

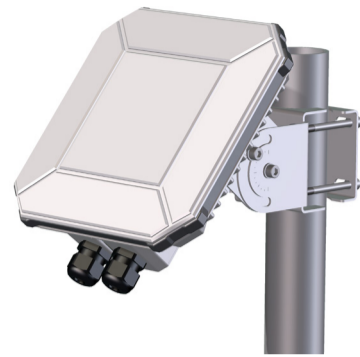
EXPLORER 540

Installation guide

What's in the box?

The following items are included in the delivery:

- EXPLORER 540 terminal
- Pole mount kit
- 2 standard cable glands
- 2 C1D2 approved cable glands
- 1 Blanking plug
- Torx bit Size TX10 (tamper resistant, 1/4" Hex drive) for mounting/unmounting the cover for the interface enclosure
- Installation guide (this guide)



EXPLORER 540 terminal with pole mount kit

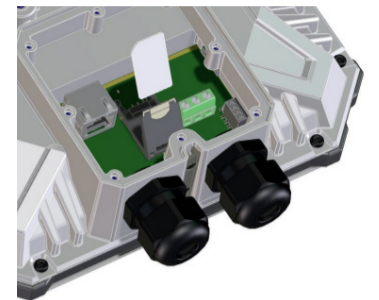
EXPLORER 540 User and integrator's manual (part no. 98-148232) as well as other language versions of this installation guide are available for download at the Cobham SYNC Partner Portal. Go to www.cobham.com/satcom and select Cobham SYNC Partner Portal > Downloads.

Step 1: Insert SIM card

You need a BGAN SIM card for either BGAN M2M or BGAN class 2 services. To insert the SIM card, do as follows:

NOTE: Make sure the EXPLORER 540 is **not** powered when you insert or remove the SIM card!

1. Open the cover for the interface enclosure at the back of the EXPLORER 540. Use the included Torx bit to unscrew the screws.
2. Locate the SIM holder in the middle of the compartment.
3. Slide the lock to release the SIM holder.
4. Lift the end of the SIM holder and insert the SIM card as shown.
5. Lower the SIM card holder with the SIM card inserted and lock it.
6. When all cables are connected, put the cover back on and tighten the screws.



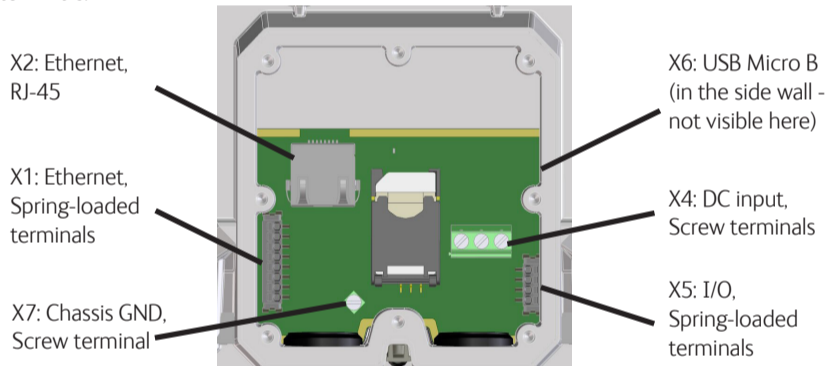
NOTE: Make sure the PIN for the SIM card is either disabled or set up for automatic validation. For details, see the EXPLORER 540 User and integrator's manual.

Step 2: Connect cables

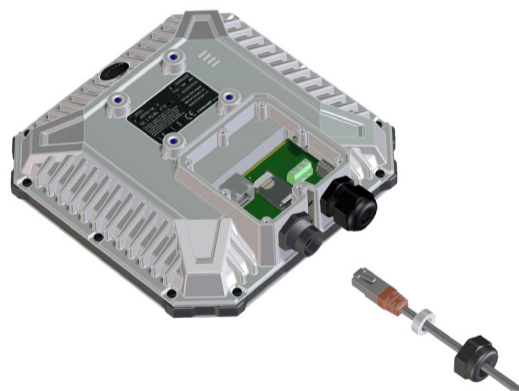
To maintain the Ingress Protection rating of the EXPLORER 540 and to avoid cables accidentally being disconnected, all cable connections are made inside the interface enclosure at the back of the EXPLORER 540.

Tools:

- Use the provided Torx bit to open the interface enclosure at the back of the terminal.
- Use a flat blade screw driver (max. 2 mm/ 0.08" wide) to press down the spring-loaded terminals.
- Use a flat blade screw driver (max. 3.5 mm/ 0.14" wide) to unscrew and fasten the screw terminals.



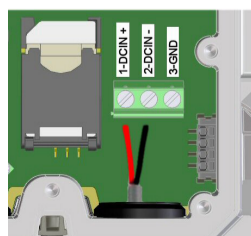
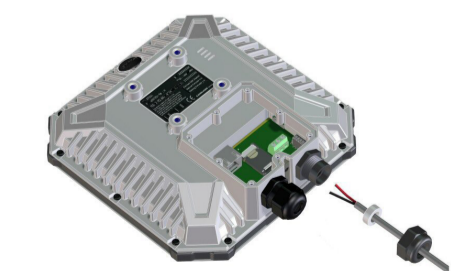
1. Lead the cable(s) through the cable gland(s) and gasket(s) (suitable for cable diameter 5-10 mm/ 0.2"-0.4"). For C1D2 installations, use the supplied C1D2 approved cable glands. Make sure the cable glands fit tightly.
2. Connect the cables according to your configuration. See the reverse of this guide for pinout, specifications and example configuration drawing. The RJ-45 connector of the LAN cable can pass through the standard cable gland. (see picture)
3. If you are **not** using PoE to power the EXPLORER 540, connect a power cable between the DC input terminals and a current-limited power supply or an external battery as described below.
4. When all cables are connected, mount the cover for the interface enclosure and tighten the screws with the included Torx bit to torque 0.5 Nm/ 4.5 lbf in.



Important! If you only need to install one cable, mount the provided blanking plug in the unused hole to maintain the Ingress Protection (IP grade) of the terminal.

To connect to the DC input:

1. Lead the cable through the cable gasket at the DC input.
2. If the DC cable is shielded, insert the end of the **shield** into the screw terminal marked **3-GND** and tighten the screw to torque 0.5 N m/ 4.5 lbf in.
3. Insert the **negative** wire into the terminal marked **2-DCIN -** in the DC terminal block and tighten the screw to torque 0.5 N m /4.5 lbf in.
4. Insert the **positive** wire into the terminal marked **1-DCIN +** in the DC terminal block and tighten the screw to torque 0.5 N m/ 4.5 lbf in.
5. Tighten the cable gland.
6. When all cables are connected, mount the cover for the interface enclosure and tighten the screws with the included Torx bit to torque 0.5 Nm/ 4.5 lbf in.

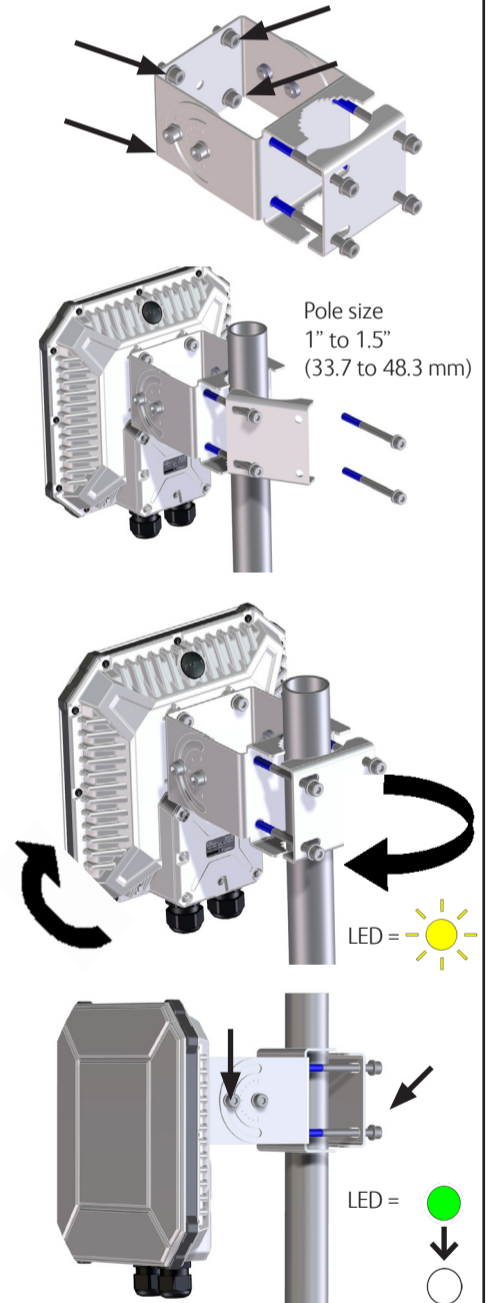


Caution! Do **not** connect the positive or negative wire to 3-GND!

Step 3: Install the EXPLORER 540

A pole mount kit is included in the package. To mount the EXPLORER 540 on a pole, do as follows:

1. Attach the base of the pole mount bracket to the EXPLORER 540 using the included Hex L key on the 4 screws. **Caution!** Max. length of the screws is 9 mm/ 0.35"! Longer screws can damage the EXPLORER 540.
2. Unscrew two of the long screws from the pole mount kit to leave one side open for the pole.
3. Place the pole mount kit with the EXPLORER 540 around the pole as shown.
4. Remount the two remaining long screws. Do not tighten the screws completely until you have pointed the antenna.
5. Power up the system. Observe the LED between the cable glands (see LED description on the back).
 - LED flashing rapidly green: Starting up
 - LED flashing yellow: Pointing
 - LED steady yellow: Warning!
 See *Verifying and troubleshooting the installation* on the back.
6. When LED flashes yellow: Turn and tilt the EXPLORER 540 and use the pointing sound to obtain the highest possible signal strength (continuous sound = best signal).
7. When you have the highest possible signal strength, tighten all the screws on the pole mount kit to keep the EXPLORER 540 in the pointed position. The EXPLORER 540 will automatically exit the pointing process once it has detected a stable BGAN signal.
8. When the pointing process has ended, the LED changes as follows:
 - LED flashing green: Verifying network connection
 - LED steady green and then off: Ready - installation process has ended successfully. The LED is disabled (off) after a few minutes.



Caution: For continual and thorough protection of the equipment, ensure the pole that the EXPLORER 540 is mounted on is properly grounded.

Note: If the LED is steady yellow, it means the installation failed and there is a warning. If you can connect a computer locally to the EXPLORER 540, you can use the web interface to follow the progress on screen, see any warnings, and restart the installation if necessary. See *Verifying and troubleshooting the installation* on the back.

Note: The installation will fail if the SIM card requires a user defined APN value and you have not yet entered this in the EXPLORER 540. Specify the APN value and restart the installation. For details, see the EXPLORER 540 User and integrator's manual.

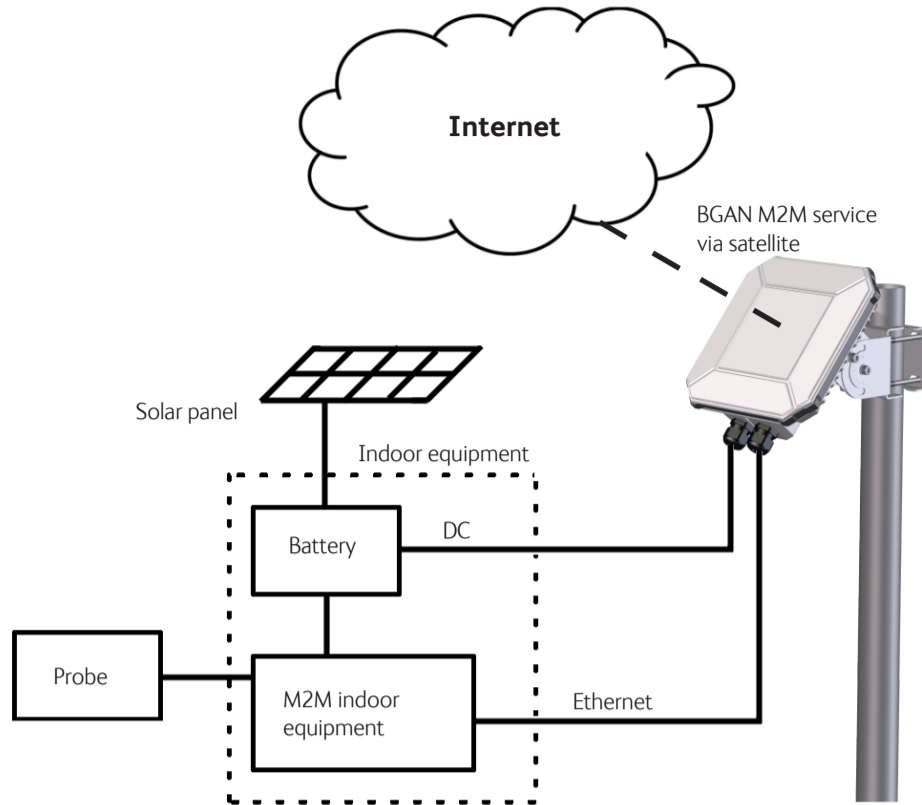
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Cleaning: Clean the exterior of the EXPLORER 540 with a damp cloth.

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System Configuration - Example



Note: This drawing is just an example. Your configuration may use other types of equipment.

Cable requirements

Number	Cable	Requirements
1	DC Power cable	1.5 mm ² / 15 AWG copper wire, UV resistant, Temperature rating: 105°C/ 221°F, Max. cable length: 12 m/ 39 ft at 12 V operation, 200 m/ 656 ft at 24 V operation.
2	LAN cable	Cable: Ethernet Min. Cat 5 Solid copper wire, STP. Max. length: 100 m/ 328 ft, Temperature rating: 95°C/ 203°F. PoE source according to PoE+ IEEE 802.3at type 2 class 4.
3	I/O cables	0,2 mm ² to 0,5 mm ² (26 AWG til 20 AWG), output up to 2A. Use shielded cable on input if not actively driven high/low.

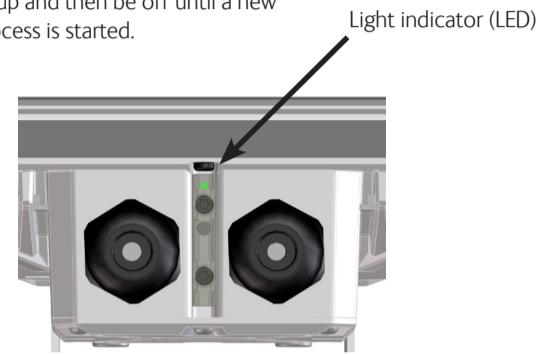
C1D2:

This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D OR non-hazardous locations only. This equipment must be installed using wiring methods as required for Class I, Division 2 as per the NEC and/or CEC.

WARNING – EXPLOSION HAZARD – Do not connect or disconnect equipment unless power has been removed or the area is known to be non-hazardous.

AVERTISSEMENT – RISQUE D'EXPLOSION – Ne pas brancher ou débrancher un équipement sauf si le courant a été coupé ou la zone est réputée non dangereuse.

Note: After completion of the installation process the LED will only be lit for a short period at power-up and then be off until a new installation process is started.



LED status before completion of the installation process	Description
Off	Light indicator has been disabled or Power off
Green flashing rapidly	Starting up
Yellow flashing	BGAN pointing
Green flashing	Verifying network connectivity
Green constant	Ready
Yellow flashing rapidly	Closing down
Yellow constant	Warning (user recoverable). See web interface for the warning text.
Red constant	Error. See the web interface.
Blue flashing	Uploading software to the terminal

Connectors and pin allocation

IMPORTANT: You must use **either** X1 **or** X2 for LAN, not both!

The EXPLORER 540 has the following connectors/ terminals:

- X1: LAN/PoE, Spring-loaded terminals
- X2: LAN/PoE, RJ-45 connector
- X3: SIM card
- X4: DC input, Screw terminals
- X5: I/O, Spring-loaded terminals
- X6: USB, micro B connector
- X7: Chassis GND, Screw terminal

USB connector (X6)	
Pin	Signal
1	+5V
2	Dm
3	Dp
4	ID
5	GND

LAN/PoE connector (X1 or X2)	
Pin	Signal
1	TXp (PoE+)
2	TXm (PoE+)
3	RXp (PoE-)
4	POE+
5	POE+
6	RXm (PoE-)
7	POE-
8	POE-

DC power connector (X4)	
Pin	Signal
1	DCIN+
2	DCIN-
3	GND

I/O connector (X5)			
Pin	Signal	Details	Specifications
1	GPI	Power control input	Max. 32 VDC, High: 1.3-32 VDC, Low: 0-1.2 VDC Configurable in web interface: Request wake up or Power save on/off and Active high or low
2	GPO	Terminal ready output	Open collector max 400 mA, 10.5-32 VDC Configurable in web interface: Active high or low
3	GPIO	General purpose input/ output	Input: Max. 32 VDC, High: 1.3-32 VDC, Low: 0-1.2 VDC Output: Open collector max 400 mA, 10.5-32 VDC Configurable in web interface: Input or output and Active high or low
4	GND	Ground	N/A

Technical specifications

Item	Specification
Dimensions	202 x 202 x 65 mm/ 8.0 x 8.0 x 2.5 inches
Weight	1.6 kg / 3.5 lbs (excl. cellular modem)
Power supply PoE Power supply DC	42.5 to 57 VDC According to: PoE+ IEEE 802.3at type 2 class 4 10.5 to 32 VDC
Transient overvoltage	Overvoltage category II
Power consumption (typical)	Power save (Wake on GPIO/ timer): 0.1 W@12 VDC/ 2.4 W PoE Power save (Wake on LAN): 0.9 W@12 VDC/ 2.3 W PoE Idle: 2.3 W@12 VDC/ 3.5 W PoE Transmitting: 19 W (20 W when in Cellular preferred mode, up to 23 W if using 2G network)
IP grade	IP66
Operating temperature	-40 to +55°C/-40 to +131°F
Environment condition	Outdoor mounting and use in harsh environment
Max. altitude for Hazardous locations	2000 m/ 6561 ft
Relative humidity	95% humidity non-condensing at 40°C/ 104°F
Pollution degree	Pollution degree 2

Verifying and troubleshooting the installation

If the **LED** turns **steady yellow**, it means the installation failed, e.g. because the terminal was unable to detect a stable BGAN signal or verify the network connection. If you connect a computer locally to the terminal, you can use the built-in web interface to follow the progress on screen during installation, and to see warning messages if the installation failed.

1. Connect your computer to the LAN interface of EXPLORER 540.
2. Open your browser on the connected computer.
3. Power up the terminal.

4. Access the web interface at the local IP address (default: 192.168.0.1).
5. Enter the user name: **user** and password: <serial number of the terminal>.

