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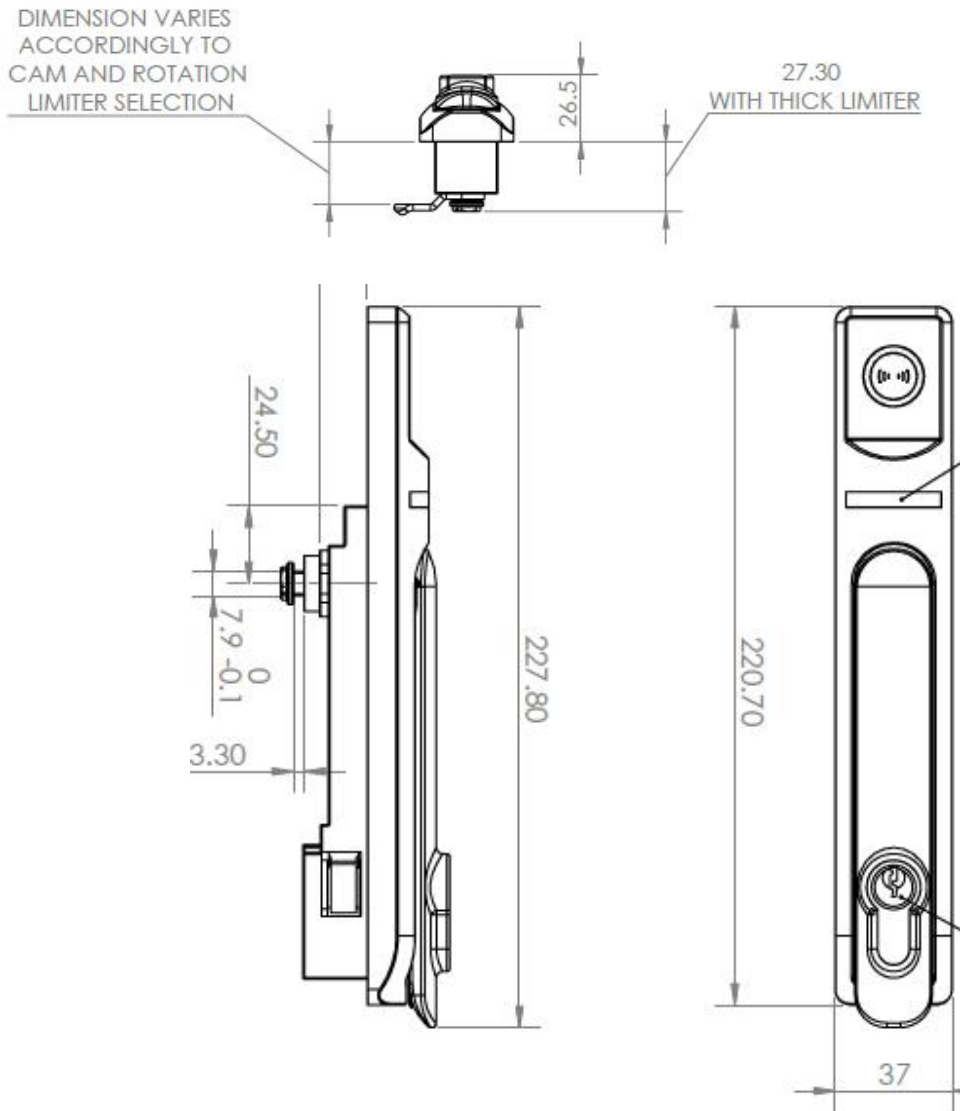
Logical Infrastructure (**LI**) Intelligent Electronic Handle (**i-Handle**) is an IT Cabinet level security access control swing handle solution with built in multi card reader, environmental sensors, integrated door lock position and magnetic door contact sensors. The LI POE bridge allows the I-Handles to communicate and be powered via a standard POE switch.



Designed for easy installation with minimal cabling and without the need for dedicated structured power cabling.

Features:

- Local Status monitoring via Integrated Multi-colour LED indicator
- Manual over-ride lock for emergency access (with scalable levels of security)
- Retro-fittable to existing IT cabinets, industry standard 25x150mm panel cut-out
- Compatible with single and multiple point latching
- Integrated electronics and environmental sensors (temperature and humidity)
- Inbuilt Multi-card reader - 125kHz and 13.56MHz * High security reader only supports 13.56MHz
- External Door contact sensor * magnetic or optional inductive sensor available.
- Simple one cable connection for power and communication
- Complete with Centralised Rack Access Management (RAM) Software for configuration, management, monitoring and reporting



MOTOR MODEL ELECTRICAL SPECIFICATION:

- POWER 4.5V TO 5V
- OPERATON CURRENT: LESS THAN 500mA AT 5V DC WITH NO EXTERNAL MECHANICAL LOAD APPLIED TO HANDLE.
- MAX CURENT WITH STALLED ACTUATOR: 1A AT 5V DC.
- STANDBY CURRENT: 300mA, TYPICAL.

CONTROL INPUT:

- RJ485 5V DEVICE
- BAUD RATE:19200 BPS

Environmental and Performance:

- > Operating temperature: -15°C to +60°C (5°F to 140°F)
- > Survival temperature: -30°C to +85°C (-10°F to +185°F)
- > Humidity (operating): 95% RH at 50°C (122°F)

FCC/IC COMPLIANCE / TM / WARRANTY

To satisfy FCC&IC RF exposure requirements, a separation distance of 20cm or more should be maintained between the antenna of this device and persons during device operation.
To ensure compliance, operations at closer than this distance is not recommended.

Les antennes installées doivent être situées de façon à ce que la population ne puisse y être exposée à une distance de moins de 20 cm. Installer les antennes de façon à ce que le personnel ne puisse approcher à 20 cm ou moins de la position centrale de l'antenne.

This device complies with Part 15 of the FCC Rules / Industry Canada licence-exempt RSS standard(s). 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced **radio/TV technician for help.**

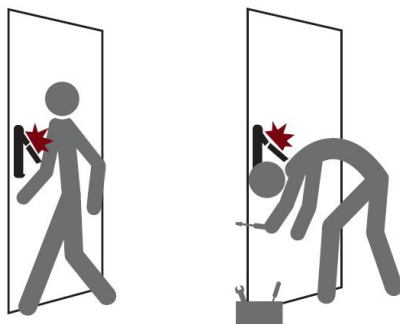
• Safety Instructions

- Please refer to the below instructions before using the lhandle. Save this manual for future reference.



- ■ If cleaning The lhandle is required. Don't use liquid or spray detergent; use a moist cloth.
- ■ Install and operate the lhandle Preferably, in an air-conditioned environment with temperatures not exceeding 60° Celsius (140° Fahrenheit).
- ■ When installing, place the equipment on a sturdy, level surface to prevent it from accidentally falling and causing damage to other equipment or injury to persons nearby.
- ■ Install the lhandles Communication and door contact cables in such a way that others won't trip or fall over it.
- ■ Keep all liquids away from the equipment to minimize the risk of accidental spillage. Liquid spilled on to the lhandle may cause damage.
- ■ Only qualified service personnel should open the chassis. Opening it yourself could damage the equipment and invalidate the warranty.
- ■ If any part of the equipment becomes damaged or stops functioning, have it checked by qualified service personnel

Take care when the swing handle is in the open position, to avoid personal injury or damage to the swing handle body.



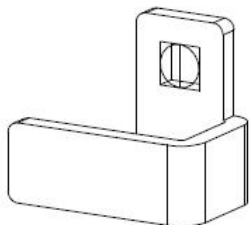
DO NOT use excessive force to open the swing handle and always fully open the swinghandle by gently opening in an upwards position. Once fully in the upwards position turn the handle either left or right based on the position of the rotation limiter. Failure to operate the handle correctly can lead to damage to the handle body.

Standard warranty 2 years repair or replace. See exclusions below

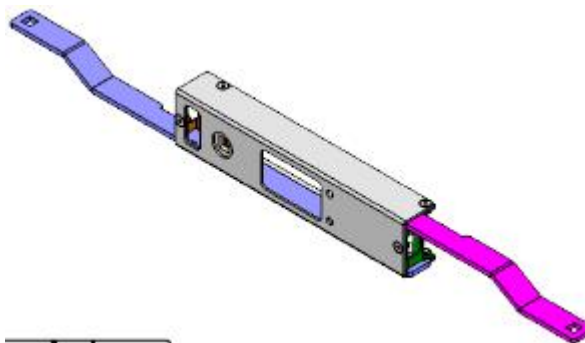
- Damage, deterioration or malfunction resulting from:
- Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
- Repair or attempted repair by anyone not authorized persons.
- Any damage of the product due to shipment.
- Removal or installation of the product.
- Causes external to the product, such as electric power fluctuations or failure.
- Use of third-party parts not meeting our specifications.
- Normal wear and tear.
- Any other causes which do not relate to a product defect.

Standard supplied Inventory * can be modified to suit specific requirements

Optional extras.



Door cams



Multi latching rod system gearbox

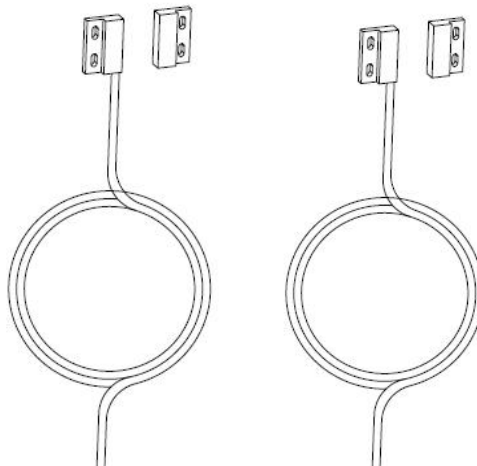
i-Handle Kit:

The i-Handle Kit comprises the following:

- Quantity 2pcs Intelligent swinghandle
- Quantity 2pcs 2m communications cable female rj45 to 4pin JST connector
- Quantity 2pcs 1.2m Door switch sensors to 5 pin JST connector with 2 magnets
- Quantity 1pcs 2.5m Cat6 Blue network cable
- Quantity 1pcs 2.5m Cat6 Red network cable
- Quantity 2pcs Metal bracket back cover and 3 fixing screw
- Quantity 2pcs Cable protection covers
- Quantity 2pcs Thin rotation limiter * thick rotation limiter installed on ihandle as standard
- Quantity 2pcs Spring screws to affix CAM to rotation limiter
- Quantity 4pcs Euro profile lock barrel keys
- Quantity 1pcs POE bridge SBIP 01



i-Handle QTY (2)

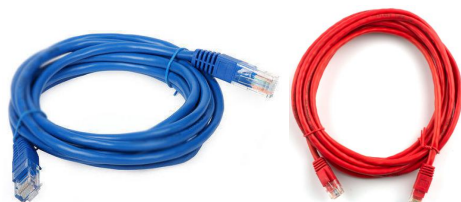


1.2m door switch sensor kit QTY (2)

(Switch sensor + Magnet + 1.2m cable to 5pin connector)

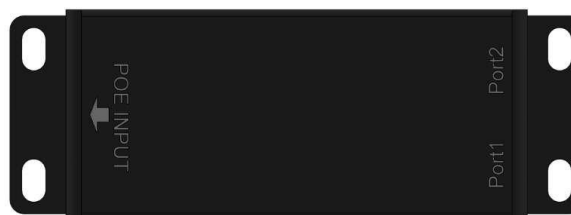


2m iHandle Comms Cable 4 pin JST to RJ45 (2)



Blue Network Cable 2.5m (1) - From front door

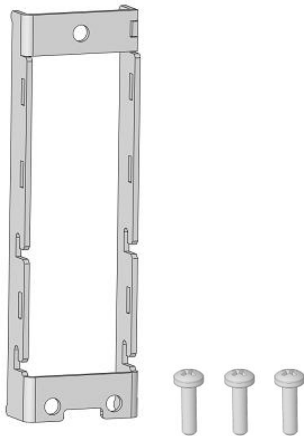
Red Network Cable 2.5m (1) – From back door



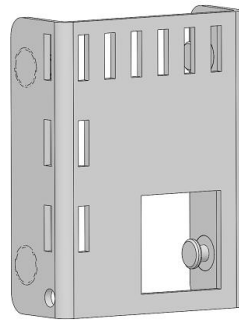
(1) POE Bridge -SBIP01



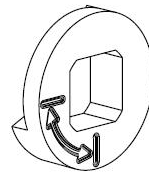
Metal bracket back cover (2) fixing screw (3)



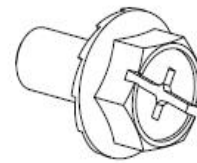
Cable Protect Cover (2)



Thin Rotation limiter (2)



Spring screw (2)



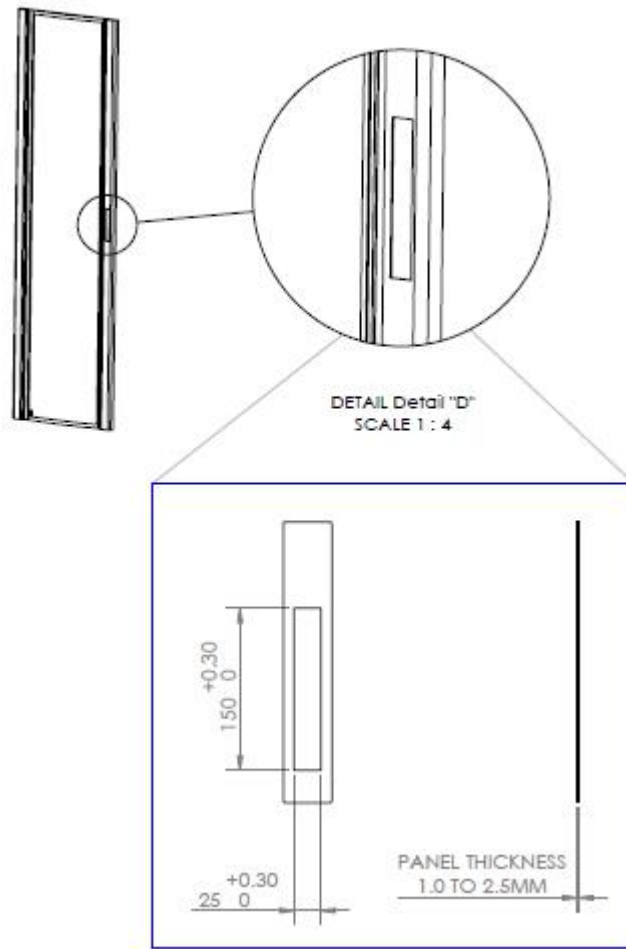
Key (4)



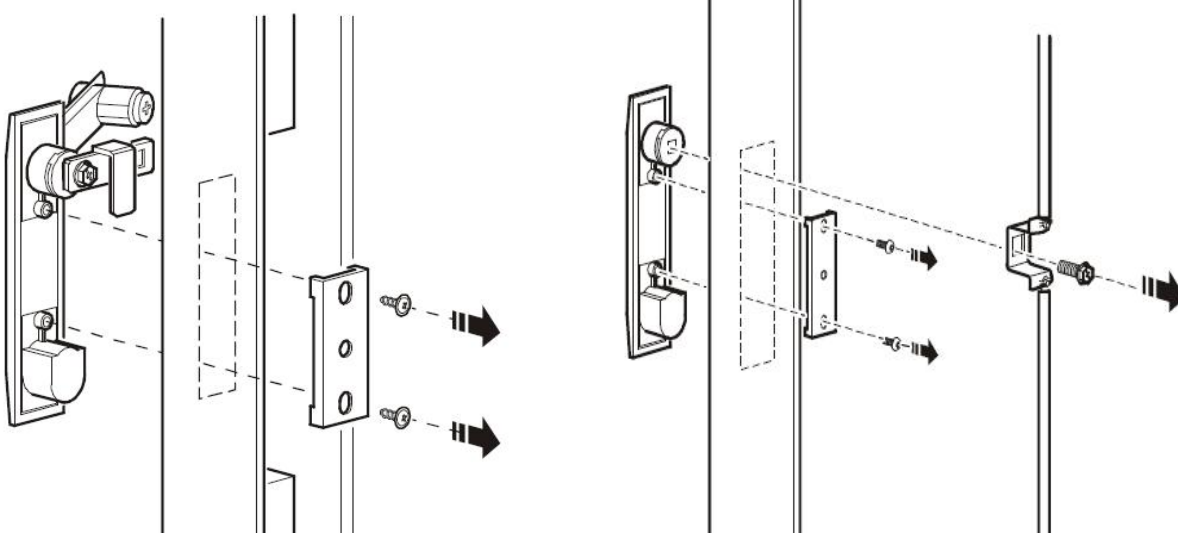
Installation:

Check the cut-out dimensions. For retrofit, remove the existing rack handles and check the cut-out dimensions (see picture below for typical front door and rear door). Keep the cam from the existing handles (used in Step 4).

Note: The LI Electronic i-Handle can be retrofitted on racks subject to the door having a cut-out dimensions 125mmx50mm.



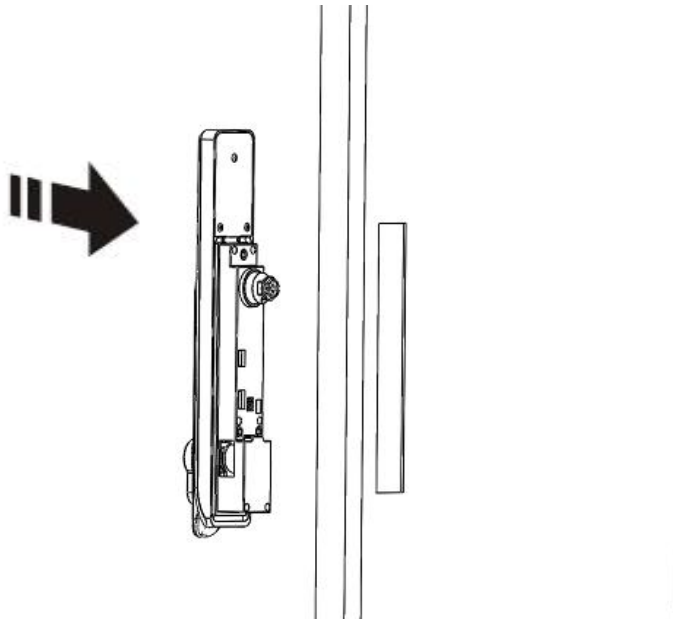
1.



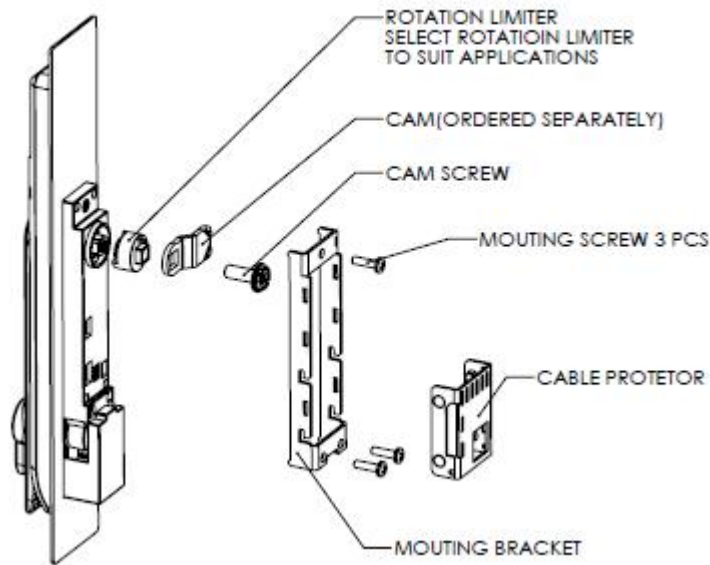
Typical door

Typical door

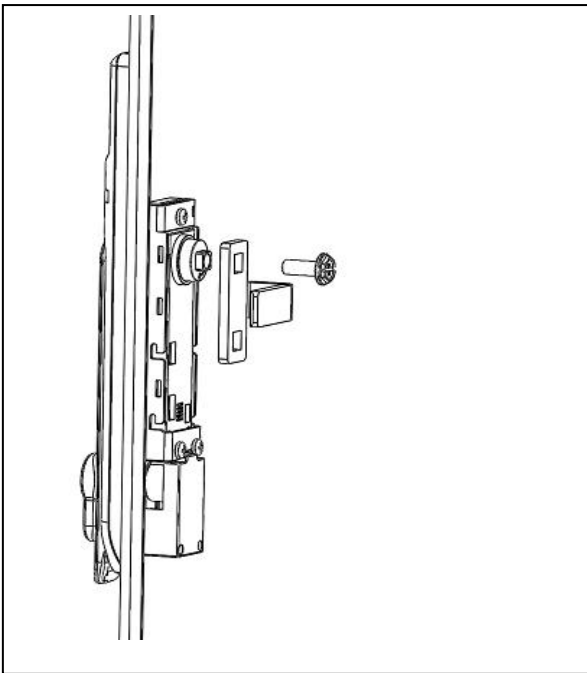
2. Push the i-Handle through the cut-out in the door.



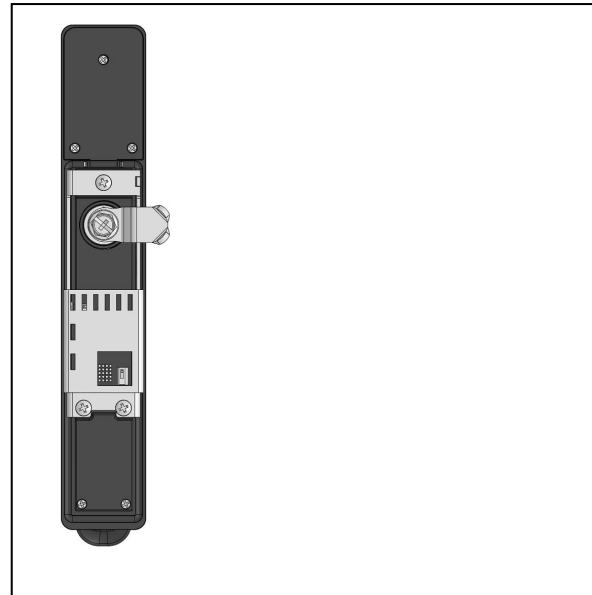
3. Put the metal back cover on the inside of the handle and insert the 3 screws to secure the handle in place, alternate between the screws while tightening to prevent skewing of the handle.



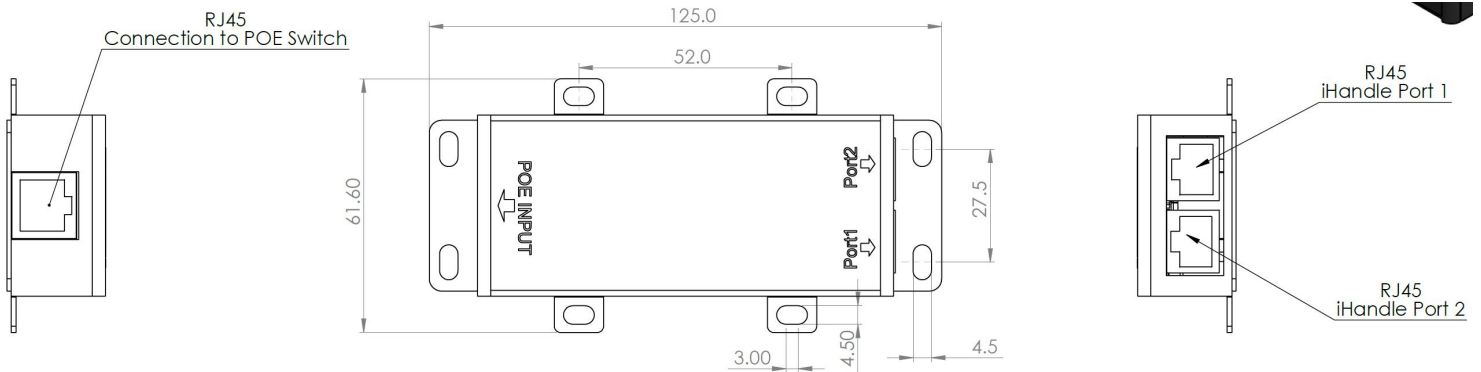
- Place the door cam over the handle spindle and then a thick or thin door limiter using the spring screw to secure the mechanism. (For retrofit, re-use the front and rear door cam). Check the cam closes snugly when the handle is rotated. Swap the door limiters or slightly bend the cam if the cam hits the rack frame.



- Repeat the procedure for the second door.



POE bridge Installation:

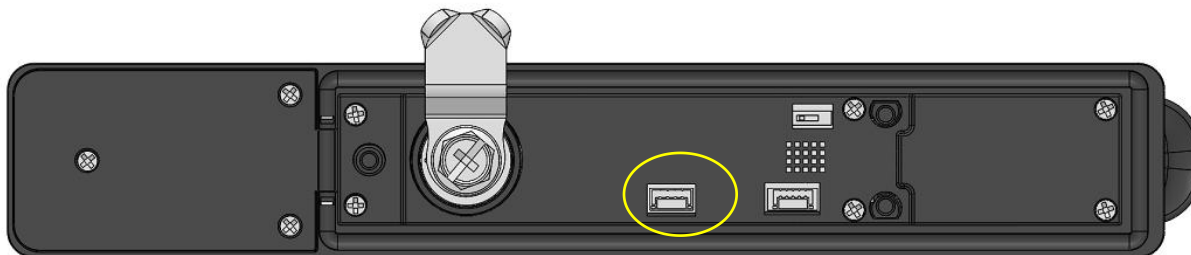


1. The Ideal installation position for the POE bridge is towards the Front of the IT cabinet within the side of the cabinet either top of bottom depending on how the lhandle network cables are routed through the doors.
2. The POE Bridge has multiply fixing points allowing for flexible installation. The left and right fixing points should only be used when affixing the POE bridge with cable ties so as not to block access to the RJ45 ports. The top and bottom fixing points allow a screw type M6 to be used to affix the poe bridge.
3. Port 1 & Port 2 are used to connect the logical infrastructure intelligent electronic swinghandles to the port Bridge.
4. The POE input RJ45 port is used to connect the POE bridge to a POE switch for power and communication The port cannot be used to connect to an lhandle.

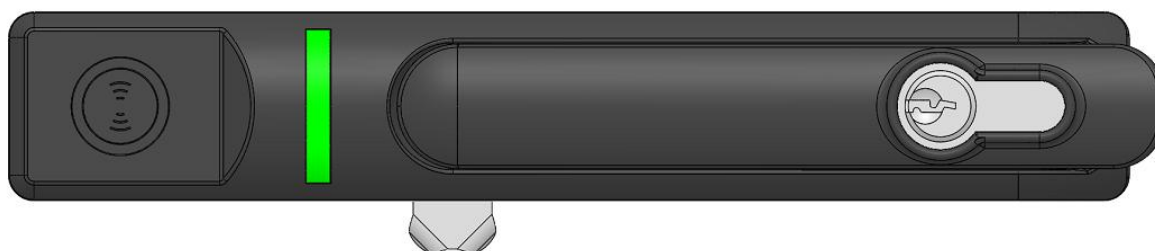
Network connection:

Front Door

1. Connect the i-Handle Comms Cable 4 pin to RJ45 150mm cable to the iHandle and attach the Blue Network Cable to the RJ45 connector.



2. Connect the RJ45 coupler and Blue Network Extension Cable to the Blue Network Cable.
3. Route and fix the network cable using cable ties and adhesive pads. Ensure the network cable has slack on the hinge side of the door so that it does not get pinched. Ensure the RJ45 coupler is positioned near the hinge to enable the network cable to be disconnected and allow the easy removal of the door (if required).
4. Install the Cable Protect Cover by placing it over the back of the i-Handle and sliding the Cable Protect Cover up.
5. Connect the blue Network cable to the RJ45 Port labelled port 1 or 2 on the POE Bridge SBIP01. The i-Handle LED light should now be illuminated.

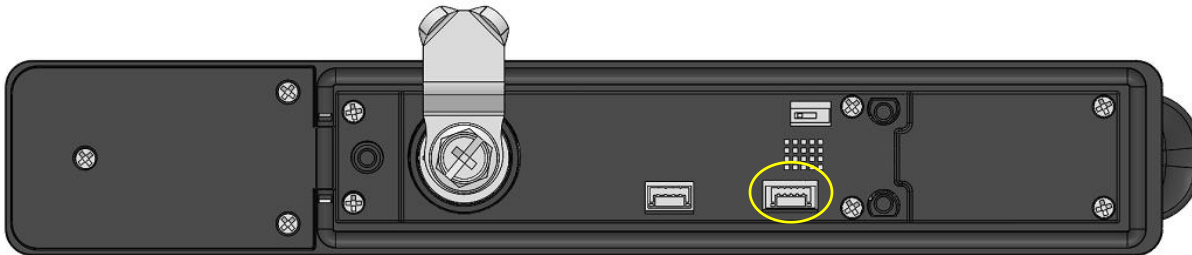


Rear Door

1. The network connection for the rear door is the same as the front door except the RJ45 coupler and Blue Network Extension Cable are not used and the Red Network Cable is used instead of the blue cable.
2. Ensure the network cable has slack on the hinge side of the door so that it does not get pinched.
3. Connect the RED Network cable to the RJ45 Port labelled port 1 or 2 on the POE Bridge SBIP01
- 4.

Door Switch Sensor

1. The Door Switch Sensor consists of two parts:
 - 1.2m cable to 5pin connector with Door switch sensor
 - Magnet
2. Plug the 5pin connector into the back of the i-Handle.



3. Route and attach the 1.2m cable to the inside of the door and attach the switch sensor to the door using a dual adhesive pad or screws. In most instances the best location is near the top of the door on the handle side.
4. Close the door and locate the position on the frame inside the rack that corresponds to the location of the switch sensor.
5. Open the door and attach the Magnet to the frame in the location identified using a dual adhesive pad or M3 tapping screws.
6. The magnet and switch sensor must come into contact when the door is closed for the sensor to determine door closed status.

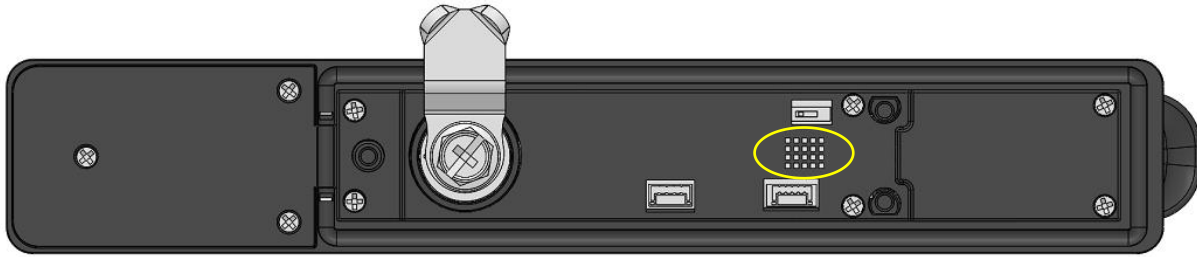
Lock:

1. The Euro profile lock barrel can be replaced with an alternate lock barrel either before or after the handle is installed.
2. Removing the lock retaining screw.
3. Slide the lock cylinder barrel out of the i-Handle and replace it with the alternate barrel.
4. Re-install the lock retaining screw.

Note: The lock barrels supplied by Logical Infrastructure are designed specifically for use with the i-Handle. Other lock barrels may result in reduced i-Handle functionality.

Environmental Sensors:

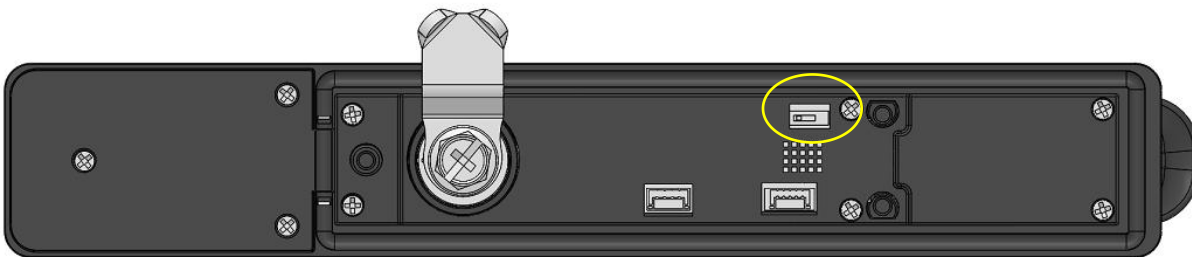
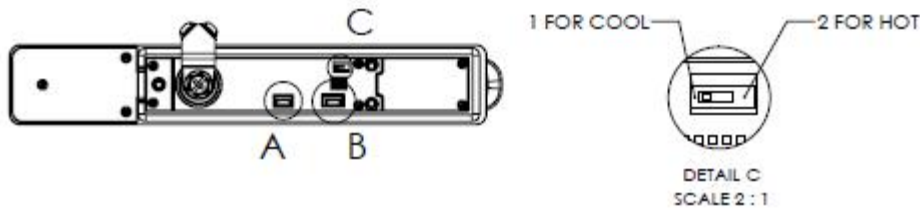
1. The i-Handle has an internal temperature and humidity sensor.

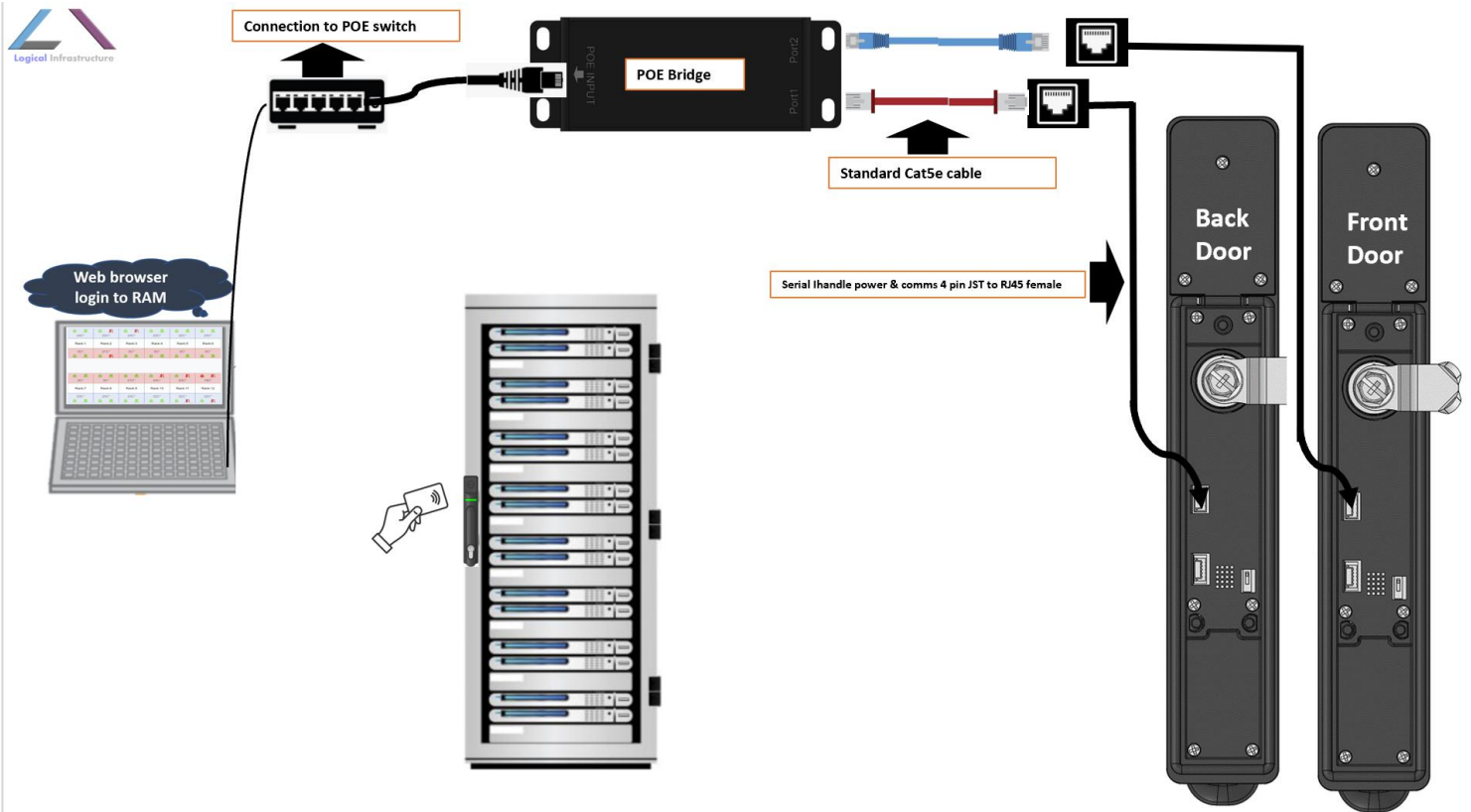


2. One additional environmental sensor (not supplied in the i-Handle kit) can be attached to the spare port on the i-Handle.

Configuration:

1. The front door of a rack is referred to as the “cold aisle” and the rear door as the “hot aisle”.
2. After fitting the i-Handle ensure that the dip switch is correctly selected for “hot aisle” or “cold aisle” appropriate to the rack orientation.





LED light status:



LATCH & LED colour STATUS definitions

- SECURED SOLID **GREEN**
- ELECTRONICALLY RELEASED *BLINKING GREEN*
- UNAUTHORISED CARD SWIPE *BLINKING YELLOW*
- MECHANICALLY RELEASED WITH KEY *BLINKING RED*
- ELECTRONICALLY LOCKED/SWINGHANDLE OPEN *BLINKING YELLOW/RED*
- DOOR CONTACT OPEN FOR 5 MINUTES *BLINKING RED/BLUE*
- ERROR DETECTED SOLID **RED**

FAQ:

- **What if the lhandle fails how do I access my IT cabinet?** Use the override key provide to manually open the swinghandle.
- **Does the lhandle fail safe if power is lost or the communications cable is disconnected?** Yes, the lhandle will stay in the locked position and when powered up again will automatically check that latch is in the locker position
- **Is the lhandle self-latching?** Yes, as long as the Key barrel is in the 12 clock lock position and the electronic latch in the lock position once the swinghandle is closed the latch will allow the key cam to push up the latch and the spring action will drive the latch back down.
- **Can I use my own euro profile lock barrel?** Yes, if the barrel is a standard Euro profile.
- **My current multi point rode systems gear box does not fit the lhandle where can I get a gearbox that works with my multi point rod system?** We can design a compatible gearbox as an optional extra ,Please contact sales@logicalinfrastructure.com
- **I'm trying to use my internal companies swipe card and it isn't working why?** Your companies swipe cards may be encrypted to your build management system card readers, the lhandle requires an open section on your card in order to reader the CSN number.
- **I've connected my lhandle to my building management system but it's not working why?** The lhandle uses the RS485 protocol and only approved vendor hardware is supported by our Firmware. Please email sales@logicalinfrastructure.com to discuss your requirements.
- **I've lost some parts can I buy spares.** Yes, please contact your nearest LI reseller or email sales@logicalinfrastructure.com and we will get in contact with you regarding your requirement.
- **Can you integrate with third party access control systems?** Currently no the LI ihandles only work with the RAM software.
- **How accurate is the supplied temp and hum sensor?** The sensors are accurate up to 2 degrees and 5% humidity and have been calibrated to react slowly to changes to avoid large swings in temp and humidity when the door is opened and closed for short periods of time, this setup is designed to give the user stable readings and avoid unnecessary threshold alarms.

Trouble shooting:

- **The LED light on my lhandle has not turned on.** Make sure the communications cable is plugged into the lhandle and the support third party device IE intelligent PDU sensor port.
- **My lhandle has a flashing blue/Red led.** Please make sure the supplied door switch sensors are connected to the lhandle and that the magnet has been installed correctly as per page 11.
- **The aisle setting on my handle is not correct and I've switched it into the correct position, but the aisle detail has not changed.** Please power done the lhandle by disconnecting the communications cable make sure the dip switch is in the desired position now power up the lhandle and allow the lhandle to reboot and sync , this should resolve the issue.