

EnviroNET™ 2100 Series **Ethernet Extender**

Quick Start Guide



Important — This is a Class A device and is intended for use in an industrial environment. It is not intended nor approved for use in a residential environment.

Important — This device is NOT intended nor approved for connection to the PSTN. It is intended only for connection to customer premise equipment.

1.0 Before you begin

1.1 What you will need

The following components are **included**:

- EnviroNET unit, including PC board, power supply, and interface board

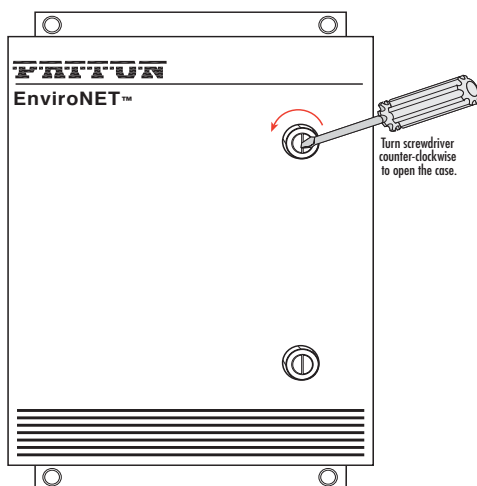
You **will need** the following components (**not included**):

- Flat-tip (large-bladed) screwdriver
- Crescent® (adjustable) wrench
- Desired length of power cable
- Desired length of CAT5 (twisted pair) cable
- 4 bolts for mounting (A mounting kit can be purchased separately).

1.2 Opening the case

To open the EnviroNET case:

1. Take a flat tip (large-bladed) screwdriver and insert it into the slot on a lock on the front of the case.
2. Turn the screwdriver counter-clockwise to unlock that lock.
3. Repeat Steps 1-2 for the other lock on the front of the case.
4. Lift the case door gently.



2.0 Wiring the power

2.1 Running the power cable through the gland

To run the power cable through the gland:

1. Locate the gland that the power cable should be run through.
2. You may unscrew the gland to allow more flexibility when threading the power cable wires. To unscrew the gland, either by hand or with a Crescent® (adjustable) wrench, turn the gland to the left until it is loosened.
3. Carefully thread the wires through the gland from the outside into the EnviroNET.

Note The brass glands on the bottom panel of the EnviroNET can properly seal cables with an outer diameter between 3mm and 8mm.

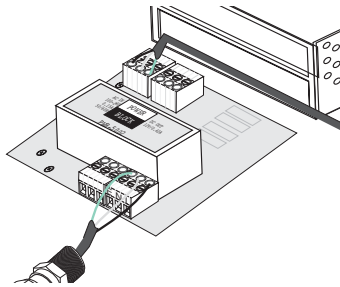
2.2 Connecting the power cable wires to the EnviroNET

To connect the power cable wires to the EnviroNET:

1. Run the power cable wires from outside of the EnviroNET through the unscrewed gland (on the far left) to the inside of the unit.
2. Connect the power cable wires to the external power connection block that is labeled, **E N L**, as described in table 1.

Table 1. Power cable wires

Designated Slot	Power Wire (Color)
Earth (E)	Green
Neutral (N)	White
Line (L)	Black



3. Be sure to leave a little slack on the wires so that they are not stressed or pulled too tightly. Also, make sure that the power cable wires are secured tightly in the **E N L** block.
4. To ensure that the cables are properly secured in the gland, tighten the gland by turning the loose pieces all the way to the right using a Crescent® (adjustable) wrench.

3.0 Wiring the terminal block

3.1 Running the twisted pair wires through the gland

To run the twisted pair wires through the gland:

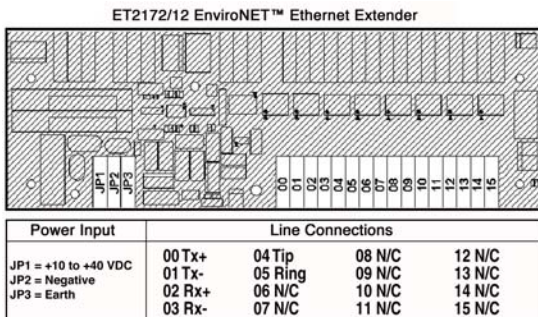
1. Locate the glands that the twisted pair wires should run through.
2. You may unscrew the gland to allow more flexibility when threading the wires. To unscrew the gland, either by hand or with a Crescent® (adjustable) wrench, turn the gland to the left until it is loosened.
3. Carefully thread the wires through the gland from the outside into the EnviroNET.

Note The brass glands on the bottom panel of the EnviroNET can properly seal cables with an outer diameter between 3mm and 8mm.

3.2 Connecting the twisted pair wires to the EnviroNET

To connect the twisted pair wires to the EnviroNET:

1. Run the twisted pair wires from outside of the EnviroNET through the unscrewed glands (on the right) to the inside of the unit.
2. Connect the appropriate wires to the appropriate slots in the terminal block. There should be one wire per gland. Follow the wiring diagram that is on the inside of the EnviroNET door. The terminal block is also labeled with the numbers.

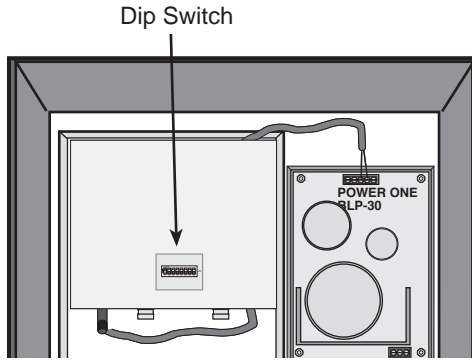


3. Be sure to leave a little slack on the wires so that they are not stressed or pulled too tightly. Also, make sure that the twisted pair wires are secured tightly in the terminal block.
4. To ensure that the cables are properly secured in the gland, tighten the gland by turning the loose pieces all the way to the right using a Crescent® (adjustable) wrench.

Note The black plugs for the brass glands on the bottom panel of the EnviroNET **should not** be removed.

4.0 Configuring the EnviroNET

You can configure the EnviroNET via the dip switches on the PC board (except for the 2156 and 2157 models, which require no user configuration).



4.1 EnviroNET Model 2172

EnviroNET Model 2172 uses DIP switch S2 to configure the line rate, symmetric or asymmetric, Ethernet, and Ethernet Shutdown. Table 2 shows a summary of each switch.

Table 2. S2 Summary

Position	Description
S2-1	Symmetric/Asymmetric
S2-2	Line Rate
S2-3	Line Rate
S2-4	Ethernet configuration
S2-5	Ethernet configuration
S2-6	Ethernet configuration
S2-7	Ethernet Shutdown Enable
S2-8	Remote Configuration

Switch 1: Symmetric/Asymmetric Operation

To configure the unit for symmetric or asymmetric operation, push the first toggle switch up or down. Refer to Table 3 for settings.

Table 3. Symmetric/Asymmetric Operation

S2-1	Setting
ON	Symmetric Operation
OFF	Asymmetric Operation

Switches 2 and 3: Data Rate

Refer to **table 4** for the symmetric line rate settings. (Switch 1 must be in the “**On**” position).
Refer to **table 5** for the asymmetric line rate settings. (Switch 1 must be in the “**Off**” position).

Table 4. Symmetric CopperLink Line Rates Selection Chart

S2-2	S2-3	Symmetric Line Rate
OFF	ON	50 Mbps
ON	OFF	25 Mbps
OFF	OFF	10 Mbps

Table 5. Asymmetric CopperLink Line Rates Selection Chart

S2-2	S2-3	Asymmetric Line Rates DS/US
ON	ON	50 Mbps/2 Mbps
ON	OFF	16 Mbps/2 Mbps
OFF	OFF	4 Mbps/1 Mbps

Switches 4, 5 and 6: Ethernet Configuration

Refer to **table 6** to configure Ethernet settings with switches 4, 5, and 6.

Table 6. Ethernet configurations

S2-4	S2-5	S2-6	Ethernet Configurations
ON	ON	ON	Auto-Negotiate
ON	ON	OFF	100Mb Full Duplex
ON	OFF	ON	100Mb Half Duplex
ON	OFF	OFF	10Mb Full Duplex
OFF	ON	ON	10Mb Half Duplex

Switch 7: Ethernet Shutdown

To enable or disable Ethernet Shutdown, push toggle switch seven (7) up or down.
Refer to **table 7** for settings.

Table 7. Ethernet Shutdown

S2-7	Description
ON	Ethernet Shutdown Enabled
OFF	Ethernet Shutdown Disabled

Switch 8: Remote Configuration

To enable or disable Remote Configuration, push toggle switch eight (8) up or down. Refer to **table 8** for settings.

Table 8. Remote Configuration

S2-8	Description
ON	Remote Configuration Enabled
OFF	Remote Configuration Disabled

Note The S2-8 switch applies to the remote unit only. If enabled, the remote unit will follow the dip switch configuration of the local unit. If disabled, the remote unit will use its own dip switch setting to determine its Ethernet operating mode and Ethernet Shutdown mode configuration. The S2-8 switch does not affect the data rate. The data rate will always follow the local configuration.

4.2 EnviroNET Model 2168

EnviroNET Model 2168 uses DIP switch S1 to configure the line rate, symmetric or asymmetric, Ethernet full auto negotiation capability or limited auto sense. **Table 9** shows a summary of each switch.

Table 9. S1 Summary

Position	Description
S2-1	Ethernet Auto Sense
S2-2	Line Rate
S2-3	Line Rate
S2-4	Line Rate
S2-5	Reserved
S2-6	Reserved
S2-7	Reserved
S2-8	Reserved

Switch 1: Ethernet Auto Sense

To configure the unit for full auto sense capability or limited auto sense capability, push the first toggle switch up or down. Full Auto sense capability consists of standard Ethernet Auto sensing (100BaseT full duplex, 100BaseT half duplex, 10BaseT full duplex, and 10BaseT half duplex). Limited Auto sensing capability consists on only auto sensing for 100BaseT half duplex, 10BaseT full duplex, and 10BaseT half duplex. The limited auto negotiation feature is used when an Ethernet device does not comply with IEEE 802.3x (back pressure flow control) at 100M full duplex. Refer to **table 10** for settings.

Table 10. Ethernet Auto Sense Selection Chart

S1-1	Setting
OFF	Full Auto Negotiation (Factory Default) (100 Mbps, Full or Half Duplex) (10 Mbps, Full or Half Duplex)

Table 10. Ethernet Auto Sense Selection Chart

S1-1	Setting
ON	Limited Auto Negotiation (100 Mbps Half Duplex) 10 Mbps Full or Half Duplex)

Switches 2, 3, and 4: Data Rate

Refer to **table 11** for the symmetric line rate settings. (Switch 1 must be in the “**On**” position).
Refer to **table 12** for the asymmetric line rate settings. (Switch 1 must be in the “**Off**” position).

Table 11. Symmetric CopperLink Line Rates Selection Chart

S1-2	S1-3	S1-4	Symmetric Line Rate
ON	ON	ON	6.25 Mbps
ON	ON	OFF	9.38 Mbps
ON	OFF	OFF	12.5 Mbps (Factory Default)
ON	OFF	ON	16.67 Mbps

Table 12. Asymmetric CopperLink Line Rates Selection Chart

S1-2	S1-3	S1-4	Asymmetric Line Rates DS/US
OFF	OFF	ON	4.17 Mbps/1.56 Mbps (Mode 0)
OFF	ON	ON	9.38 Mbps/1.56 Mbps
OFF	ON	OFF	16.67 Mbps/2.34 Mbps

Switches 5, 6, 7, and 8: Reserved

Switches 5, 6, 7, and 8 are reserved and should be in the ‘**Off**’ position.

Table 13. Reserved for future use

S1-5	S1-6	S1-7	S1-8	Reserved
OFF	OFF	OFF	OFF	Reserved (Factory Default)

5.0 Mounting the EnviroNET

The EnviroNET can be mounted in two ways, wall mount and pole mount. The wall mount is the typical way that an EnviroNET can be mounted. You will need four bolts to mount the EnviroNET.

To mount the EnviroNET:

1. Make sure that the location where you chose to mount the EnviroNET is sturdy and can securely hold the unit.
2. Be sure that the door to the EnviroNET is securely closed and locked. To lock the case, close the door and use a flat-tip screwdriver to turn the locks to all the way to the right.
3. Mount the EnviroNET by securing the bolts through the holes on the EnviroNET to the wall panel.

Note The pole mount option is available by request. For information on how to mount the EnviroNET to a pole, refer to the *Pole Mount Kit Quick Start Guide* that shipped with the pole mount kit.

6.0 Operating the EnviroNET

The EnviroNET is designed to be powered on automatically. There is no power switch. The green power LED will light when the power is on (ET and EC models only).

To power the EnviroNET:

1. You need to wire the power cable. If you haven't done this already, go to the section, 2.0 "Wiring the power" on page 3.
2. After all of the cables are properly wired, close and lock the case. Plug the power cable into an electrical outlet.

Note Once in operation, the EnviroNET will run over all temperatures without user intervention.

The EnviroNET ET and EC models have two LEDs, **Power** and **Temperature Control Indicator**.

The Power light will be on when the EnviroNET is operating normally.

The Temperature Control Indicator light will be on when the heater or fan turns on to control temperature.

Note EH models do not have a fan or heater, therefore they do not have LEDs.

7.0 Additional Information

Refer to the *EnviroNET 2100 Series User Manual* available online at www.patton.com/manuals/EN2100.pdf for detailed information about:

- Installing, configuring, operating, and troubleshooting.
- Warranty, trademark & compliance

A.0 Customer and Technical Support

Online support: www.patton.com

E-mail support: support@patton.com— answered within 1 business day

Telephone support:

- Standard: +1 (301) 975-1007 (USA), Monday–Friday: 8:00 am to 5:00 pm EST (1300 to 2200 UTC/GMT)
- Alternate: +41 (0)31 985 25 55 (Switzerland), Monday–Friday: 8:00 am to 5:00 pm CET (0900 to 1800 UTC/GMT)

Fax: +1 (253) 663-5693 (USA) or +41 (0)31 985 25 26 (Switzerland)

B.0 Compliance Information

B.1 Compliance

EMC Compliance:

- FCC Part 15, Class A
- EN55022, Class A
- EN6100-6-2

Safety Compliance:

- UL60950-1/CSA C22.2 No. 60950-1
- IEC/EN 60950-1
- AS/NZS 60950-1

PSTN Regulatory Compliance:

Note This device is NOT intended nor approved for connection to the PSTN.
It is intended only for direct connection to customer premise equipment.

B.2 Radio and TV Interference (FCC Part 15)

This equipment generates and uses radio frequency energy, and if not installed and used properly—that is, in strict accordance with the manufacturer's instructions—may cause interference to radio and television reception. This equipment has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection from such interference in a commercial installation. However, there is no guarantee that interference will not occur in a particular installation. If the equipment causes interference to radio or television reception, which can be determined by disconnecting the cables, try to correct the interference by one or more of the following measures: moving the computing equipment away from the receiver, re-orienting the receiving antenna, and/or plugging the receiving equipment into a different AC outlet (such that the computing equipment and receiver are on different branches).

B.3 CE Declaration of Conformity

We certify that the apparatus identified in this document conforms to the requirements of Council Directive 89/336/EEC, as amended by Directives 92/31/EEC and 93/68/EEC on the approximation of the laws of the member states relating to electromagnetic compatibility; and Council Directive 73/23/EEC, as amended by Directive 93/68/EEC, on the approximation of the laws of the member states relating to electrical equipment designed for use within certain voltage limits.

The safety advice in the documentation accompanying this product shall be obeyed. The conformity to the above directive is indicated by the CE sign on the device

B.4 Authorized European Representative

D R M Green, European Compliance Services Limited.
Oakdene House, Oak Road , Watchfield, Swindon, Wilts SN6 8TD, UK

Copyright statement

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Warranty, Trademark, & Compliance Information

For warranty, trademark and compliance information, refer to the *EnviroNET 2100 Series User Manual* available online at www.patton.com/manuals/EN2100.pdf.



WARNING

- This device is to be installed only by qualified service personnel. It contains no user serviceable parts, and shall be returned to Patton Electronics for repairs, or repaired by qualified service personnel.
- Hazardous network voltages are present in WAN ports regardless of whether power to the unit is ON or OFF. To avoid electric shock, use caution when near WAN ports. When detaching the cables, detach the end away from the device first.
- Do not work on the system or connect or disconnect cables during periods of lightning activity.
- This device is NOT intended nor approved for connection to the PSTN. It is intended only for connection to customer premise equipment.



In accordance with the requirements of council directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE), ensure that at end-of-life you separate this product from other waste and scrap and deliver to the WEEE collection system in your country for recycling.