



Connecting & Protecting People

Installation Guide

AVIRE Fire Communication System

MU-850-AFCS-GB

v1



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1. High Level Installation Process

1 Install AVIRE Gateway and Digital Audio Unit

Follow the relevant instructions provided with each device.
Add devices to the AVIRE Hub to enable system monitoring.

2 Install Lift Switch, Machine Room and Optional Intercom units

Follow the detailed instructions for the physical installation of each intercom unit

Sections 3 & 4
(pages 09-10)

3 Connect CAN Wiring to all Intercom units

Follow the detailed instructions for the CAN wiring of each intercom unit

Sections 5
(pages 11-12)

4 Connect CAN wiring to Fire Lift I/O Module

Follow the detailed instructions for the correct termination of CAN wiring onto the I/O module

Section 5
(pages 12)

5 Wire the Fire Lift I/O Module Inputs and Outputs

Follow the detailed instructions for wiring the Inputs and Outputs to the Lift Controller and building ATS (if applicable)

Section 6
(pages 14-15)

6 Connect 24VDC power input to Fire Lift I/O Module

Follow the detailed instructions for connecting power to the I/O module

Section 7
(pages 15)

7 System Start-Up

Follow the detailed instructions for system auto-boot and auto-discover

Section 8
(pages 15)

8 Mounting the Fire Lift I/O Module

Follow the detailed instructions for the physical installation of the I/O module

Section 9
(pages 16)

9 Add AVIRE Fire devices to the AVIRE HUB

Follow the detailed instructions for adding all devices to the AVIRE Hub

Section 11
(pages 18)

2. AVIRE Fire Components

2.1. Firefighters Lift Switch & Intercom

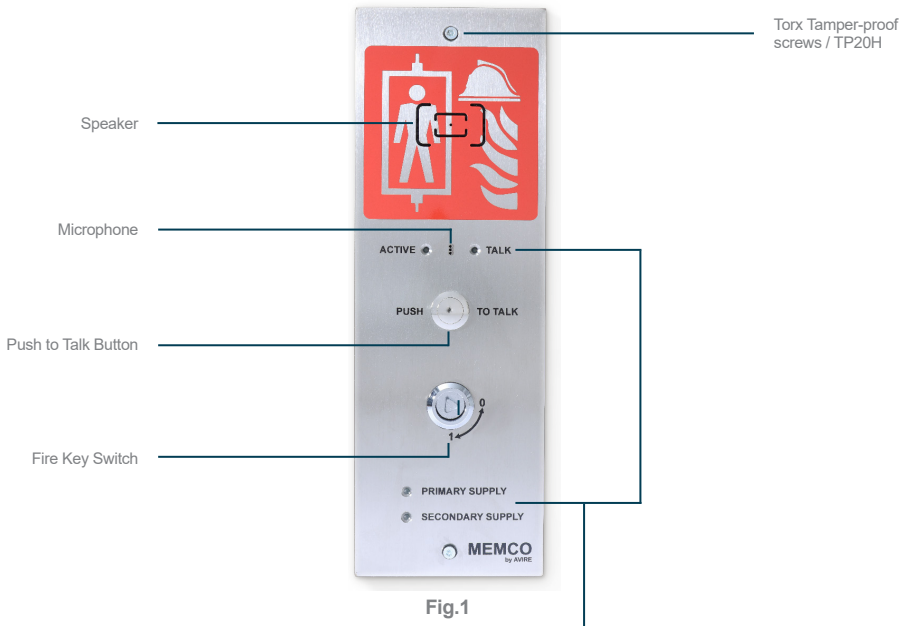


Fig.1

	Active	Talk	Primary Supply
System On (Firekey Switch set to '1')	System Active	Push to Talk button is pressed; mic is active	Primary power supply in use
	System under TEST	Remote Push to Talk button is pressed; mic is muted	
	System ERROR / System Test FAILED		Secondary supply
System Off (Firekey Switch set to '0')	System Error (not powered)	Audio in IDLE mode	Secondary power supply in use
	System Heartbeat (every 10 sec)		

2. AVIRE Fire Components

2.2. Machine Room Intercom and Optional Intercom



Fig.2

Torx Tamper-proof screws / TP20H

Speaker

Microphone

Push to Talk Button

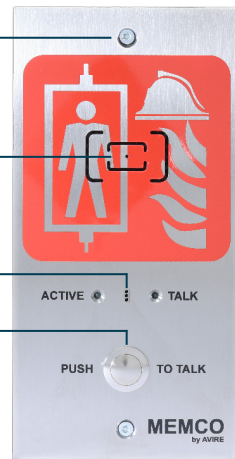


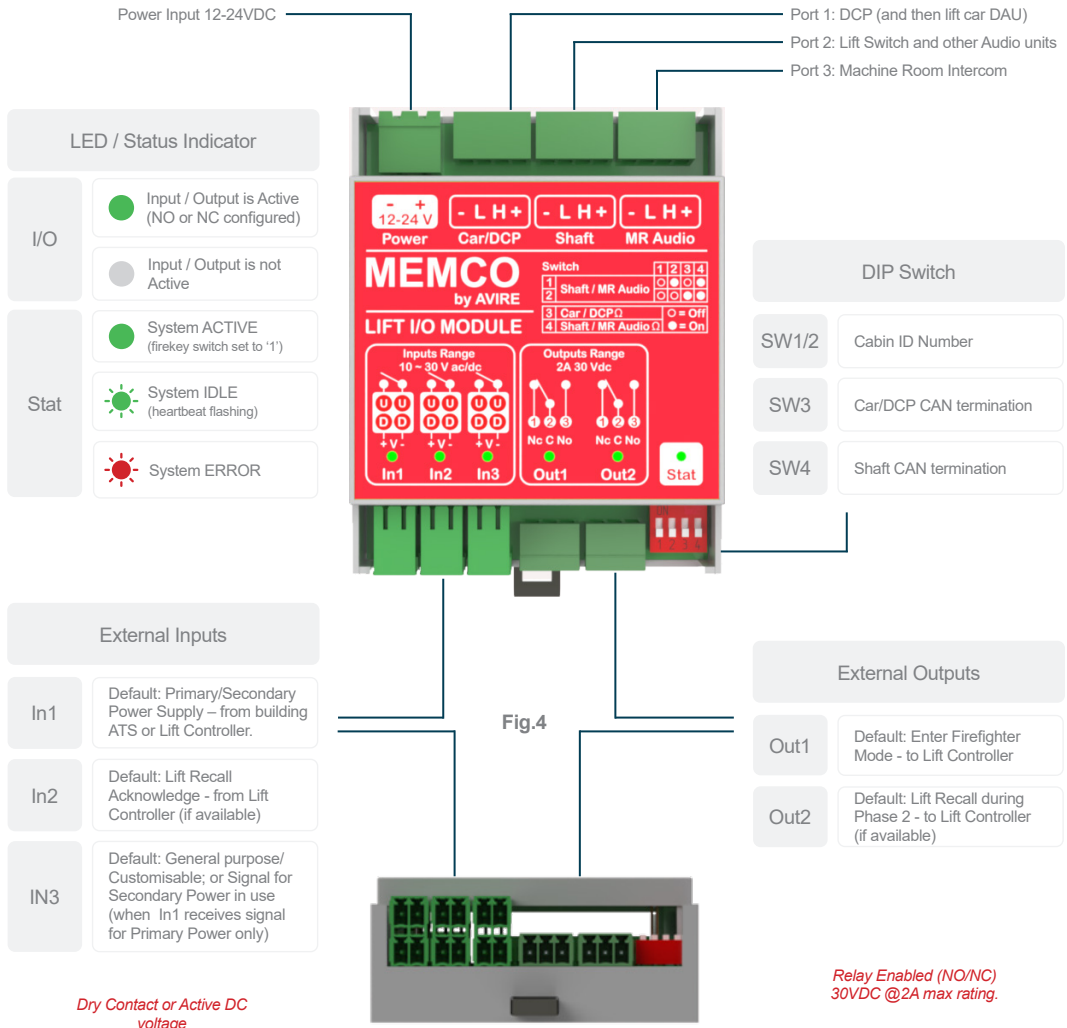
Fig.3

LED / Status Indicator			
Active	 System Active	 System UNDER TEST	
	 System TEST FAILED	 System NOT ACTIVE	
Talk	 Push to Talk button is pressed; mic is active	 Remote Push to Talk button is pressed; mic is muted	
	 Audio in IDLE mode		

2. AVIRE Fire Components

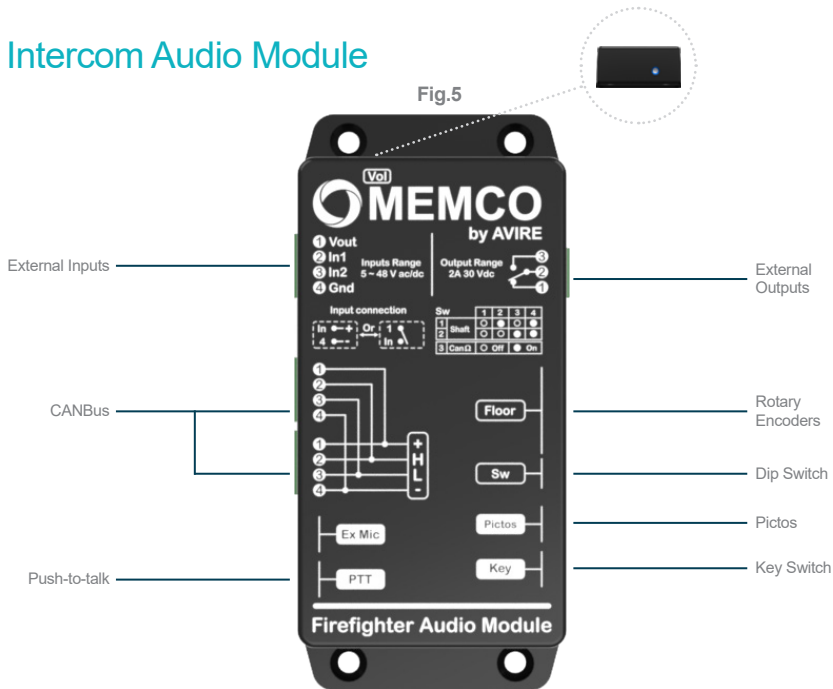
2.3. Fire Lift I/O Module

Max. recommended cable length: 100m



2. AVIRE Fire Components

2.4. Intercom Audio Module



TYPE	DESCRIPTION
External Inputs (1 & 2)	Dry and Active external inputs; 10-30V AC/DC User defined: Example Use Case: - Used to wire a Primary Secondary Power Supply signal output from a building ATS located on the on the Fire Service Access Level FSAL); - Use to wire a Door Open sensor
CANBus Connectors	+ H L – (VCC-CanH-CanL-GND) Doubled to ease daisy chain topology.
Ex Mic	Not in use
PTT	Pre-wired to the Push-to-Talk button on the intercom unit.
External Output	Relay enabled external output; 30VDC @2A max rating; User defined: Example use cases: Mimic the Firekey movement to trigger an emergency light (provide a visual indication of the system status)

2. AVIRE Fire Components

2.4. Intercom Audio Module

TYPE	DESCRIPTION
Floor (Rotary encoders)	These are only used on the Optional Lift Intercom units (AC-DAV9-100-F-C0-XXX) Used to set the CAN address per device. Values 00-32. NB: each Optional Lift Intercom unit must have a unique CAN address.
SW (DIP-Switch)	Used for Shaft ID & CAN termination
Pictos	Pre-wired to Primary / Secondary Power Supply LED indicators on the Firefighters Lift Switch & Intercom (not used on other intercom units)
Key	Pre-wired to the Fire Key switch (AC-FFL9-100-F-CP-XXX only)
Speaker Volume	Clockwise – increase ↻ Anti-clockwise - decrease ↺

Reference Fig.5

3. Firefighters Lift Switch & Intercom

Physical Installation

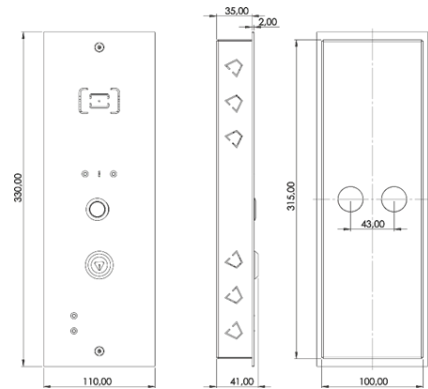
The Firefighters Lift Switch & Intercom should be mounted in a location aligning with the requirements specified within the EN81-72 standards.

Two mounting options are available.

Flush Mounted (default)

- Install the back metal enclosure in the wall cavity, using the side hinges to ensure a neat and secure fit
- Complete all CAN wiring to the audio module (**see 5. CAN Wiring and Termination below**),
- Attach the face plate to the mount enclosure using the Torx tamper-proof screws provided.

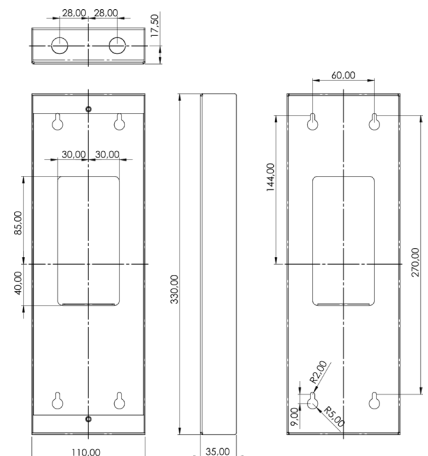
A Torx Plus Tamper-proof (TP20H) bit will be required.



Surface Mounted (optional accessory)

- Install the metal surface mount frame, ensuring a neat and secure fit
- Complete all CAN wiring to the audio module (**see 5. CAN Wiring and Termination below**),
- Attach the face plate to the mounting frame enclosure using the Torx tamper-proof screws provided.

A Torx Plus Tamper-proof (TP20H) bit should be used.



4. Machine Room Intercom / Optional Lift Intercom

Physical Installation

The Machine Room Intercom is intended to be mounted in the machine room or near the MRL cabinet.

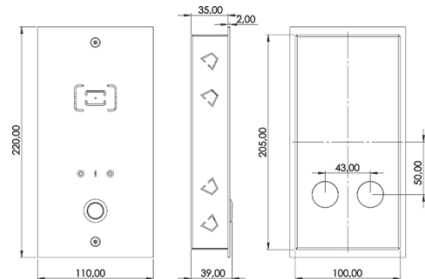
The Optional Lift Intercoms are intended as additional intercom points at other locations within the building.

Two mounting options are available.

Flush Mounted (default)

- Install the back metal enclosure in the wall cavity, using the side hinges to ensure a neat and secure fit
- Complete all CAN wiring to the audio module (**see 5. CAN Wiring and Termination below**),
- Attach the face plate to the mount enclosure using the Torx tamper-proof screws provided.

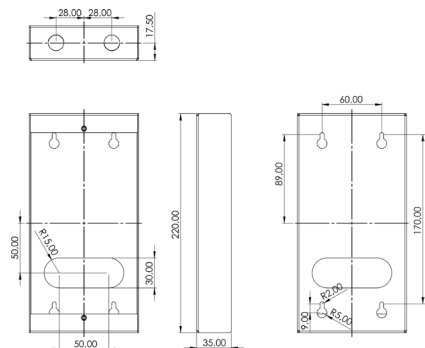
A Torx Plus Tamper-proof (TP20H) bit should be used.



Surface Mounted (optional accessory)

- Install the metal surface mount frame, ensuring a neat and secure fit
- Complete all CAN wiring to the audio module (**see 5. CAN Wiring and Termination below**),
- Attach the face plate to the mounting frame enclosure using the Torx tamper-proof screws provided.

A Torx Plus Tamper-proof (TP20H) bit should be used.



5. CAN Wiring, Termination and Address Selection

The AVIRE Fire Comms System uses a 4-wire CAN Bus, connecting the Fire Lift I/O module to the AVIRE gateway and all intercom points. The maximum recommended cable distance between the I/O module and the CAN termination device is 100m.

NB: To help avoid audio interference, keep CAN wiring away from high voltage wiring where possible. The use of shielded cabling is recommended and if available - Screened Twisted Pair hanging Flex 18AWG, 0.75csa. Terminate shield at lift controller main earth

5.1. Address Selection

Firefighter Lift Switch and Machine Room Intercom: Rotary encoders should be set to 00.



Optional Lift Intercom: Each device should have a unique address, set using the rotary encoders. Tip: address set to match the floor number, if appropriate.

NB: The address set for each optional lift intercom should be recorded as it will be required when adding these devices on the AVIRE HUB. See section 11 below.

5.2. CAN Wiring from Car/DCP

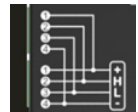
Two sets of wiring will run from the AVIRE gateway CANBus port:

- The existing CAN wiring to the Digital Audio Unit (DAU) – GND, CanL, CanH and VCC (+)
- New wiring, connecting only GND, CanL and CanH , **leaving VCC (+) disconnected**. This will terminate on the Car/DCP CAN port of the I/O module.

5.3. CAN Wiring from Machine Room Intercom

The Machine Room Intercom should terminate on the MR Audio Can Port of the I/O module.

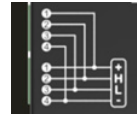
Ensure GND, CanL, CanH and VCC (+) are connected correctly on each end



5. CAN Wiring, Termination and Address Selection

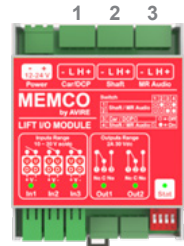
5.4. CAN Wiring from Firefighters Lift Switch and any Optional Intercom

- The Firefighters Lift Switch & Intercom and all Optional Intercom units should terminate on the Shaft CAN port of the I/O module (see below).
- Two CAN ports are available on the Intercom audio modules to help simplify a daisy chain topology.
- Ensure GND, CanL, CanH and VCC (+) are connected correctly on each end



5.5. CAN Wiring to Fire Lift I/O Module

- **Step 1:** Connect GND, CanL and CanH from the CAN port on the AVIRE gateway to Car/DCP CAN port (port 1). NB: **VCC (+) should be left disconnected** as DCP is powered separately.
- **Step 2:** Connect GND, CanL, CanH and VCC (+) from the Firefighters Lift Switch and optional Intercom units to the Shaft CAN port (port 2).
- **Step 3:** Connect GND, CanL, CanH and VCC (+) from the Machine Room Intercom to the MR Audio CAN port (port 3).



5.6. CAN Termination

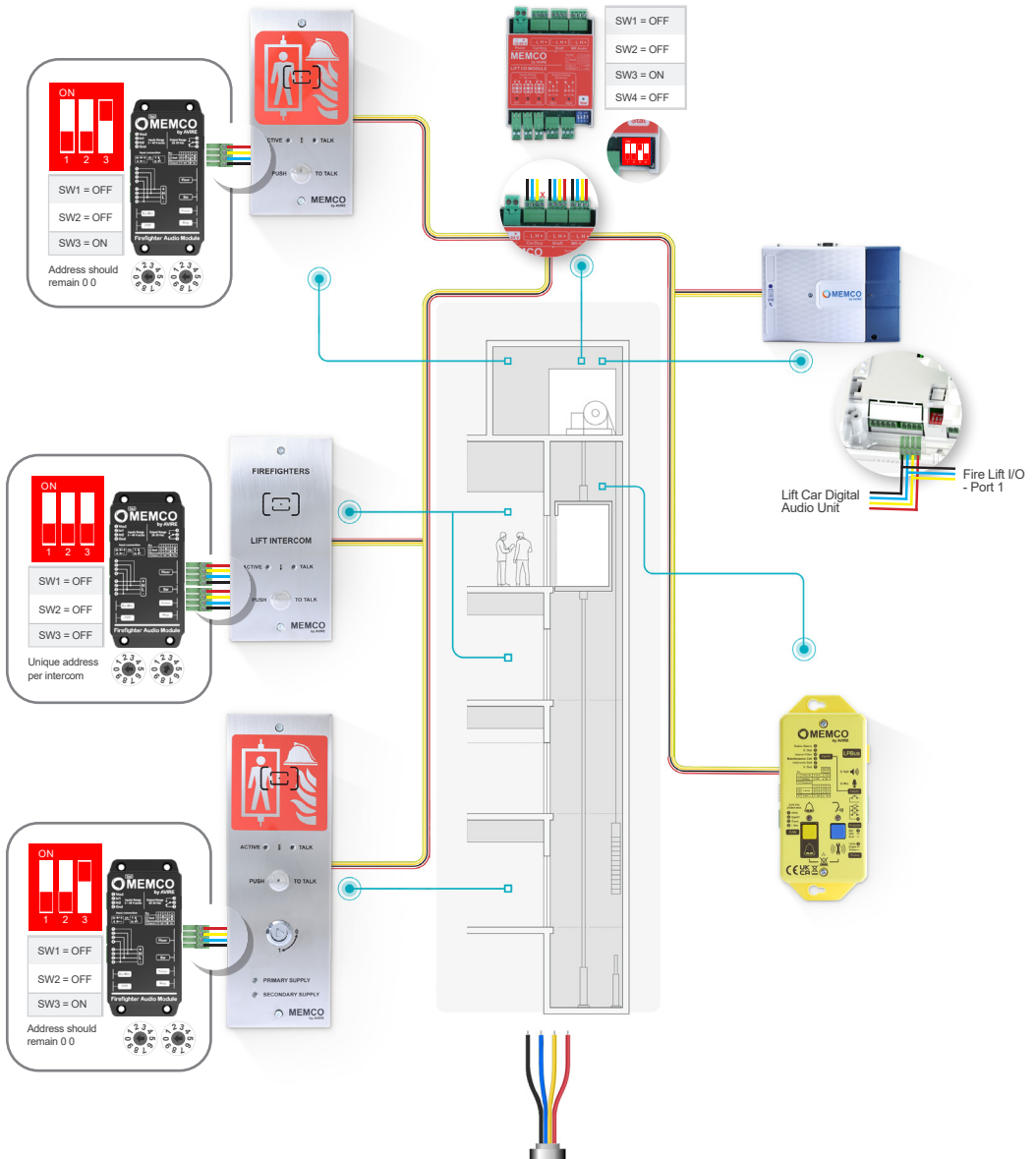
A CAN network must always be terminated at the two physical ends of the Bus. Incorrect termination causes reflections, communication errors, and unstable operation.

In this system, the building-wide CAN topology is organized around the Fire Lift I/O (FLIO) Module, which provides three CAN ports. See Fig. 4.

Port 2 and Port 3 are electrically connected inside the FLIO. They form a single branch of the CANBus.

Connection Segment	Devices Involved	Is This a Bus End?	Termination Setting
FLIO – CAR/DCP Port	FLIO - DCP - DAU	Yes in standard installations	Enable termination at FLIO- SW3 set to ON. Disable termination on DCP (mid-bus) – SW3 set to OFF. Enable termination on the lift car DAU if it is the last device (SW6 set to ON).
FLIO – Shaft Port & MR Audio Port (shared line)	FLIO - Floor Devices (Shaft Port) and/or Machine Room unit (MR Audio Port)	Depends on installation	Disable termination at FLIO SW4.
Floor Devices (daisy-chained)	Multiple floor modules	Only the last device is an end point	Enable termination (SW3 set to ON) on the final floor device. All others must have termination disabled (SW3 set to OFF).
MR Audio	Single unit near FLIO	Yes if installed	Enable termination on the Machine Room unit (SW3 set to ON).

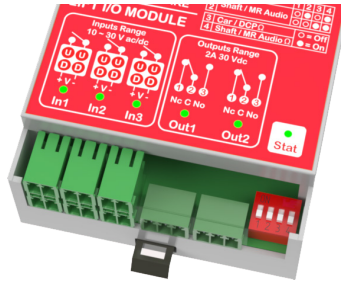
5. CAN Wiring, Termination and Address Selection



6. Fire Lift I/O – Wiring the Inputs and Outputs

External Inputs

In1	Default: Primary/Secondary Power Supply – from building ATS or Lift Controller.
In2	Default: Lift Recall Acknowledge - from Lift Controller (if available)
In3	Default: General purpose/ Customisable; or Signal for Secondary Power in use (when In1 receives signal for Primary Power only)



External Outputs

Out1	Default: Enter Firefighter Mode - to Lift Controller.
Out2	Default: Lift Recall during Phase 2 - to Lift Controller (if available)

6.1. Inputs

All Inputs can be used as Dry Contact or by applying a AC/DC Voltage. Check the power rating in section 12. Technical Data.

Wiring for Primary/Secondary Power Supply

The Primary/Secondary power supply LEDs on the Firefighters Lift Switch will reflect the state of the relevant wired Input. The correct wiring will be determined by the signals available from either the Lift Controller or building ATS.

Example 1: Signal from Lift Controller for “Generator Active / Alternate Supply On”

- Input 1 wired for 0=Primary; 1=Secondary

Example 2: Signals from Building ATS

- In1 wired for 0=No Signal; 1=Primary;
- In3 wired for 0=No Signal; 1=Secondary

Wiring for Lift Recall Acknowledge

In2 is by default set to receive a Lift Recall Acknowledge signal from the Lift Controller (if available).

Example 1: Signal from Lift Controller for “Fire Service Mode Activation” In2 wired for 0=No Signal; 1=Lift Recall received;

6.2. Outputs

All Outputs accept 30VDC with a 2A maximum rating

Phase 1 Recall / Enter Firefighter Mode

Out1 is set by default to mimic the movement of the Fire Key Switch. It should be wired to the relevant fire signal input on the Lift Controller - “Fire Service Signal (Phase I recall)”

Lift Recall during Phase 2

Out2 is set by default to mimic the Fire Key Switch behavior when initiating a “Lift Recall during Phase 2”, i.e. – turn key switch from ‘1’ to ‘0’, hold for 5 seconds, switch back to ‘1’. It should be wired to the relevant input on the Lift Controller (if available).

10. System Test and Trouble-Shooting

10.1. System Boot Sequence

When following the correct Installation Procedure, each unit will boot up.

The Primary Supply LED on the Fire Lift Switch & Intercom unit should be lit when the system is powered on (if In1 on Fire Lift I/O has been correctly wired).

The lift car DAU continues to operate as an emergency auto-dialler until the fire key switch has been activated. When activated, the Alarm LED will flash amber.

10.2. System Active Sequence

Switch the fire key from position '0' to position '1' in order to start-up the system.

The ACTIVE LED will remain solid green on all intercom units when enabled.

The Firefighter Lift Switch unit and lift car DAU will enter handsfree communication by default.

NOTE: Audio echo may be heard when lift car doors are open on the fire service access level and speaker volume is set to high.

10.3. System Push-to-Talk Sequence

When the Push to Talk (PTT) button is pressed on any unit, the microphone will be enabled, and all devices will hear the audio.

The TALK LED will remain solid green when the PTT button is being pressed.

The TALK LED will flash green if the PTT button on a different Intercom has been pressed.

10.4. Return-to-Floor Sequence

The Fire Lift I/O Relay Outputs should be wired to the Lift Controller during the installation procedure.

If the fire key switch is turned to '1' (ON), a digital signal is sent through the CAN and the FLIO External Output relay will be enabled.

Each fire key switch movement will be "copied" to the FLIO External Output relay (see Parameter 130/132 on the AVIRE Hub).

When the fire key switch is switched to '0' (OFF), the system will be powered off and returned to IDLE state. An audio tone will be heard in the Firefighter Lift Switch & Intercom unit to confirm the system is turned off.

10. System Test and Trouble-Shooting

10.5. Lift Car DAU Configuration for Firefighter Mode

Ensure the device has the latest firmware version and is configured on the AVIRE Hub.

When the Firefighter Lift Switch & Intercom unit fire key switch is turned to the '1' (ON) position, the Alarm LED will flash Amber

Background Calls are disabled during Firefighting mode.

11. Add AVIRE Fire devices to the AVIRE HUB

Step 1

Select the relevant Installation within the AVIRE HUB, ensuring the Avire gateway (DCP Evo/Evo X) and Digital Audio Unit (DAU) are correctly installed and the parameters can be Read.

Step 2

- Click on “Add AFCS Devices”
- Select “FF I/O Module”
- Click Save.



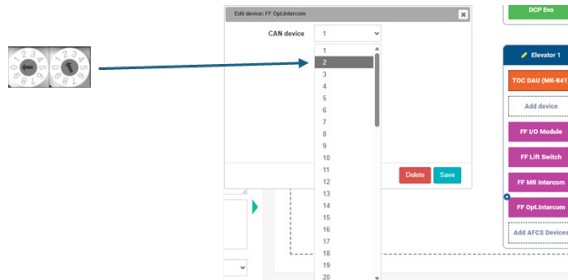
Step 3

Repeat Step 2 to add the Firefighter Lift Switch (**FF Lift Switch**) and Machine Room Intercom (**FF MR Intercom**).

Step 4

If additional (optional) intercoms have been installed, these can be created using **FF Opt. Intercom**. A new device should be created on the HUB for each optional intercom that has been installed.

NB: Select the CAN Device address that matches the value set on the rotary encoders of the installed device.



12. Technical Data

12.1. Firefighter Lift Switch & Intercom (AC-FFL9-100-F-CP-XXX)

Power Input	24VDC from the Fire Lift I/O unit
Operating Temperature	-20°C to 65°C
IP Rating	IPX3
Dimensions	330 x 110 x 41mm (intercom panel and flush mount box) 315 x 100 x 35mm (flush mount box)
Weight	798g (intercom panel); 460g (flush mount box)
Mounting	Flush Mount
Connection	4-Wire CAN
Maximum power consumption	2W
Screw type	Torx Tamper-proof screws

12.2. Machine Room Intercom (AC-DAM9-100-F-CP-XXX)

Power Input	24VDC from the Fire Lift I/O
Operating Temperature	-20°C to 65°C
IP Rating	IPX3
Dimensions	220 x 110 x 39mm (intercom panel and flush mount box) 205 x 100 x 35mm (flush mount box)
Weight	519g (intercom panel); 317g (flush mount box)
Mounting	Flush Mount
Connection	4-Wire CAN
Maximum power consumption	2W
Screw type	Torx Tamper-proof screws

12.3. Optional Lift Intercom (AC-DAV9-100-F-C0-XXX)

Power Input	24VDC
Operating Temperature	-20°C to 65°C
IP Rating	IPX3
Dimensions	220 x 110 x 39mm (intercom panel and flush mount box) 205 x 100 x 35mm (flush mount box)
Weight	91g
Mounting	Flush Mount
Connection	4-Wire CAN
Maximum power consumption	2W
Screw type	Torx Tamper-proof screws

12. Technical Data

12.4. Fire Lift I/O Module (AC-AMD0-200-F-C0-000)

Power Input	24VDC
Operating Temperature	-20°C to 65°C
Dimensions	71.1 x 90 x 32.50mm
Weight	91g
Mounting	DIN Rail Mount
Connection	3x 4-Wire CAN 3x AC/DC External Input (DRY or ACTIVE); 10-30V AC/DC 2x Relay Enabled External Output (NO/NC; 30VDC @2A max rating)
Maximum power consumption	300mW

13. Safety Instructions

Caution

Due to the risk of electric shock, any procedure that involves opening the enclosure on any device should only be performed by qualified service personnel.

To reduce the risk of electric shock, disconnect all devices from the power supply before removing the enclosure cover. Any wiring, cables or plugs used in conjunction with the devices must be certified in accordance with the relevant product standards.

Maintenance

All maintenance should only be performed by qualified service personnel. There are no user-serviceable parts inside any of the device.

Do not use any device in a location where the maximum temperature exceeds 65°C.

Installation

These devices must not be installed at a height greater than 2 meters. This Fire Lift I/O module must be installed in a restricted access area or lockable cabinet.

Environmental Conditions

These devices cannot be installed outdoors. The acceptable temperature range is from -20°C to 65°C.

Declaration of Conformity

AVIRE declares that these products comply with the essential requirements and other relevant provisions:

AC-FFL9-100-F-CP-XXX / AC-DAM9-100-F-CP-XXX / AC-DAV9-100-F-C0-XXX (MK-850-XX): EN 81-72:2020, EN 60529:1991 + A1:2000 + A2:2013 and the following Directives: 2014/30/EU; 2014/33/EU; 2011/65/EU and amendment (EU) 2015/863

AC-AMD0-200-F-C0-000 (MK-844-00): the following Directives: 2014/30/EU; 2011/65/EU and amendment (EU) 2015/863

Disposal of Electrical / Electronic Equipment



The existence of this symbol on the product or packaging means that this product cannot be disposed of as household waste.

It is the responsibility of the user to deliver this product to a Recycling Collection Point or failing that, it must be returned to AVIRE to manage its recycling properly.

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