OUTREACH MAX / LITE

INSTALLATION MANUAL

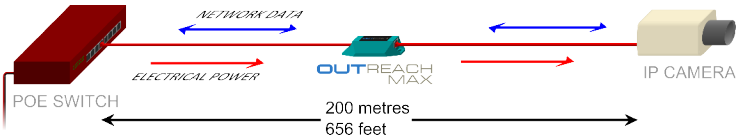
PLEASE READ CAREFULLY

Multiply your PoE network range

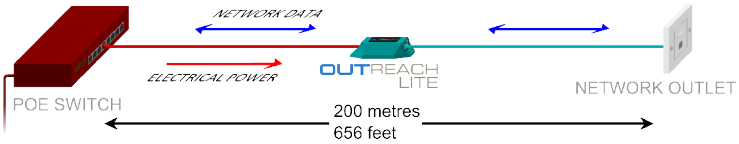
OUTREACH MAX and OUTREACH LITE let you instantly extend your Ethernet network installation beyond its 100 metre (328 foot) limit.

Because they use Power over Ethernet (PoE) technology, OUTREACH MAX and OUTREACH LITE can be easily fitted wherever network extension is required, with no need for a local power source.

OUTREACH MAX extends Cat5e, Cat 6 or similar network connections to devices that use PoE power, such as IP cameras and wireless access points:

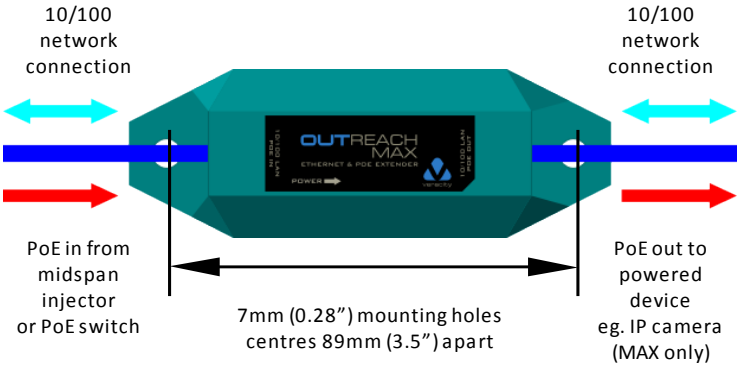


OUTREACH LITE extends network connections to devices that do not use PoE, such as PCs and routers:



As OUTREACH MAX and OUTREACH LITE restore the Ethernet connection every 100 metres (328 feet), full-capacity 100BASE-TX or 10BASE-T is maintained across the entire link, with no bandwidth restrictions.

Connections and mounting



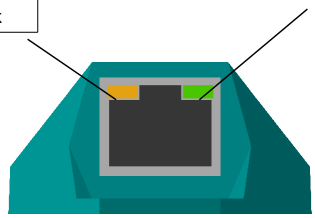
Technical specification

Device power	1.3 watts
Forwarded PoE power (MAX only)	PoE forwarding of up to 70 watts depending on standard Maximum current 0.7 amps on data pairs Maximum current 1.5 amps on spare pairs
PoE standard	IEEE 802.3af / 802.3at / custom PoE compatible (MAX) IEEE 802.3af Class 2 powered device (LITE)
Ethernet	Two independently auto-configuring ports: - 10BASE-T or 100BASE-TX - Half or full-duplex; maintains 200Mbit/s link bandwidth - Patch or crossover cables
Dimensions	105 x 40 x 22 mm (4.13 x 1.57 x 0.87") LxWxH Weight 70g (2.5 oz)
Environmental	Operating temperature: -10 to 50°C (14 to 122°F) Humidity: up to 85%, non-condensing

LED indicators – both connectors

Network status	
On	Link
Flashing	Activity
Off	No link

PoE Status	
On	PoE power enabled
Off	PoE not enabled



Note that the LEDs on OUTREACH MAX will not light until the PoE source and powered device are *both* connected

If the powered device is disconnected, then the OUTREACH MAX should also be disconnected from the PoE power source. *OUTREACH MAX should not be connected to equipment that is not PoE compatible.*

Maximum extension distance

By installing an OUTREACH MAX for every extra 100 metres of cable, PoE and Ethernet can be extended for considerable distances, with no bandwith restrictions or any requirement for electrical power installation.

The maximum distance from the PoE source to the IP camera or other device depends on how much PoE power the device requires:

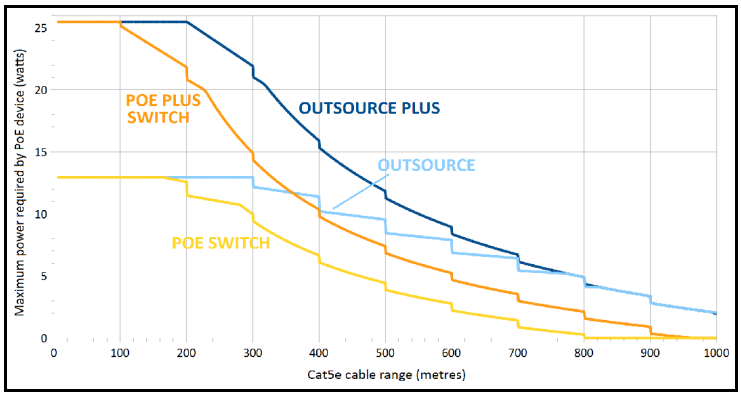
	Maximum range, for PoE power (watts)					
PoE Source	**0W[1]**	**5W**	**10W**	**15W**	**20W**	**25W**
PoE switch	800m 2625ft	450m 1476ft	300m 984ft	N/A[2]	N/A[2]	N/A[2]
OUTSOURCE	1150m 3773ft	800m 2625ft	400m 1316ft	N/A[2]	N/A[2]	N/A[2]
PoE Plus switch	800m 2625ft	600m 1969ft	400m 1316ft	300m 984ft	200m 656ft	100m 328ft[3]
OUTSOURCE PLUS	1150m 3773ft	800m 2625ft	550m 1804ft	400m 1316ft	300m 984ft	200m 656ft

1. Non-PoE applications; using an OUTREACH LITE at the end of the chain
2. Not applicable; these power levels are for PoE Plus source and devices only
3. Extension is not possible at this power level with this power source

These figures are strict upper limits for installations using regular 24AWG Cat 5e cable. Because actual power use and installed cable distances can vary, using OUTSOURCE or OUTSOURCE PLUS is always recommended.

OUTSOURCE is an enhanced PoE injector and is fully compliant with the IEEE 802.3af standard. OUTSOURCE PLUS is an enhanced PoE Plus injector and is fully compliant with the IEEE 802.3at standard.

The distance limits for extension at other peak power levels can be checked using the graph below:



Non-standard PoE

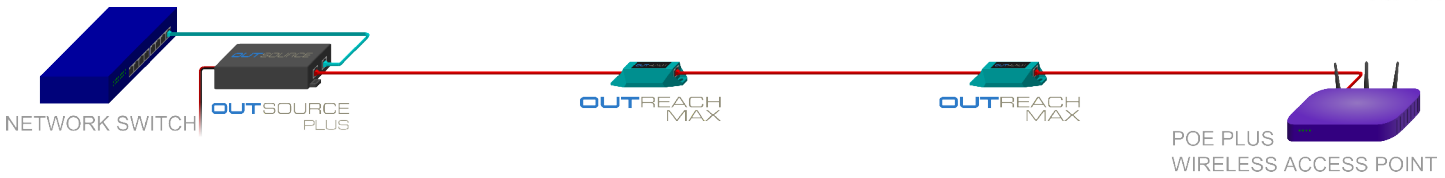
OUTREACH MAX can be used with many implementations of PoE that are not IEEE 802.3af or 802.3at compliant. This includes high-current PoE, or PoE which is "always-on" or uses a proprietary signature.

Four-pair PoE, in which current is carried on both spare and data pairs to double available power, is also supported. See application notes.

Example OUTREACH MAX / OUTREACH LITE applications

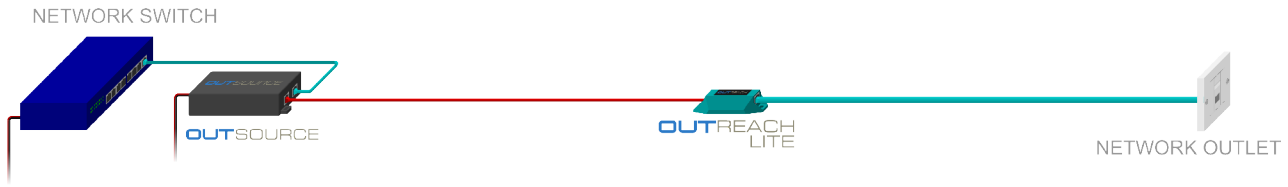
www.use-ip.co.uk
01304 827609

1. Delivering 20 watts to a PoE Plus device over 300 metres (984 feet)



More than one OUTREACH Max may be connected in series to extend PoE and Ethernet for several hundred metres. In the example above, Veracity's OUTSOURCE PLUS injector is used to add enhanced PoE Plus capability to a regular unpowered network port.
Two OUTREACH MAX units are located 100 metres and 200 metres from the switch, allowing a PoE Plus wireless access point to be installed up to 300 metres from the power source.

2. Extending an unpowered network connection to 200 metres (656 feet)

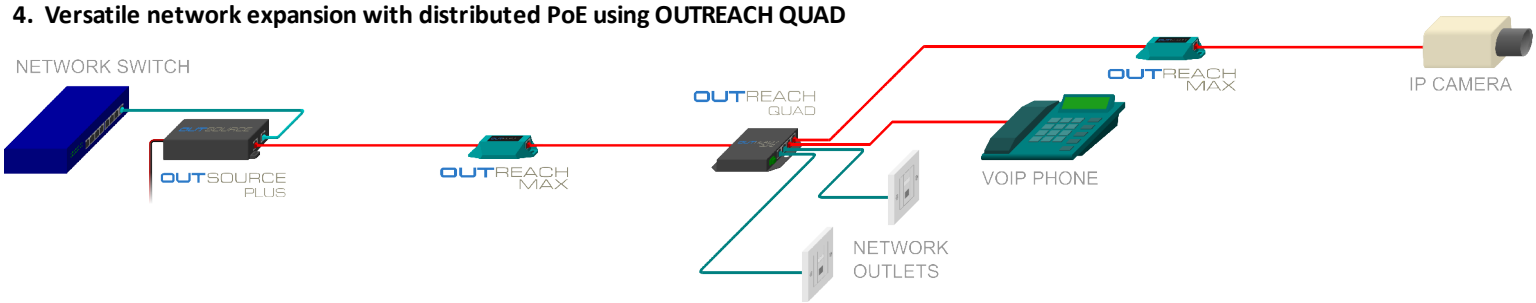


The combination of Veracity's OUTSOURCE enhanced PoE injector and OUTREACH LITE Ethernet range extender delivers a simple and reliable means to extend LAN cabling beyond its 100 metre limit.
By connecting a single OUTREACH LITE after 100 metres of cabling, the connection from network switch port to wall outlet may extend up to 200 metres. OUTSOURCE delivers power to the OUTREACH LITE, and may be conveniently located near the network switch.

3. Combining OUTREACH LITE and OUTREACH MAX to deliver an unrestricted network connection beyond 200 metres

For extending data-only connections, where no PoE is required for the end device, a combination of OUTREACH MAX and OUTREACH LITE may be used to increase range beyond 200 metres. The OUTREACH MAXes forward both data and PoE from the PoE switch to the powered device, which in this case is the OUTREACH LITE. The total distance from switch to outlet in the example is up to 400 metres (1316 feet).
Unrestricted 100Base-T full-duplex (total bandwidth 200Mbit/s) connections of up to 2200 metres (7218 feet) between power sources are possible using this method.

4. Versatile network expansion with distributed PoE using OUTREACH QUAD



In this example an OUTREACH MAX is used to forward enhanced PoE Plus power to an OUTREACH QUAD PoE-forwarding switch, located up to 200 metres from the network switch and OUTSOURCE PLUS injector.
The OUTREACH QUAD extends the PoE and network connection a further 200 metres to an IP camera using OUTREACH MAX, and provides a PoE network port for a VoIP phone, plus an additional two network connections for other devices or for connection to a local network.

CE

EC Declaration of Conformity

In accordance with EN 45014:1998

We, Veracity UK Ltd. of 6 Barns Street, Ayr, KA7 1XA
declare that the equipment "OUTREACH" Ethernet repeaters
model number VOR-ORM / VOR-ORL
conform to the essential protection requirements of the EMC Directive 89/336/EEC as amended.

The following EMC standards have been applied:
BS EN 55022:1998 Emissions (Class B Radiated)
BS EN 55024:1998 Immunity (BS EN 61000-4-2:1995 Immunity to ESD,
BS EN 61000-4-3:2000 Immunity to Radiated RF Fields (3V/m))

I hereby declare that the equipment named above has been been found to comply with the relevant sections of the above referenced specifications. The unit complies with all essential requirements of the EMC Directive.

Responsible Person Mr Alastair McLeod, Director
Issued 9th October 2009 at Ayr

FC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.