OUTREACH MAX

UNIVERSAL ETHERNET & POE EXTENDER

Power over Ethernet and Network Range Extender

- Instantly doubles cable range

- Extends up to 800 metres with multiple units

- No local power required

- Full unrestricted network bandwidth

- Universal 10/100 compatibility

- Extends PoE and PoE Plus

veracity

OUTREACH Max frees you from the distance limits of PoE networks

Power over Ethernet (PoE) greatly simplifies the deployment of IP cameras, wireless access points, and other equipment whose location is critical for performance.

However, cable lengths in Ethernet networks are limited to 100 metres (328 ft), which is a serious restriction in many installations.

OUTREACH Max enables installers to overcome this limitation. Simply connecting an OUTREACH Max in line with the network cable instantly boosts its range from 100 to 200 metres (656 ft).

Simple to install

Fitting OUTREACH Max is simple because no set-up is required. Its only connections are two RJ45 network ports, both of which immediately self-configure for 10 or 100BASE-T operation. PoE power is automatically transferred between connected equipment. And because OUTREACH Max is also PoE-powered, no local power supply connection is needed. OUTREACH Max can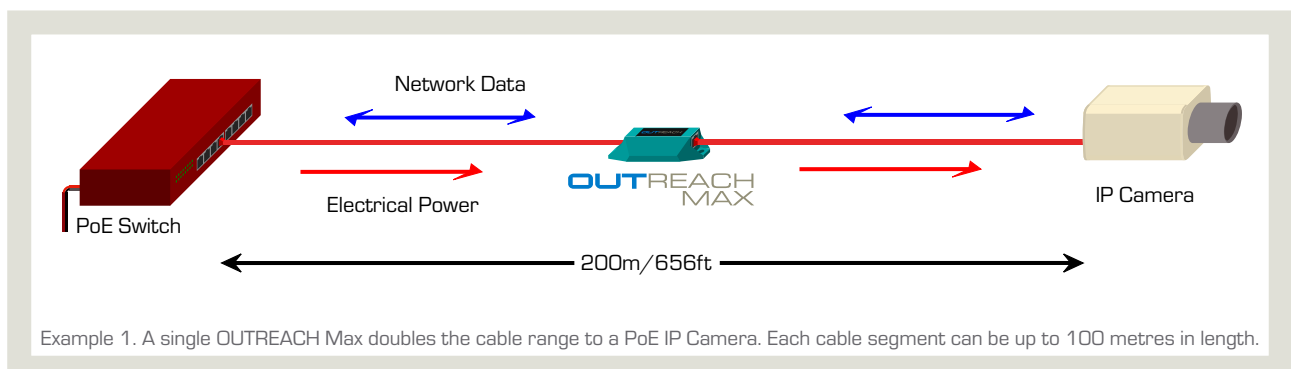 be located anywhere along the network cable, as long as no single length of cable is greater than 100 metres. For example, to extend the network connection between a PoE switch and an IP camera to 170 metres, an OUTREACH Max could be installed 90 metres from the switch. A further 80 metres of cable would run from the OUTREACH Max to the camera.

Max PoE power

OUTREACH Max enables network range extension to all PoE devices that are compatible with IEEE 802.3af, which is the universal PoE standard for low-power network devices such as fixed IP cameras.

In addition, OUTREACH Max is also compatible with high-power standards such as PoE Plus (IEEE 802.3at), and even "4-pair" PoE for devices of 60 watts or more.

Note that OUTREACH Max is designed for connection to PoE-compatible equipment only. If PoE power is not required, Veracity's OUTREACH Lite should be specified instead.

Example 1. A single OUTREACH Max doubles the cable range to a PoE IP Camera. Each cable segment can be up to 100 metres in length.

Go further

If PoE and network extension beyond 200 metres (656 ft) is required, more than one OUTREACH Max may be installed in series.
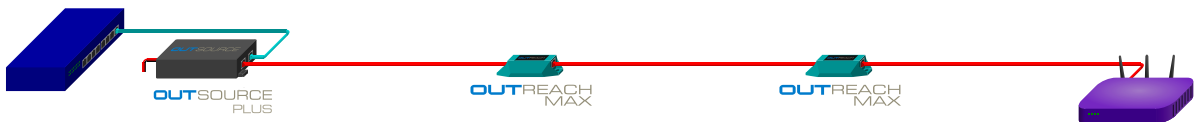
For example, a 300 metre (984 ft) connection between a PoE switch and a 10 watt IP camera can be achieved by fitting two OUTREACH Max units at 100 metre intervals along the cable.

Or a 5 watt IP camera may be located up to 800 metres away, using seven OUTREACH Max units and Veracity's OUTSOURCE PoE injector.

The maximum extension distance depends on how much power is required and which PoE source is used. See the tables on the next page (4), or read Veracity's "Long Range Ethernet Extension" white paper.

No restrictions

Because OUTREACH Max simply restores the network connection every 100 metres, the full (200Mbit/s) bandwidth of 100BASE-T Ethernet is maintained across the entire link. This maximises performance and transparency, with no risk of a reduced or unpredictable bandwidth, even at distances of several hundred metres.

Example 2. Veracity's OUTSOURCE Plus provides enough power to allow 300 metres (984 ft) of extension to a PoE Plus wireless access point, using two OUTREACH Max units located at 100 metre intervals.

Which OUTREACH do I need?

Choosing between OUTREACH Max and Lite is straightforward:

If only Ethernet extension is required, use OUTREACH Lite

OUTREACH Lite extends Ethernet only and does not forward PoE

If PoE forwarding is also required, use OUTREACH Max

OUTREACH Max supports all standards of PoE forwarding, but does not support data-only extension.

If network extension is required to equipment that is unknown or changeable and may or may not require PoE, please see Veracity's OUTREACH Quad PoE-forwarding network switch.

Related Products

OUTSOURCE

OUTSOURCE is a fully IEEE 802.3af-compliant PoE injector. Any network link can be upgraded with PoE power, simply by patching it through OUTSOURCE.

OUTSOURCE also features enhanced PoE, which OUTREACH Max can use to increase the range and power available for PoE extension. It is recommended to use OUTSOURCE for all distances greater than 300m.

OUTSOURCE PLUS

OUTSOURCE Plus is a fully IEEE 802.3at-compliant PoE Plus injector. It features enhanced PoE Plus for extended power and range when used with OUTREACH Max.

OUTSOURCE Plus is recommended for range extension to all PoE Plus devices.

OUTREACH LITE

OUTREACH Lite is a low-cost solution for extension of Ethernet only, where PoE is not required by installed equipment. OUTREACH Lite is a PoE-powered repeater like OUTREACH Max, so a full-bandwidth connection is maintained, but it does not forward PoE to other devices.

Because OUTREACH Max is designed for use with PoE-compliant equipment only, OUTREACH Lite should be specified for all installations where PoE extension is not required.

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 loss of network bandwidth. The limit depends on which PoE Source is used and on how much power the IP camera or other device requires:

PoE Source	Power Required by Camera				
	No PoE	6W	12W	18W	25W
PoE Switch	800m	400m	200m	-	-
Outsource	1150m	700m	400m	-	-
Outsource Plus	1150m	700m	500m	350m	200m

These are strict limits for installations using regular 24AWG Cat5e cable. Distance is limited by the peak power required by the device; its PoE "power class" is not used. Use of OUTSOURCE or OUTSOURCE Plus injectors is recommended for extension beyond 300 metres.

For example, installing a 5 watt IP camera 500 metres (1640 ft) from its power source would require four OUTREACH Max units and an OUTSOURCE injector. The table shows that OUTSOURCE can deliver 6 watts at 700 metres, so this is safely within the maximum range permitted.

"No PoE" distances are for Ethernet extension only, and the last device in the chain must be an OUTREACH Lite. See the OUTREACH Lite datasheet for details, or consult Veracity's application notes for in-depth information on long-range Ethernet extension.

OUTREACH MAX

Technical Specification:

Device power	1.3 watts
Forwarded PoE power	Up to 70 watts depending on standard
	Maximum current 0.7 amps on data pairs
	Maximum current 1.5 amps on spare pairs
PoE standards	IEEE 802.3af PoE
	IEEE 802.3at PoE Plus (2-event signature)
	Custom PoE (incl. "always-on 48V" and "4-pair")
Ethernet	Two independently auto-configuring 10/100 ports
	(10BASE-T/100BASE-TX, half/full duplex)
	Patch or crossover cables supported
LED indicators	Power good, network link/activity (both ports)
Dimensions	105 x 40 x 22 mm (4.13 x 1.57 x 0.87in) LxWxH
	Weight 45g (1.6 oz)
Mounting	Two 7mm (0.28") diameter mounting holes
	Centres 89mm (3.5") apart
Environmental	Operating temp. -10 to 50C (14 to 122F)
	Humidity up to 85%, non-condensing

Product codes			
	VOR-ORM	OUTREACH Max	Ethernet & PoE extender
	VOR-ORL	OUTREACH Lite	Ethernet extender
	VOR-OS	OUTSOURCE	PoE injector
	VOR-OSP	OUTSOURCE Plus	PoE Plus injector