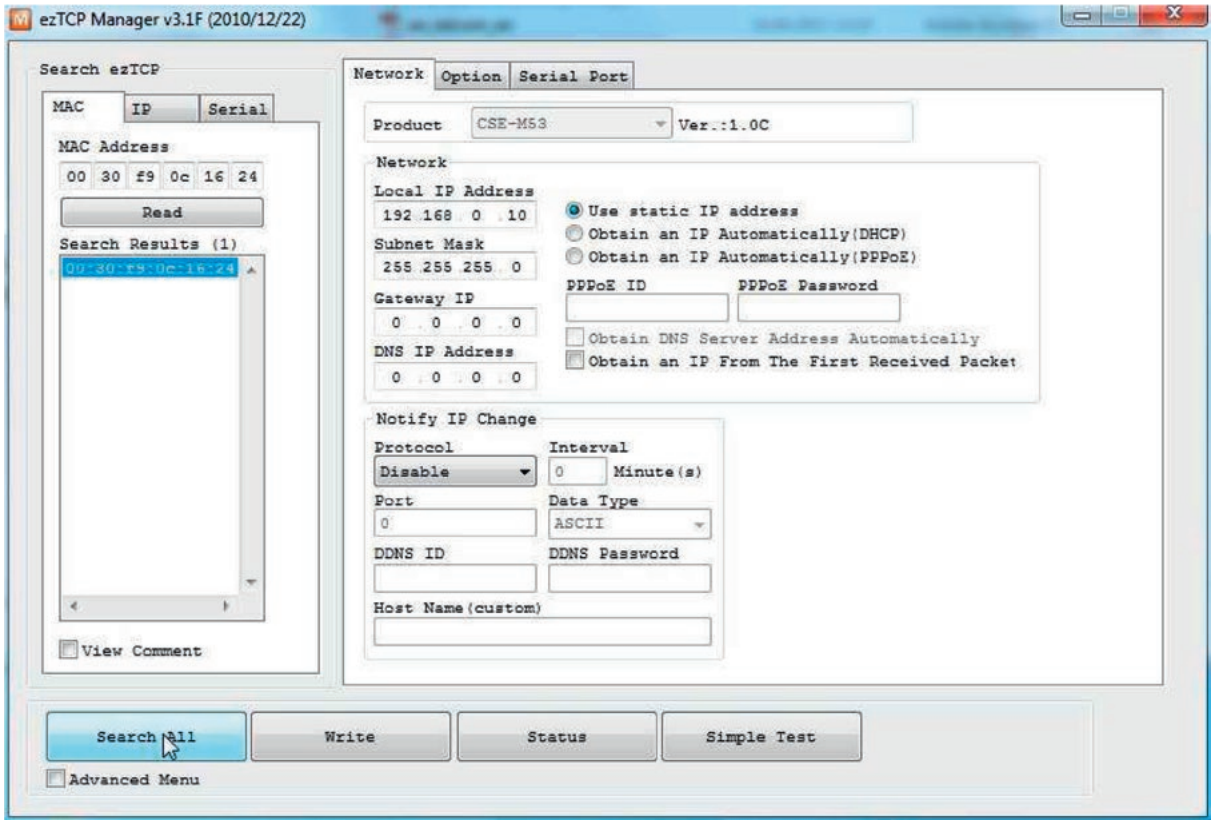
The MAC address identifies the Ethernet module within the network.

The MAC adress is neither to be confused with the device number on the DIP-switch nor with the IP-address.

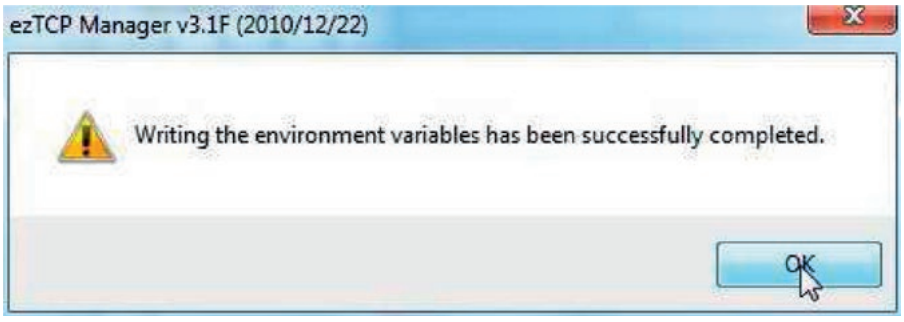
3. Configuration of the Ethernet Interface

To configure the interface you will need thorough knowledge of your companies network. Support by a network administrator will be necessary. Configuration of the interface is done by the software “ezTCP Manager” in directory „CSE_M53“ on your IXARO installation CD or from the IXARO website:

Program Icon of the ezTCP Manager:



The program starts with the above window. Carry out a search for the interface with the button „search all“. All interfaces from the manufacturer Sollae Systems will be listed under „Search Results“. If there is more than one interface you can identify the one which shall be configured by the MAC address. Choose this one. Please enter the desired IP-Address and Subnet Mask of the interface. By pressing the button „WRITE“ the settings will be stored in the interface. The following confirmation should appear:



The network interface in the transmitter has now been configured successfully.

4.1 Mounting of the Neutrik-plug NE8MC

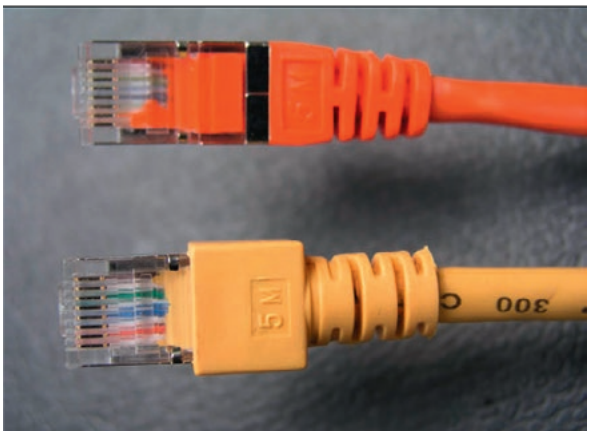


Fig. 10
RJ45 connectors like the lower one will not fit in the mantle. The plastic hull may not exceed the width of the contact block. The upper connector is suitable.

Fig. 11
The Ethernet Cable will be inserted into the plug like this. The parts are pressed into the metal mantle by screwing the black plastic nut (rightmost part) onto the mantle .

4.2 Specifications

	IXARO-NET 10L	IXARO-NET P500
Size	177 × 81 × 57 mm (L × W × H)	177 × 81 × 57 mm (L × W × H)
Material	Die cast aluminium, coated grey	Die cast aluminium, coated grey
Protection	IP54	IP54
Temperature range	–10° up to +40° C	–10° up to +40° C
Frequency	433,5 MHz	446,1625 MHz
Output power	10 mW	500 mW
Modulation	+/– 4 Khz FM	+/– 2 Khz FM
Transmit Protocol	POCSAG	POCSAG
Baudrate	512	512
Supply voltage	9 up to 32 Volt	9 up to 32 Volt

4.3 Declaration of Conformity

Both IXARO-NET transmitters may be operated without licensing and fees in Germany. For the IXARO NET 10L this is also valid in all countries of the European Community. It is a Short Range Device (SRD) in the 433 MHz ISM band. The IXARO-NET P500 complies to the Digital Mobile Radio norm in the special German version DMR 446. For operation other countries it is necessary to check licensing with the national authority for telecommunication. The IXARO-NET L10 as well as the IXARO-NET P500 comply with the European regulations for wireless transmitters within their frequency bands and modes of operation.

EG – Konformitätserklärung
R&TTE 1999/5/EG
EMC 2004/108/EG

Für das 500mW UHF Sendemodul

70TX-D2

wird hiermit bestätigt, dass es den wesentlichen Schutzanforderungen entspricht, die in der Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit festgelegt sind.

Zur Beurteilung des Erzeugnisses hinsichtlich der elektromagnetischen Verträglichkeit wurden folgende Normen herangezogen:

EN 300113-2 1.5.1 (2011-11)
EN 301489-1 1.9.2 (2011-09)
EN 301489-3 1.4.1 (2002-08)
EN 60950-1:2005 (2. Ausgabe) oder EN 60950-1:2006
EN 62311:2007

Diese Erklärung wird verantwortlich für den Hersteller

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Primstal, den 05.08.2013

HM-Funktechnik GmbH, Thomas Stöhr

EG-Konformitätserklärung für das Funkmodul im Sender IXARO NET P500

EG – Konformitätserklärung

Für die UHF Sende- und Empfangsmodule

70TX-M1 **und** **70RX-M1**

wird hiermit bestätigt, dass sie den wesentlichen Schutzanforderungen entsprechen, die in der Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedsstaaten über die elektromagnetische Verträglichkeit festgelegt sind.

Diese Erklärung gilt für alle Exemplare, die nach den anhängenden Spezifikationen und Fertigungszeichnungen – die Bestandteil dieser Erklärung sind – hergestellt werden.

Zur Beurteilung des Erzeugnisses hinsichtlich der elektromagnetischen Verträglichkeit wurde folgende Norm heranzogen:

EN 300 220-1, Ausgabe November 1997

Diese Erklärung wird verantwortlich für den Hersteller

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Primstal, den 16.12.2004

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