In partnership with signify

Consolite® Technology Ltd

St. Martins Business Park, Bells Lane, Zeals, Wiltshire, BA12 6LY, UK
Tel: +44 (0) 1747 840900 - E mail: sales@consolite.co.uk
Certified to ISO9001:2015

Ground Forces LiFi System

Wireless data where WiFi is not an option
Using Infra Red for faster, more efficient data transfer

The datasheet outlines equipment designed for use by Ground Forces but many other variations are available or can be manufactured for specific use cases – please get in touch.

Based on Signify's highly successful LiFi system, Consolite has re-engineered the technology to be suitable for the Military environment.

Meeting the relevant Def Stans and Mil-Stds this product is developed for use in situations where Wifi is not an option.

LiFi Technology, advantages and uses

LiFi (Light Fidelity) is a method of transferring data using light, whereas WiFi transfers data using radio frequencies.

There are many benefits of transferring data through light.

- Security: The USB key must be within the "Line of Sight" (light cone) of the transceiver providing a high level of Physical Security. The USB Key must be in line of sight of the transceiver.
  As light does not penetrate walls this provides a Low Probability of Detection (LPD) and a Low Probability of Interception (LPI).
  The communications does not suffer from interference in the same way RF does.
- Speed: The data from the Access Point (AP) is only used by those beneath the AP so it is not shared amongst multiple users.
- Bandwidth: WiFi makes use of radio communications, of which the spectrum has become very crowded and is very often licensed. The LiFi spectrum is unlicensed and offers virtually unlimited bandwidth.
- RF interference: LiFi does not interfere with sensitive equipment in the way that WiFi can so it can be used in highly technical areas like machinery spaces and operations rooms, in explosion proof areas and nuclear facilities.

Providing fast, secure wireless data which is easily transported and quickly deployed, linking each shelter without the need for cumbersome cables. Operators can become connected in the same way as society does. Fast communications, video linking, geo-location, instant access to documents, on the job training through augmented reality and fast logging of maintenance activities are just some of the new realities of a secure Command Post.

Connectivity of the medical centre can help Medical Professionals link with their counterparts at Base Camp to help with complicated procedures and allow real time support where time is crucial. The addition of augmented reality or head up video and voice devices like the Microsoft Hololens or Vuzix Blade makes access to information as fast as anywhere in the world.

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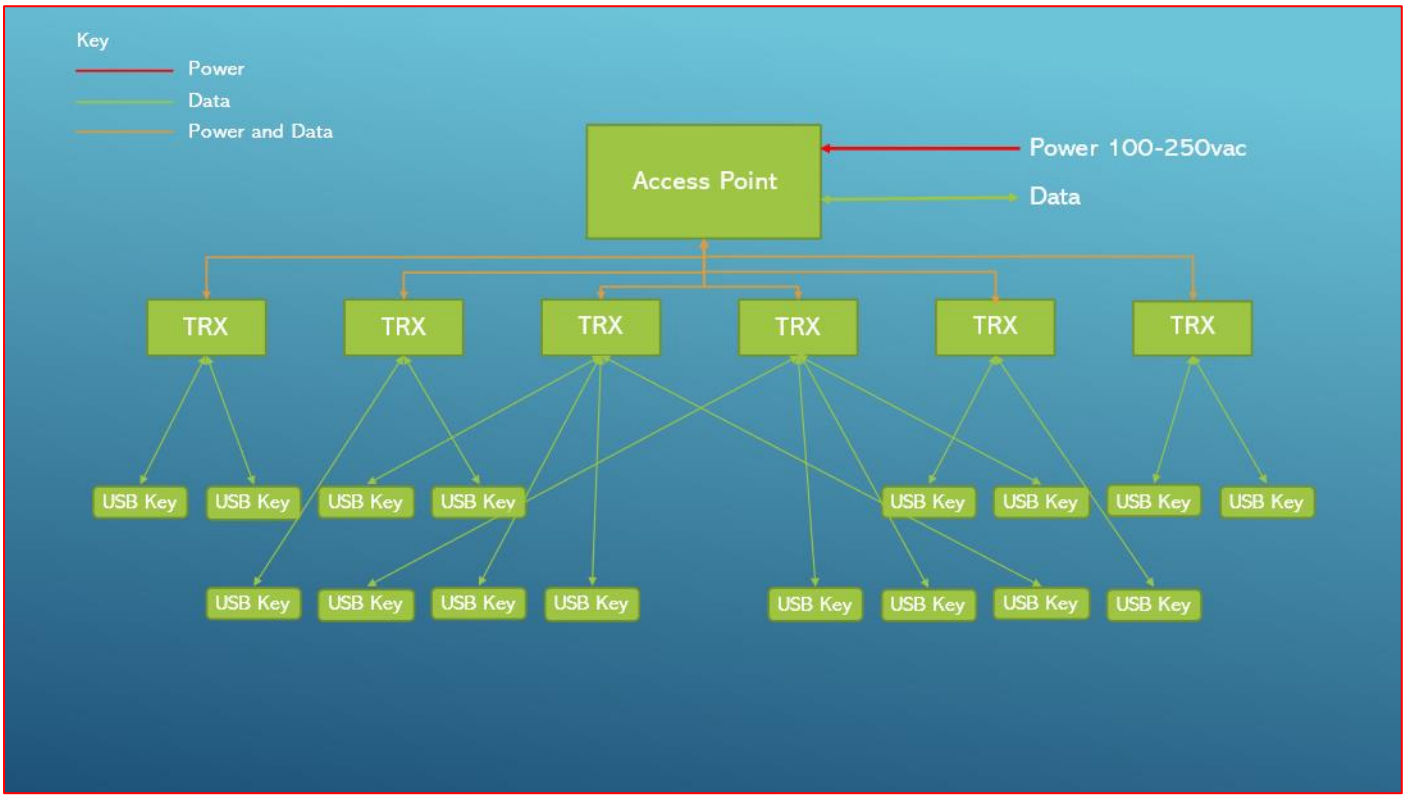
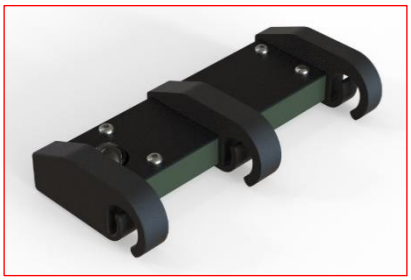
The system consists of 3 components:

- 1 x **Access Point** (see page 3) to connect power and data
- Up to 6 x **Transceivers** (see page 4) can be connected to the Access Point
- Up to 16 x **USB Keys** (see page 5) can be connected at any time



CTL-487-A003

CTL-487-A002



CTL-487-A001

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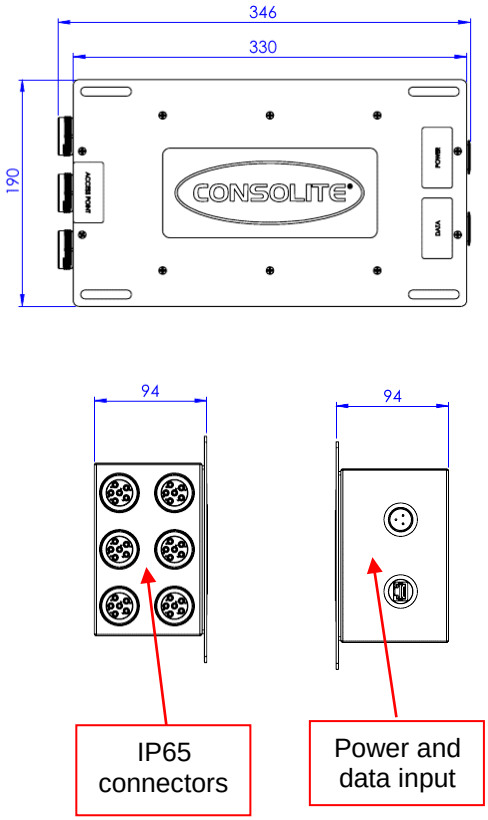
Access Point (connection for data and power)

The Access Point is the connection point for power and data. The Transceivers are plugged in here with IP65 glands. A WiFi capable version is available – the WiFi is disabled locally when not required.

Technical Details

Part number	CTL-487-A003
Mains voltage	100 – 240V, 50/60Hz
System power	38W (based on 6 transceivers connected)
Power factor	0.5
Average ambient temperature	25°C
Operating temperature range	-40 to +40°C
Network communication	Data link connection RJ45 Cat.5/5E/6 cable
Multi-user capability	Up to 16 users per Access Point
Transmission mode	Half duplex
Encryption	End-to-End encryption based on AES-128
Standard	Designed for ITU-T G.9991
WiFi (CTL-477 only)	IEEE 802.11n/b/g 2.4 GHz 300Mbps
Weight	< 1.5kg



CTL-487-A003

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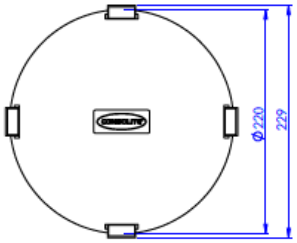
Transceiver (detector connected to access point)

The transceiver is designed to be used between 1.2 and 2.8m from the USB key. Data rates are best inside a 60 degree cone. The transceiver is designed to stow data cable wrapped around the transceiver body. The exit window is in the central part of the product. The unit is hung with Velcro for easy deployment to cords, cables or poles.

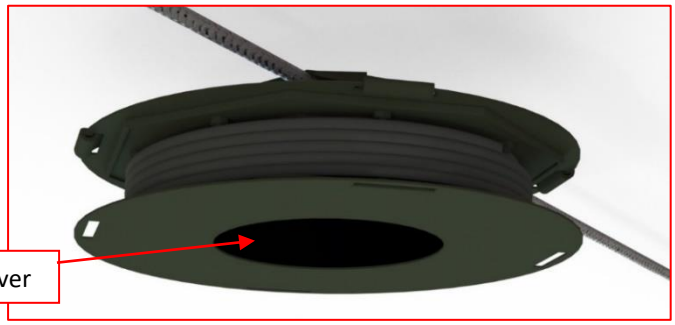
We specialise in custom housings to suit each application – please ask for bespoke housings.

Technical Details

Part number	CTL-487-A002
Voltage	24V DC provided by the CTL-487-A003 Access Point
Wireless optical communication	Infrared
Average ambient temperature	25°C
Operating temperature range	-40 to +40°C
Network communication	Data link input connection RJ12 7m SFTP cable
Transmission mode	Half duplex
Encryption	End-to-End encryption based on AES-128
Download speed	220 Mbit/s
Upload speed	160 Mbit/s
Weight	< 500g



Stowed Velcro straps



IR data transceiver

CTL-487-A002

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USB Key (for connection to your device)

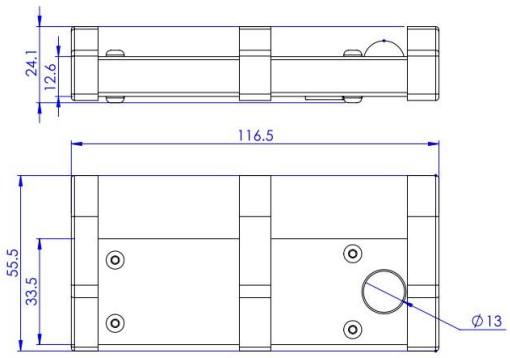
The USB Key is necessary for the device to communicate with the Transceiver. It is plugged by wire directly into the PC, Laptop, Tablet or Smart Phone.

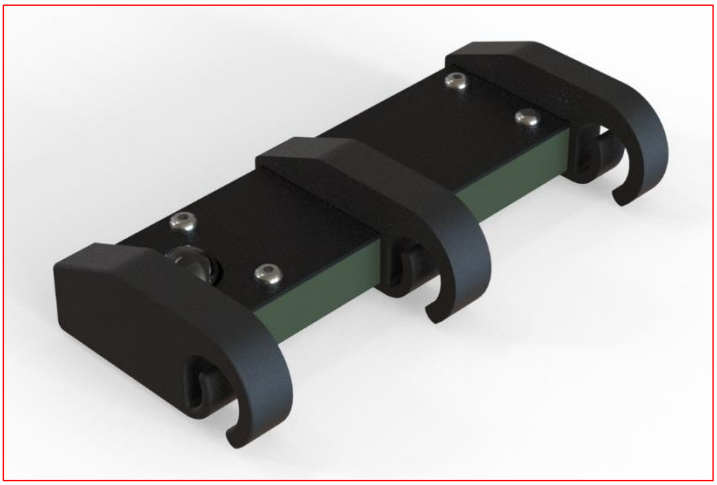
The format shown below is hooked over the monitor, laptop of tablet to allow easy removal and stowage. It is fitted with impact absorption bump strips to protect against drops and impact in the field. It is resistant to drops in excess of 5m.

As with the Transceiver, other housings and fixing methods can be tailored to different applications and we specialise in customisation

Technical Details

Part number	CTL-487-A001
Voltage	5V DC via USB 3.0
System power	3.5W
Uplink optical communication	Infrared
Average ambient temperature	25°C
Operating temperature range	-40 to +40°C
Network communication	Data link connection USB 3.0
Download speed	220 Mbit/s
Upload speed	160 Mbit/s
Weight	< 100g





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Deployable system

A Rugged case containing:

1 x Access Point

6 x Transceivers

6 x USB Keys

Dimensions: 616 x 493 x 220mm

Weight 13.3kg (net weight 7.1kg)

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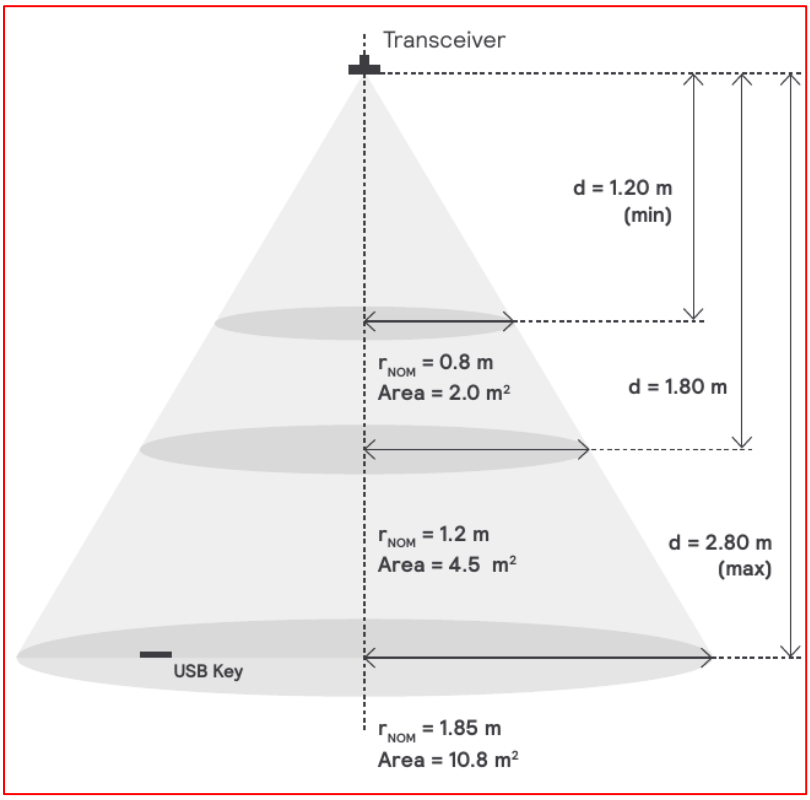
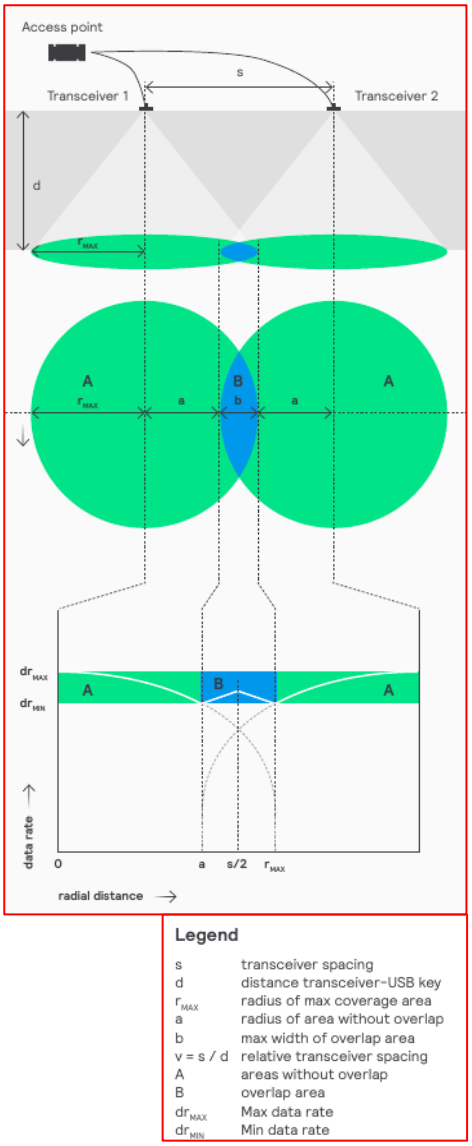
Layout Schematic





Legend

s	transceiver spacing
d	distance transceiver-USB key
r_{MAX}	radius of max coverage area
a	radius of area without overlap
b	max width of overlap area
v = s / d	relative transceiver spacing
A	areas without overlap
B	overlap area
dr_{MAX}	Max data rate
dr_{MIN}	Min data rate

Environmental specs

Temperature	IEC 60068-2 and MIL-STD-810G
Humidity	IEC 60068-2 and MIL-STD-810G
Shock	IEC60068-2 and MIL-STD-910
Vibration	IEC 60068-2 and MIL-STD-810G
Ingress Protection	IP65 IAW BS EN 60529
EMC	IEC 60533, IEC 60945 and Def Stan 59-411
Eye safety	BS EN 62471
Finish	IAW Warpaints standard

Consolite has worked with military lighting for over 40 years on both Air and Ship platforms. Consolite specialises in advanced lighting design and test and has become the authority in lighting for Naval applications worldwide.

The Consolite Data via Infra-Red system is the next generation of that expertise, taking lighting to a new level.

Consolite's partnership with the Philips Signify Team has brought the combination of Signify's huge industrial investment with Consolite specialist military focus. As a team we are providing connectivity to Naval ship operations which is revolutionising data use at sea.

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