MIOU

Multi Input/ Output Unit

User Manual

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1. General description

The MIOU offers a convenient, compact and cost effective method of transmitting and receiving signals via a Hochiki analogue addressable ESP communications loop.

Occupying less than 20% of the space required by equivalent I/O units, the MIOU replaces the large and expensive enclosures normally required for this application.

With 8 opto-isolated inputs and 8 outputs (individually selectable as normally open, normally closed, or switched voltage outputs) the MIOU will find a multitude of uses in concentrated I/O applications.

MIOU is currently compatible with Solo and Syncro control panels and occupies only one address.

2. Installation

The MIOU comprises a circuit board fitted in a DIN rail mounting holder. This does not offer the required environmental protection required for this type of equipment therefore it must be fitted inside an enclosure.

The location of the unit should be clean and dry and within a temperature range of -5 to +40 degrees C.

The unit can only be mounted on DIN rail (symmetrical or asymmetrical) and no other means of fixing is provided.

Installation of the module should be carried out by qualified personnel only.

The electronic components within the module are vulnerable to physical damage and damage by electrostatic discharges.

It is advisable to wear a wrist strap designed to prevent the build-up of static charges within the body, before handling any electronic circuit boards.

Never insert or remove boards or components with the power on.

3. Power

The unit requires a nominal 24V DC power supply. The quiescent current requirement at 10 milliamps imposes minimum drain on standby batteries and equates to around 0.3 Ah per 24 hour standby period.
Each operated input requires an additional 3 milliamps and each volt free contact output requires an additional 18 milliamps when operated.
The switched voltage outputs are each capable of supplying 65 milliamps so consideration of the power supply requirements should be calculated at the design stage using the above information. In any event the total power requirement will not exceed 750 milliamps.

4. Compatibility

The MIOU has a unique identification type code as per all other devices in the Hochiki ESP range and in addition to this it has a manufacturers code which identifies the manufacturer of the unit.

Control panels must be able to recognise these codes for the unit to be able to work with them so unlike other devices in the Hochiki range, the MIOU can not be fitted to panels which do not have these codes embedded.

Only Syncro and Solo control panels currently support this device therefore it must not be connected to any other type of control panel.

5. Address setting

The MIOU must be addressed using the Hochiki hand held programmer (part number TCH-B100).

Connect the programmer using the optional crocodile clip leads to the loop terminals and set the address according to the instructions with the programmer.

6. Sub-addresses

Some ESP compatible devices have in addition to their main address, sub-addresses. An example of this is the CHQ-S two input switch monitor. This unit has a main address, for example 123.0, and two sub-addresses 123.1 and 123.2. The main address is in fact counted as a sub-address on Solo and Syncro control panels so this device will actually have a sub-address count of three.

To enable sensible and cost effective configuration memory devices to be fitted to the control panels, there has to be a limit on the number of sub-addresses allowed. On the Solo single loop panel the number of sub-addresses allowed is 200.
It can be seen that if only CHQ-S devices were fitted to a Solo control panel then a maximum of 66 CHQ-S switch monitors could be fitted (200 divided by 3). On the Syncro control panel (which can have up to 4 loops) the sub-address limitation is 800 but this is not 200 per loop but could be 799 on one loop and 1 on another if required.
The MIOU has a sub-address count of 17. Therefore the maximum number that can be fitted to a Solo control panel without any other devices is 11 (200 divided by 17). On a Syncro control panel this rises to 47 without any other devices.

The sub-address limitations of these systems must be considered at the design stage, as it is all too easy to fall foul of these limits in I/O intensive applications.

7. Configuration

The default configurations of the inputs on the MIOU are FIRE for all odd numbered inputs and FAULT for all even numbered inputs. These can be changed using the PC configuration utility for the panels to any of the available input types i.e. pre-alarm, transparent, disablement etc.

The default configurations for the outputs are as per a CHQ-R device i.e undefined. The outputs will not operate unless configured by a cause and effect entry in the configuration programme. The outputs can be set to any of the available types i.e. evacuatable, slinceable, default ring mode etc.

For precise details of the input and output configuration options refer to the Solo and Syncro configuration programmes.

8. Optional analogue signal conditioning interface

Three of the input channels on the MIOU have the facility for receiving analogue signals.
This facility has not been implemented at present but may be a future addition. The connector for the analogue signal conditioning interface should not be used under any circumstances.

9. Use of switched voltage outputs

With the switch marked -VE in the ON position, the outputs switch -VE with respect to the 24V supply which is powering the unit. These outputs are driven by transistors and although protected by an electronic fuse, are vulnerable to excess current being drawn. Before these outputs are used, the equipment being driven should be checked carefully to ensure that the current will be within the limitations of the unit.
The switched voltage can either be applied, (with the individual channel switch in the left hand position) or removed ,(with the individual channel switch in the right hand position).

10. Technical Specifications

Part No. - S559 (Module Only)
Part No. - H6600001 (Boxed Unit with one MIOU)
Part No. - H6675001 (Boxed Unit with one MIOU & 750mA PSU)

module size - 203 long x 77 wide x 45 high

boxed unit size (H6600001) - 365 wide x 290 high x 88 deep

boxed unit size (H6675001) - 365 wide x 290 high x 88 deep

boxed unit battery capacity - 2.6Ah

boxed unit finish - two tone grey epoxy powder coated

boxed unit IP rating - IP40

module mounting - symmetrical or asymmetrical din rail

communication protocol - Hochiki ESP

supply voltage - 24v DC nominal (21 to 30V DC)

quiescent supply current - 10 milliamps

input operated current 3 milliamps

output operated current - 18 milliamps

input trigger resistance – 1K max

output contact rating - 30V DC 1 Amp max

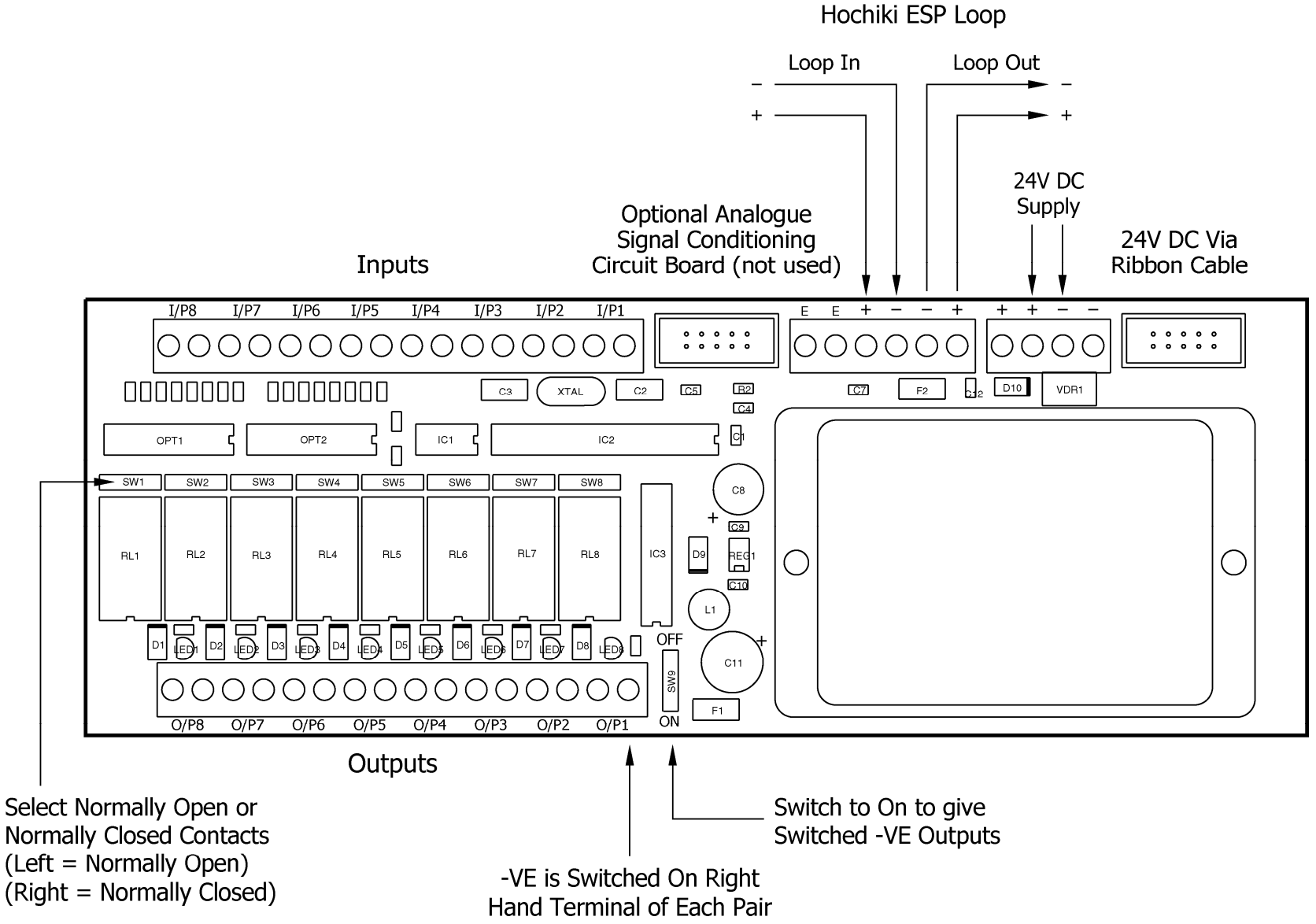
switched -ve output - 65 millamps max per output

minimum recommended power supply - 750 milliamps at 24V DC

operating temperature range - -5 to +40 degrees C

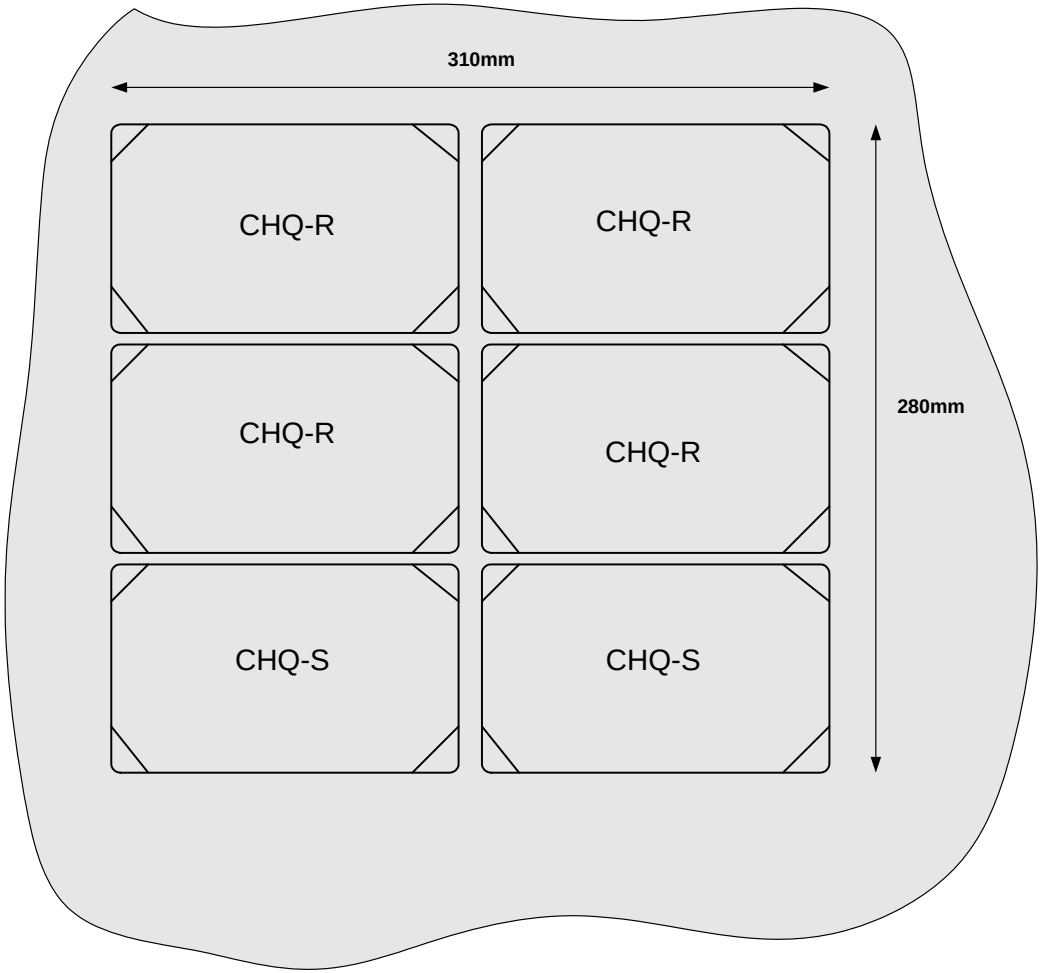
device sub-address count - 17

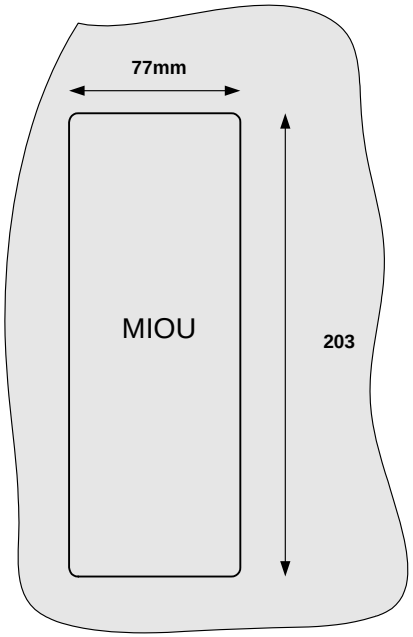
Annex 1 – MIOU Schematic



Annex 2 – MIOU versus Hochiki I/O Modules

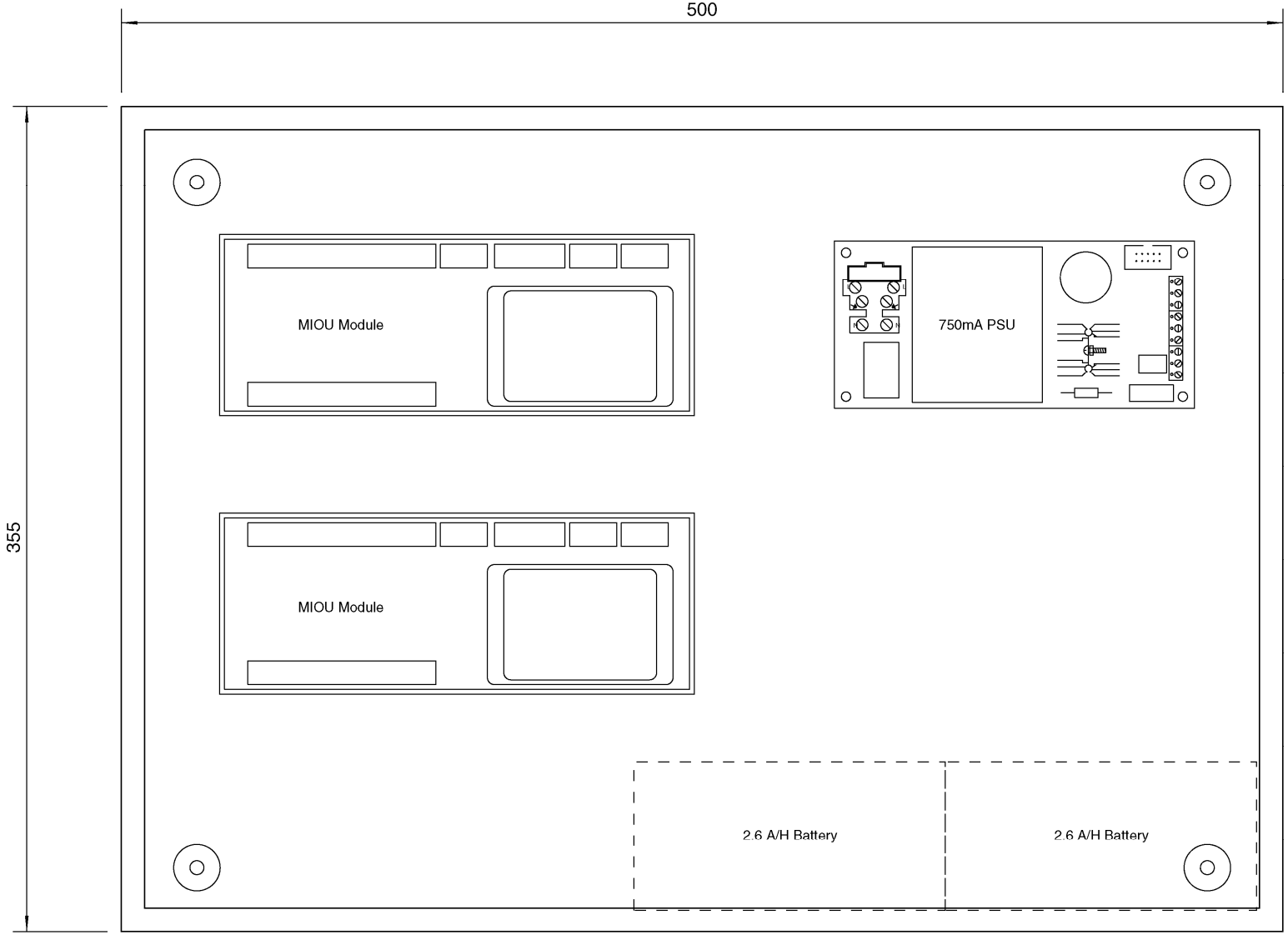
Comparison of space occupied by equivalent Hochiki I/O modules versus MIOU unit

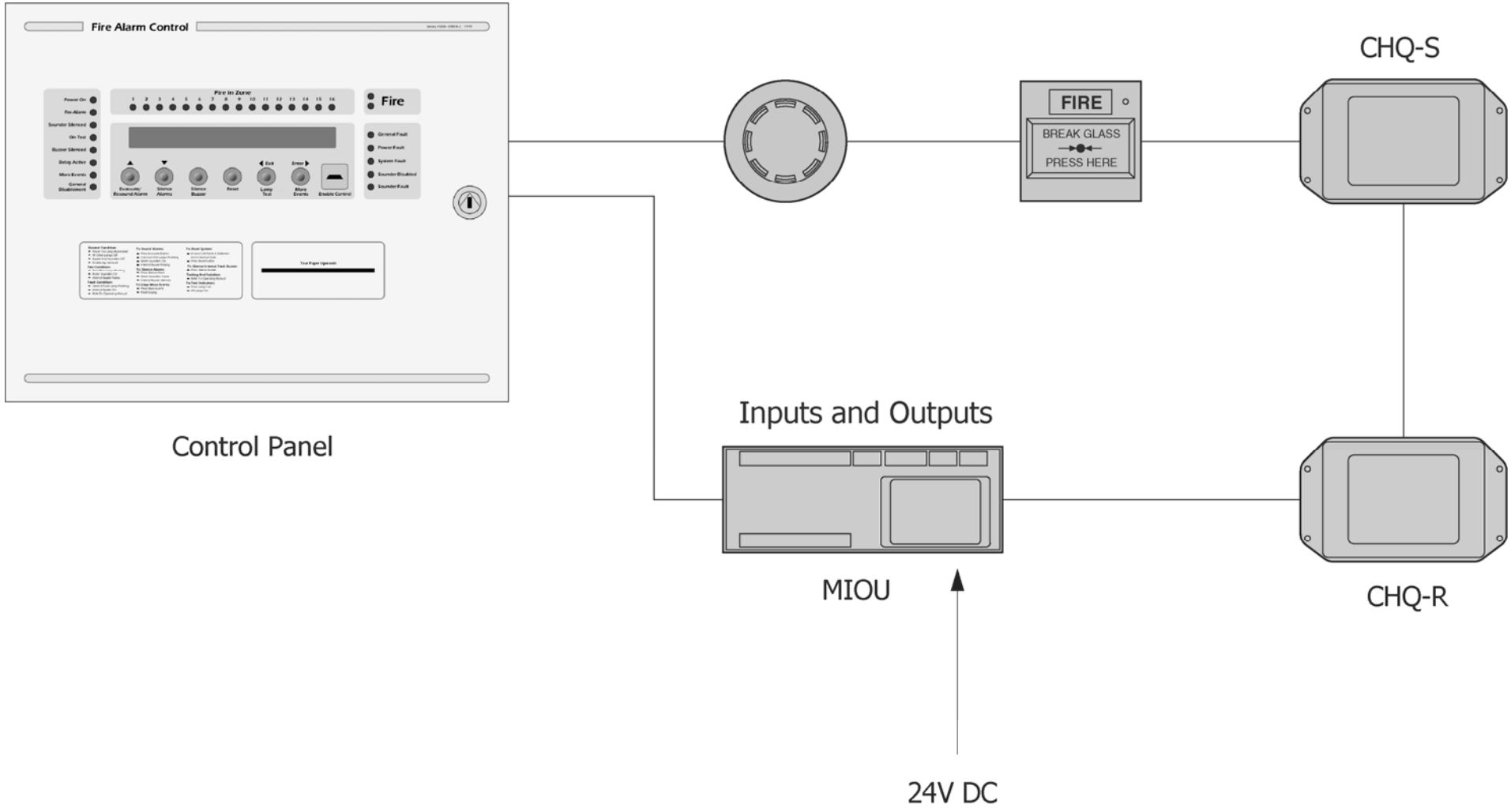




Annex 3 – Internal layout

Two MIOU mounted in enclosure with 750 milliamp power supply and space for 2.6 Ah battery backup



Annex 4 – Connecting the MIOU

The MIOU connects to the ESP loop as per all other ESP devices. Consider the maximum number of sub-addresses when using MIOU.