



FP2010 QE20 Master User Interface Installation Instructions

1. General Description

This sheet describes installation of the FP2010 QE20 Master User Interface (MUI). This module may be used as a replacement for an existing MUI. It provides the:

- Master Keyboard and LED display for the System and All-Zones controls and indications.
- LCD Display and touchscreen for optional user functions and recall of information.

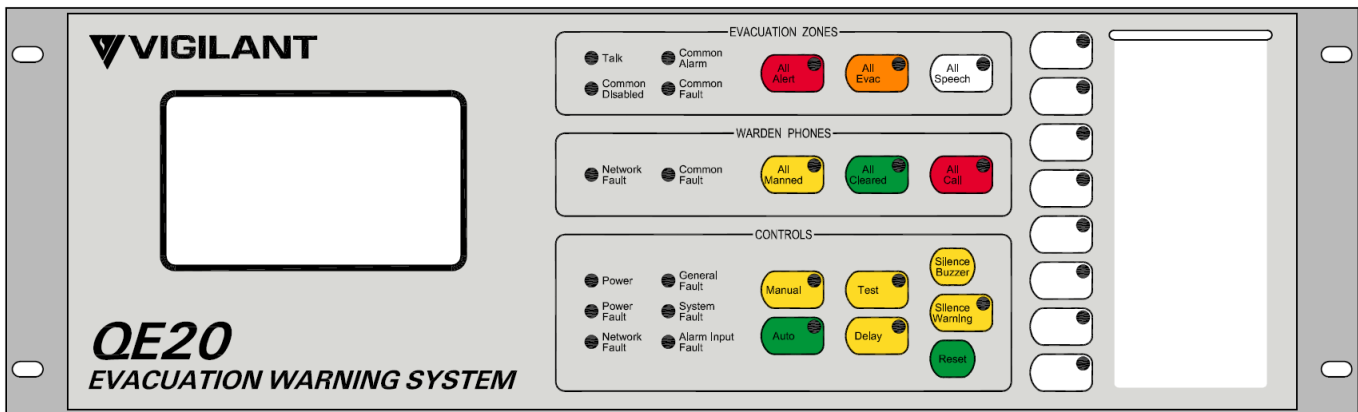


Figure 1 – FP2010 QE20 Master User Interface

2. Kit Contents

This kit contains:

- 1 x QE20 Master User Interface
- 1 x RJ45 Ethernet lead 1.5m
- 1 x 24V power loom with connectors
- 1 x LB0694 QE20 Slide-In Label for naming the 8 User buttons
- 1 x LM0678 Earth Lead 450mm
- 4 x M4 x 10 screws
- 1 x LT0706, these installation instructions.

3. Mounting the Master User Interface

The Master User Interface occupies one of the 3U positions on the QE20 inner door, as shown in Figure 2. Generally, it will be mounted in positions 3, 4, or 5 from the top of the cabinet. Check the existing QE20 panel layout for the allocated position when replacing the MUI.

It is secured to the inner door hinge and support bracket using four M4 x 10 screws. Fit the module to the desired position and loosely insert the four screws. Centre the module and tighten the screws to hold the module in position.

The Master User Interface must be earthed to the cabinet frame. Connect the supplied earth lead from the earth tab on the Master User Interface to the earth tab of the previous Blank Extender or Display Extender, or directly to the cabinet earth tab so that every User Interface module is earthed. See Figure 6 for example earth wiring.

User Button Label

A blank LB0694 label card is provided for identifying each of the User Buttons on the MUI. Print the names or functions of each of the buttons on the card and slide the card into the pocket provided on the front of the MUI. Or print the label from QE20Config.

Mount User Interface Module with four M4 x 10 screws provided with module.

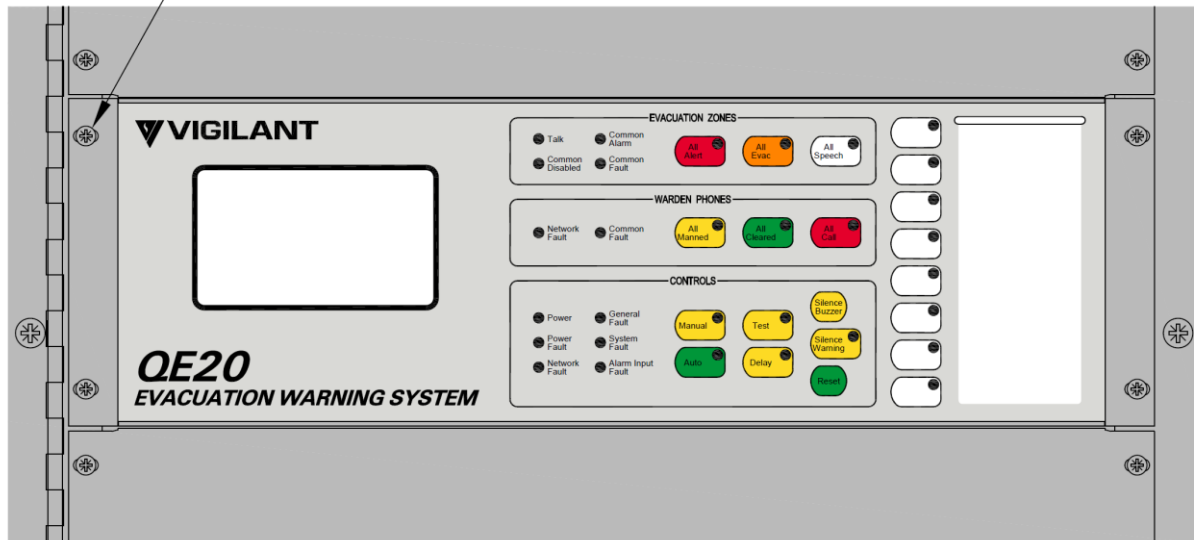


Figure 2 – QE20 Master User Interface Mounting in Inner Door

4. Replacing an Existing Module

When replacing an existing module, there is no specific set up required, other than to make sure the two links are set as below. The new Master User Interface will automatically establish a connection to the Controller and request any site configuration required. Refer to Figure 3 for the switch and link locations. Internal wiring is described in Section 5.

Label the cables and wiring connecting to the Master User Interface so their connection points are identified.

Disconnect the Power cable, Ethernet cable, UBus loom(s), earth wire(s) and any wiring to the GP inputs and Outputs on the MKI Board.

Undo the four screws that hold the module in the inner door frame.

Set the links on the new module as per the removed one.

Fit the new module to the inner door frame and secure with the 4 screws.

Reconnect the wiring to the correct connectors. Ensure the earth leads are reconnected to the earth tabs.

Power up the QE20. Check there are no unintended faults. Press and hold SILENCE BUZZER for at least 3 seconds to turn on the LED test. Check that all the LEDs on the MUI and all on any 8 Zone / 8 WIP Extender Modules turn on.

Link Settings

LCD Board

LK1 Service Mode – Leave Not Fitted.

MKI Board

LK1 EOL – Leave Not Fitted.

Pushbuttons and Connectors

RESET button. To reset the CPU on the LCD Board and MKI Board push the button in and hold in for at least 5 seconds until the RESET LED turns on. Release the button.

USB Socket- Currently not used.

Service Port – Currently not used.

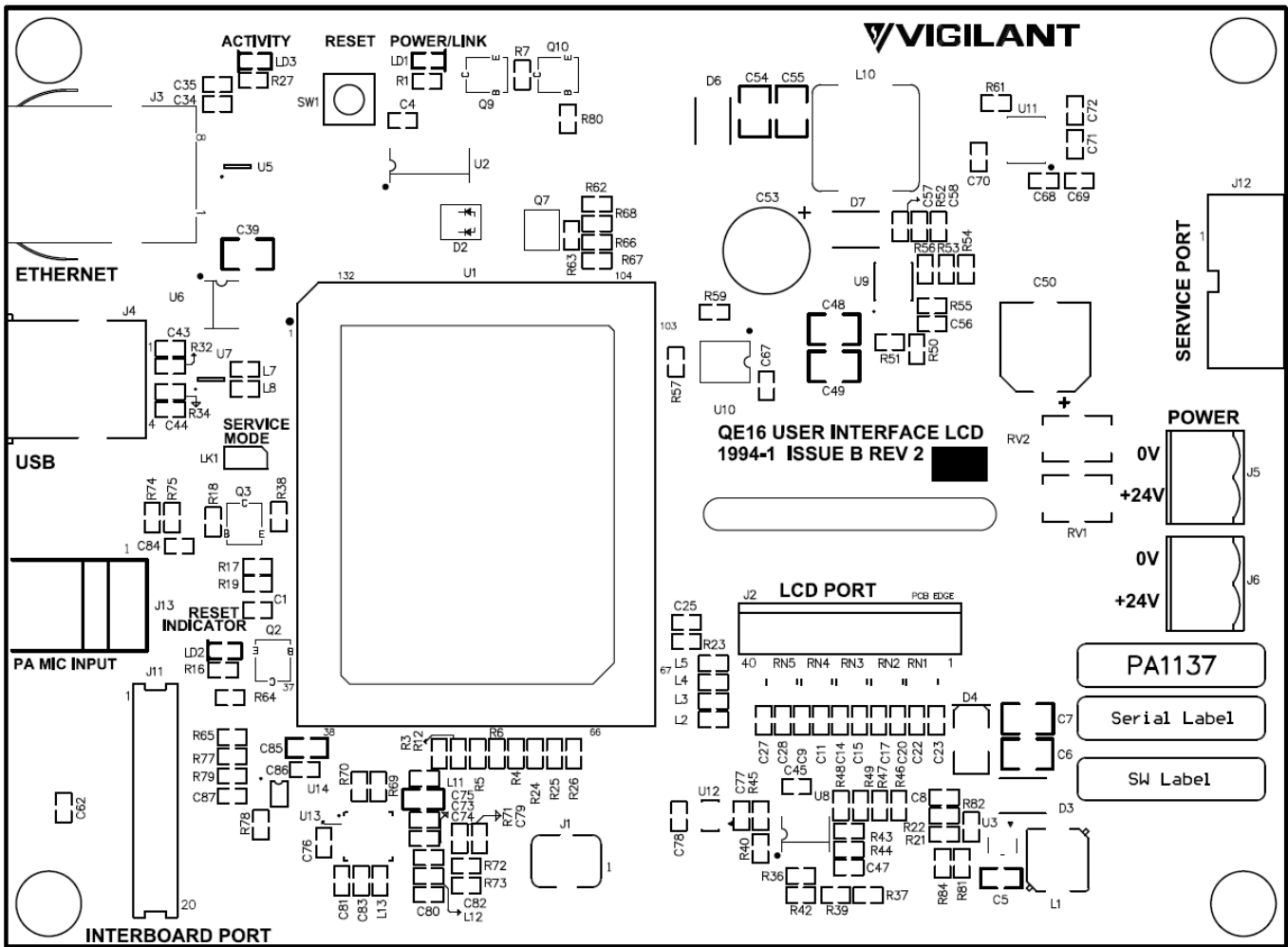


Figure 3 – Master User Interface LCD Board Link, Switch, LED and Connector locations

5. Internal Wiring

The QE20 Master User Interface requires:

- The 24V power loom to be connected to J6 on the LCD Board of the Master User Interface from an available 24V DC loom (LM0656) from the nominated 27A PSE (usually the same as the Controller).
- The RJ45 Ethernet cable to be connected from J3 on the LCD Board of the Master User Interface to Ethernet Port 1 on the Controller. Coil up and secure any excess wire.

Drawing 2001-2 Sheet 700 (included later) shows this wiring in a generalised arrangement.

Figure 4 details the connections to the LCD Board.

The first of any 8 Zone or 8 WIP Extender Modules is connected to the UBus connectors J2 or J3 on the MKI PCB contained on the Master User Interface, as shown in Figure 5. The UBus cabling daisy-chains on to all other 8 Zone / 8 WIP Extenders (refer to LT0707 Extender User Interface Installation Instructions and LT0715 8 Zone / 8 WIP Expansion Board Installation Instructions). There is a direct connection between the pins of J2 and J3 on the MKI, so either or both can be used.

The USB port, Service Port and MIC/PTT connectors on the LCD Board currently have no function and need to be left open.

Note all UI modules must be earthed to each other and to the cabinet earth tab as shown in Figure 6.

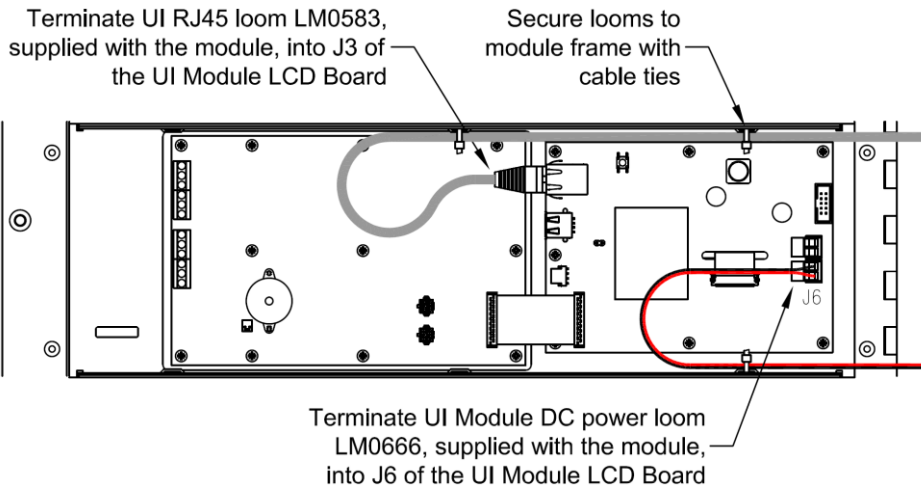


Figure 4 – QE20 Master User Interface Internal Wiring

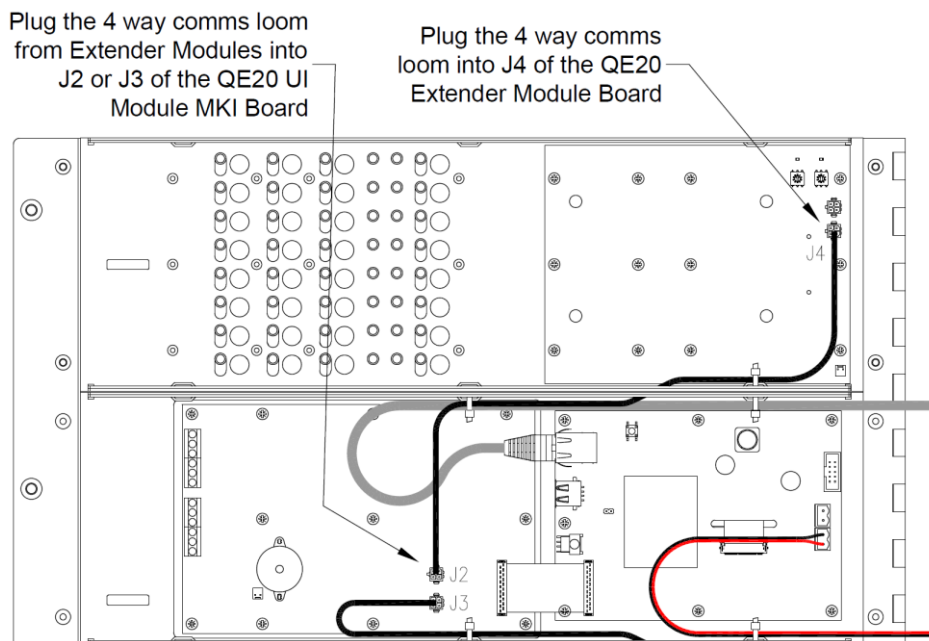


Figure 5 – Extender Module wiring to Master User Interface

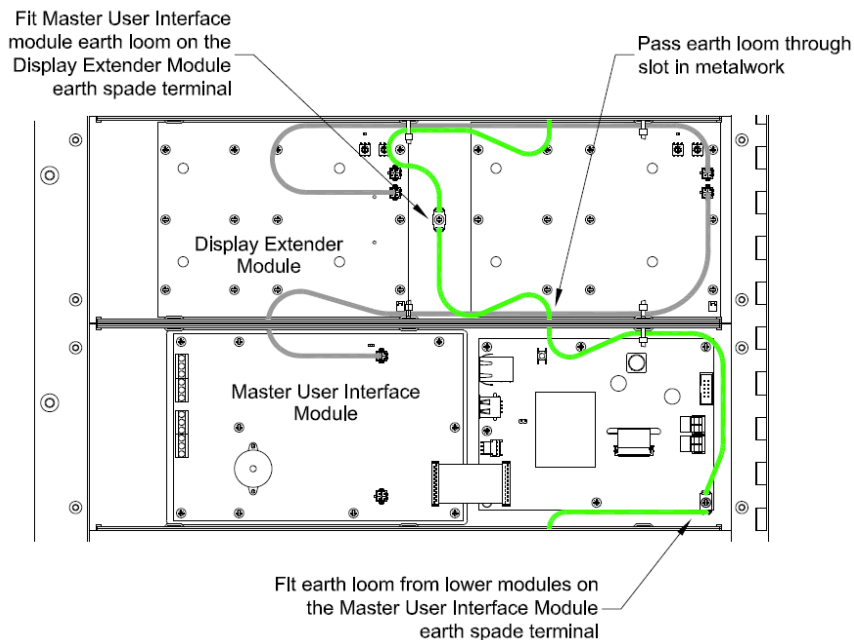


Figure 6 –Master User Interface Module Earth wiring

6. Field Wiring

The Master User Interface MKI Board provides 4 General Purpose Inputs and 4 General Purpose open collector Outputs that may be field wired.

The GP Inputs are configured to operate in 4-Band mode for use with on/off, 3-way or 4-way clean contact devices (switches, relays, etc). The translation of input resistance to state and logic token is shown in the following table. These tokens are available for use in logic in the site configuration. Refer to Drawing 2001-2 Sheet 703 (included later) for generalised wiring diagrams for the GP Inputs.

Table 1 GP Input Circuit Type – State, Resistance, Logic Token

Circuit Type	State			
	4 Band	Short < 270R UIIPSCi	Alarm 680R UIIPALi	Normal 10K UIIPNMi

Where i = 1-4 for the input number.

The GP Outputs are open collector outputs, normally turned off, that turn on when their output logic equation in the site configuration is true. They can be used to activate internal devices such as the Fan Cooling Module, or external devices such as sounders, LEDs, or relays. Drawing 2001-2 Sheet 704 (included later) shows the generalised field wiring for the GP Outputs. The +ve supply can be derived from the QE20. For example, J5 on the MUI PCB provides a spare 24V output. Any field wiring from this should be suitably fused.

Using an external supply is not recommended (unless it is fully isolated), as this may compromise the QE20 earth fault monitoring.

Each output includes a 100K pull down resistor, meaning that a small current will still be provided to the load, even when the output is off. Usually this is of no consequence as the current is less than 0.25 mA, which is not enough to turn a relay or most devices on. However, it may be enough to cause an LED to glow or a buzzer to sound quietly. In this case it will be necessary to put a bleed resistor across the load, so that the voltage developed is not enough to turn the device on.

The outputs do not support load supervision.

7. LED Indications

There are three LED indicators on the rear of the LCD Board.

- **LD1 POWER/LINK** is on green when power is applied and the MUI is operating. Off means 24V power is not supplied or the module is faulty.
- **LD2 RESET** will turn on yellow while the Reset signal is being applied to the microprocessor on the LCD board. This will occur if the Reset pushbutton is pressed for at least 5s. If the operating system initiates a reset (watchdog timeout, update, etc) the LED will blink briefly. But if it occurs at any other time, it indicates a problem with operation of the microprocessor, which usually will mean the board is faulty.
- **LD3 ACTIVITY** will flash yellow when there is activity on the Ethernet connection between the MUI and the Controller. If this is off there is no power to the MUI or Controller, the connection is unplugged or broken, or one of the modules is faulty or not operating correctly.

There is one LED Indicator on the rear of the MKI Board.

- **LD3 POWR/LINK** is on green, blinking off every second or so as it communicates with the LCD Board, when power is applied. Off means 24V power is not supplied, the module is faulty or the short interconnecting FRC to the MUI PCB is disconnected. Steady on means the module is not communicating with the LCD Board. If the MKI Board appears to be off but the LCD Board has power applied, then check the FRC cable that joins the two boards.

Refer to the QE20 Operator Manual LT0711 for details on the LEDs on the front of the Master User Interface and use of the LCD and touch screen.

8. Power On & Testing

Power up the QE20 system with its site configuration installed. Check for any fault conditions and resolve these.

- Check all the LED indicators on the QE20 work by conducting an LED Test. Press and hold the Silence Buzzer button for at least 3 seconds to turn on all LEDs on the Master User Interface and all 8 Zone/ 8 WIP Extender User Interface Modules. Release the button to turn off LED Test.

9. Master User Interface Specifications

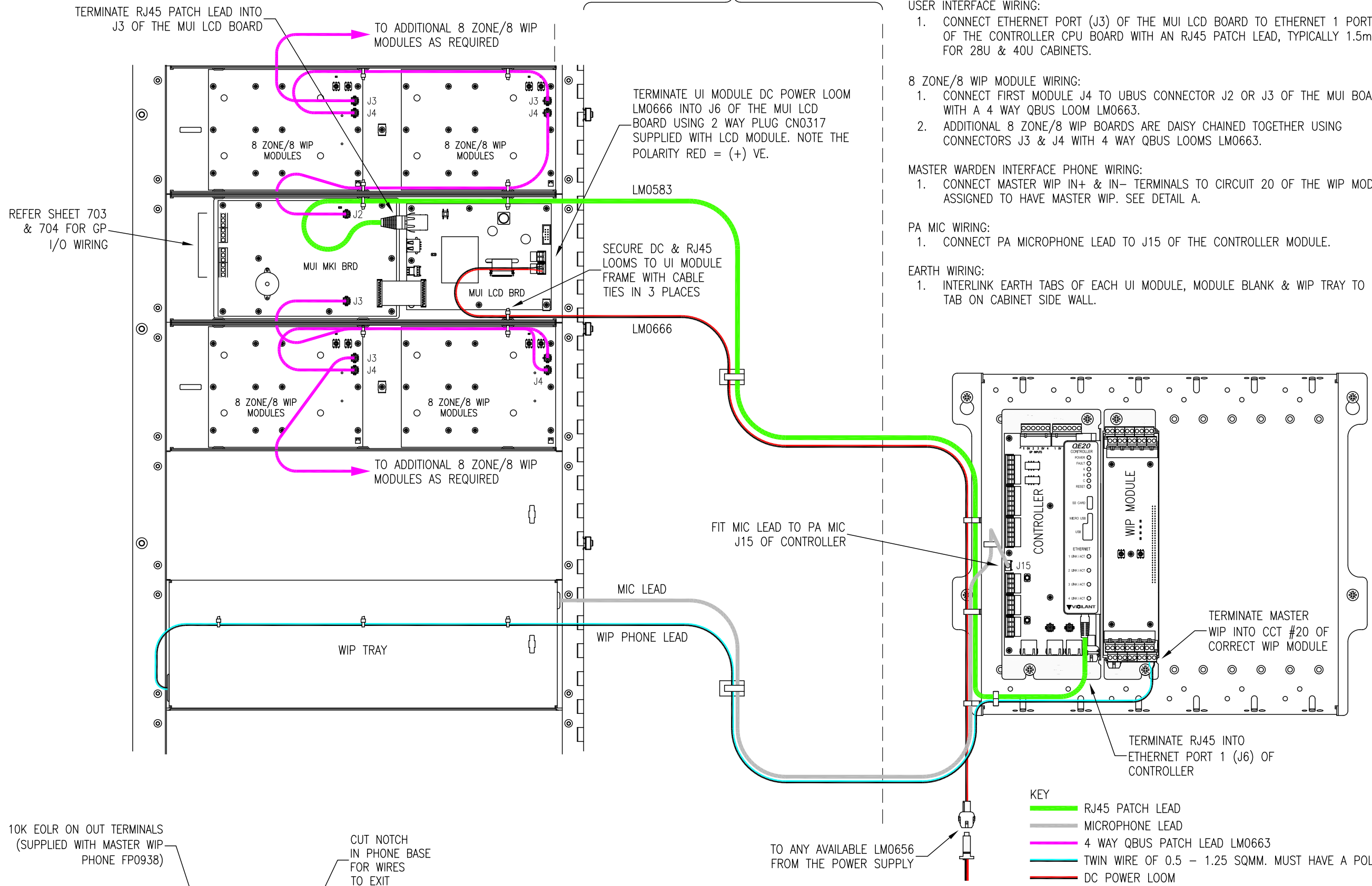
Power Requirements	18V – 32Vdc, 70mA typ @ 24V All LEDs off 80mA typ @ 24V All LEDs & LCD on
Operating Temperature Range	-5°C to +45°C 10% to 93% RH non-condensing
Ethernet	10/100Base-T RJ45 Connect to Controller Port 1.
USB	Currently not used. Leave open.
Service Port	Currently not used. Leave open.
GP Inputs x 4	Clean contact. 10K Pull up to +24V supply 4-Band - >20K (E.g. Open), 10K (Normal), 680R (Alarm), <270R (E.g. Short)
GP Outputs x 4	Open Collector pull down 100ma max < 1V on; 30Vdc max off Up to 250uA supervision current when off.

10. End User Licence Agreement, Privacy and Licensed Software

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INTERNAL SIDE WALL OF CABINET



USER INTERFACE WIRING:

- CONNECT ETHERNET PORT (J3) OF THE MUI LCD BOARD TO ETHERNET 1 PORT (J6) OF THE CONTROLLER CPU BOARD WITH AN RJ45 PATCH LEAD, TYPICALLY 1.5m LONG FOR 28U & 40U CABINETS.

8 ZONE/8 WIP MODULE WIRING:

- CONNECT FIRST MODULE J4 TO UBUS CONNECTOR J2 OR J3 OF THE MUI BOARD, WITH A 4 WAY QBUS LOOM LM0663.
- ADDITIONAL 8 ZONE/8 WIP BOARDS ARE DAISY CHAINED TOGETHER USING CONNECTORS J3 & J4 WITH 4 WAY QBUS LOOMS LM0663.

MASTER WARDEN INTERFACE PHONE WIRING:

- CONNECT MASTER WIP IN+ & IN- TERMINALS TO CIRCUIT 20 OF THE WIP MODULE ASSIGNED TO HAVE MASTER WIP. SEE DETAIL A.

PA MIC WIRING:

- CONNECT PA MICROPHONE LEAD TO J15 OF THE CONTROLLER MODULE.

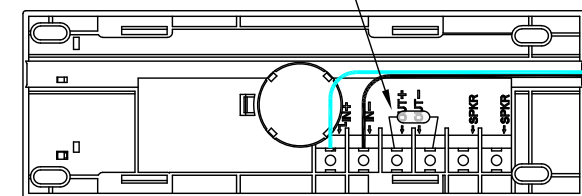
EARTH WIRING:

- INTERLINK EARTH TABS OF EACH UI MODULE, MODULE BLANK & WIP TRAY TO EARTH TAB ON CABINET SIDE WALL.

REFER SHEET 703 & 704 FOR GP I/O WIRING

10K EOLR ON OUT TERMINALS (SUPPLIED WITH MASTER WIP PHONE FP0938)

CUT NOTCH IN PHONE BASE FOR WIRES TO EXIT



DETAIL A
BACK OF MASTER WIP PHONE

KEY

- RJ45 PATCH LEAD
- MICROPHONE LEAD
- 4 WAY QBUS PATCH LEAD LM0663
- TWIN WIRE OF 0.5 - 1.25 SQMM. MUST HAVE A POLARISING STRIPE.
- DC POWER LOOM

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3rd ANGLE PROJECTION

ISS/REV	AMENDMENTS	ECO	DRN	CHKD	AUTH	APVD	DATE
A	ORIGINAL	-	KJS	RC	MH	DC	3-12-20

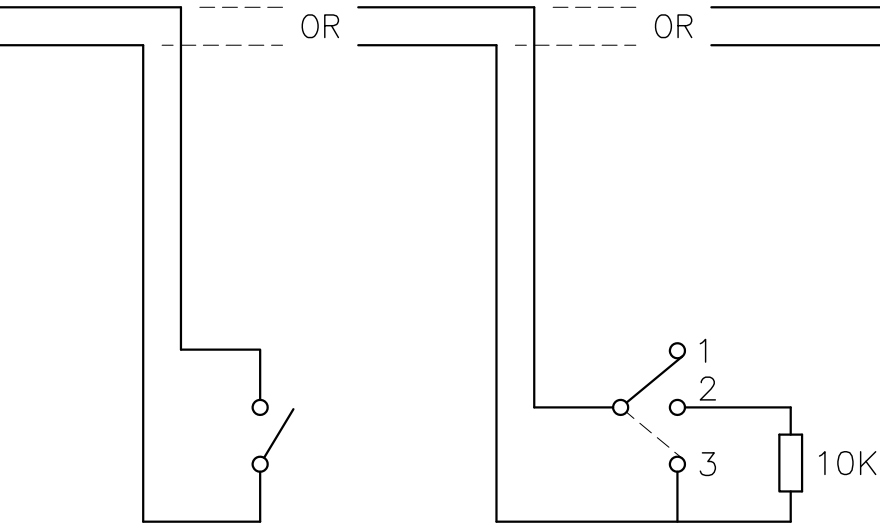
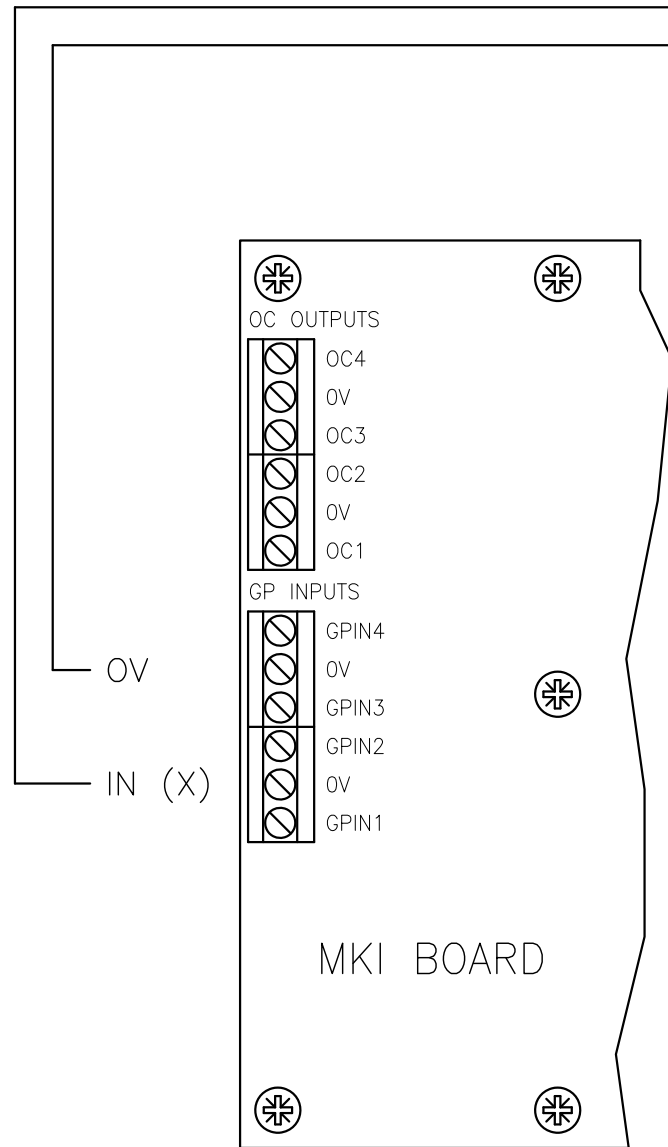
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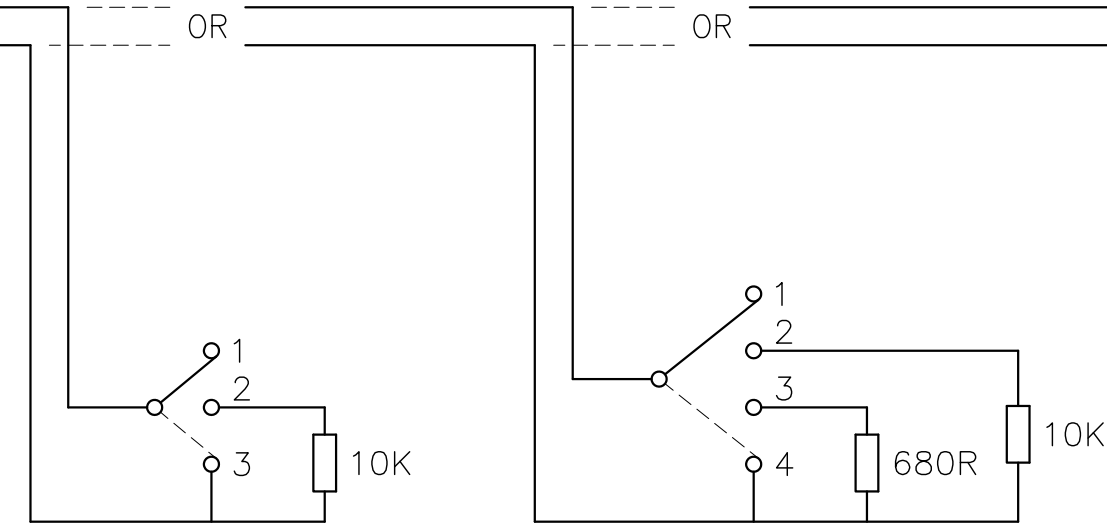
**QE20
GENERIC PANEL WIRING
INNER DOOR WIRING**

DRAWING No: 2001-2 SHEET 700 of N

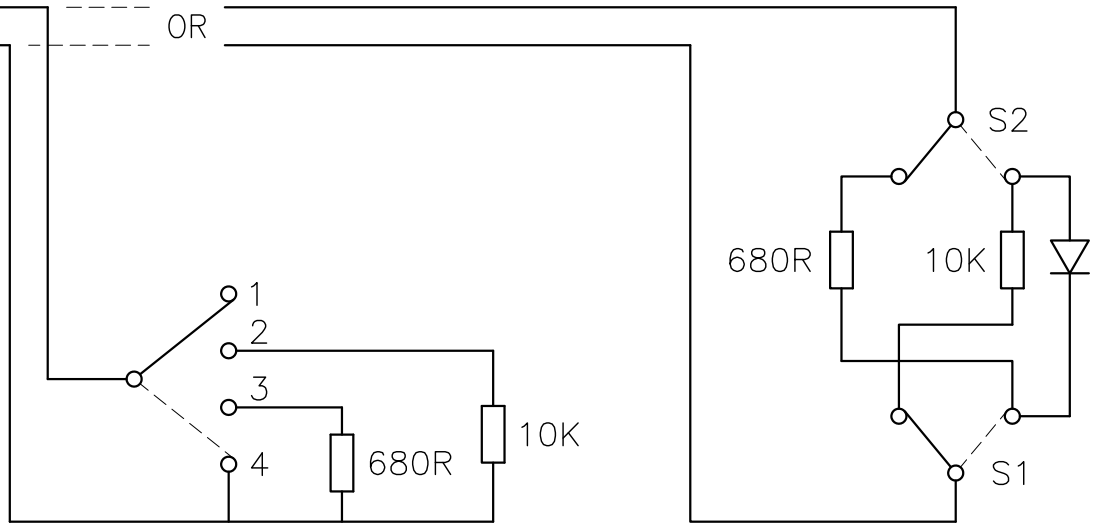
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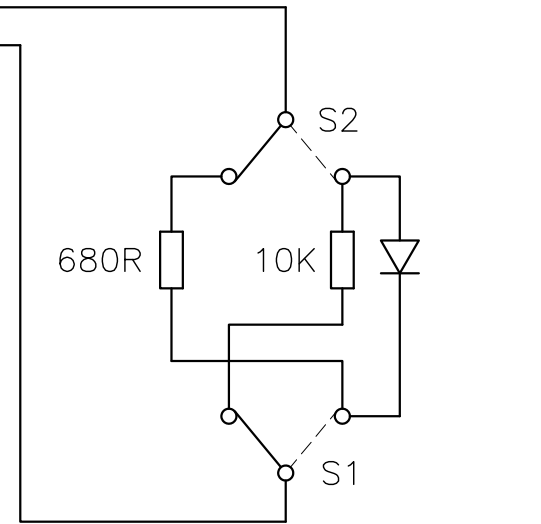
2 POSITION
ON/OFF CONTACT
(TABLE 1)



3 POSITION
OPEN/NORMAL/
SHORT CONTACT
(TABLE 2)



4 POSITION
OPEN/NORMAL/ALARM
SHORT SINGLE CONTACT
(TABLE 3)



4 STATES FROM
2 ON/OFF CONTACTS
(TABLE 3)
S1, S2 SHOWN IN
OFF POSITION

TABLE 1			
SWITCH POSITION	STATE	RESISTANCE	LOGIC TOKEN
OFF	OPEN	>20K	UIPOC _x
ON	SHORT	<270R	UIPSC _x

TABLE 2			
SWITCH POSITION	STATE	RESISTANCE	LOGIC TOKEN
1	OPEN	>20K	UIPOC _x
2	NORMAL	~10K	UIPNM _x
3	SHORT	<270R	UIPSC _x

TABLE 3					
SWITCH POSITION	S1	S2	STATE	RESISTANCE	LOGIC TOKEN
1	OFF	OFF	OPEN	>20K	UIPOC _x
2	OFF	ON	NORMAL	~10K	UIPNM _x
3	ON	OFF	ALARM	~680E	UIPAL _x
4	ON	ON	SHORT	<270E	UIPSC _x

NOTES:

1. x = INPUT NUMBER 1-4.
2. 10K RESISTOR CAN BE 10V ZENER FROM QE90.
3. MUI BAND 1 IS S/C, ETC.

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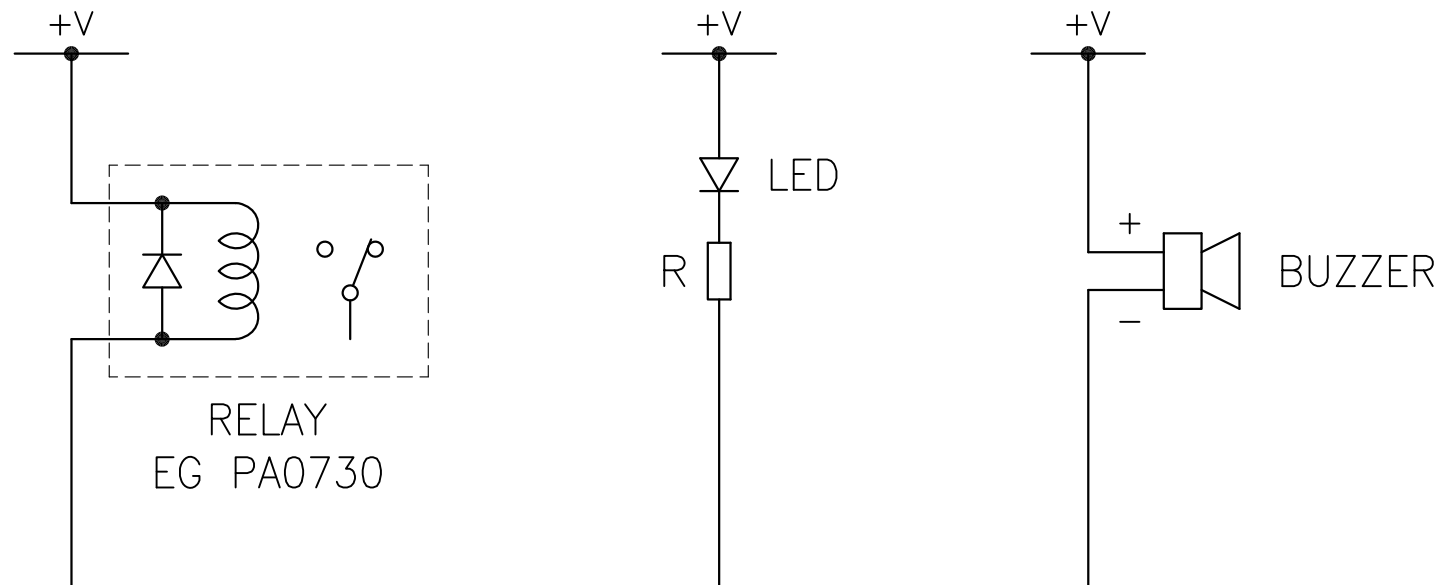
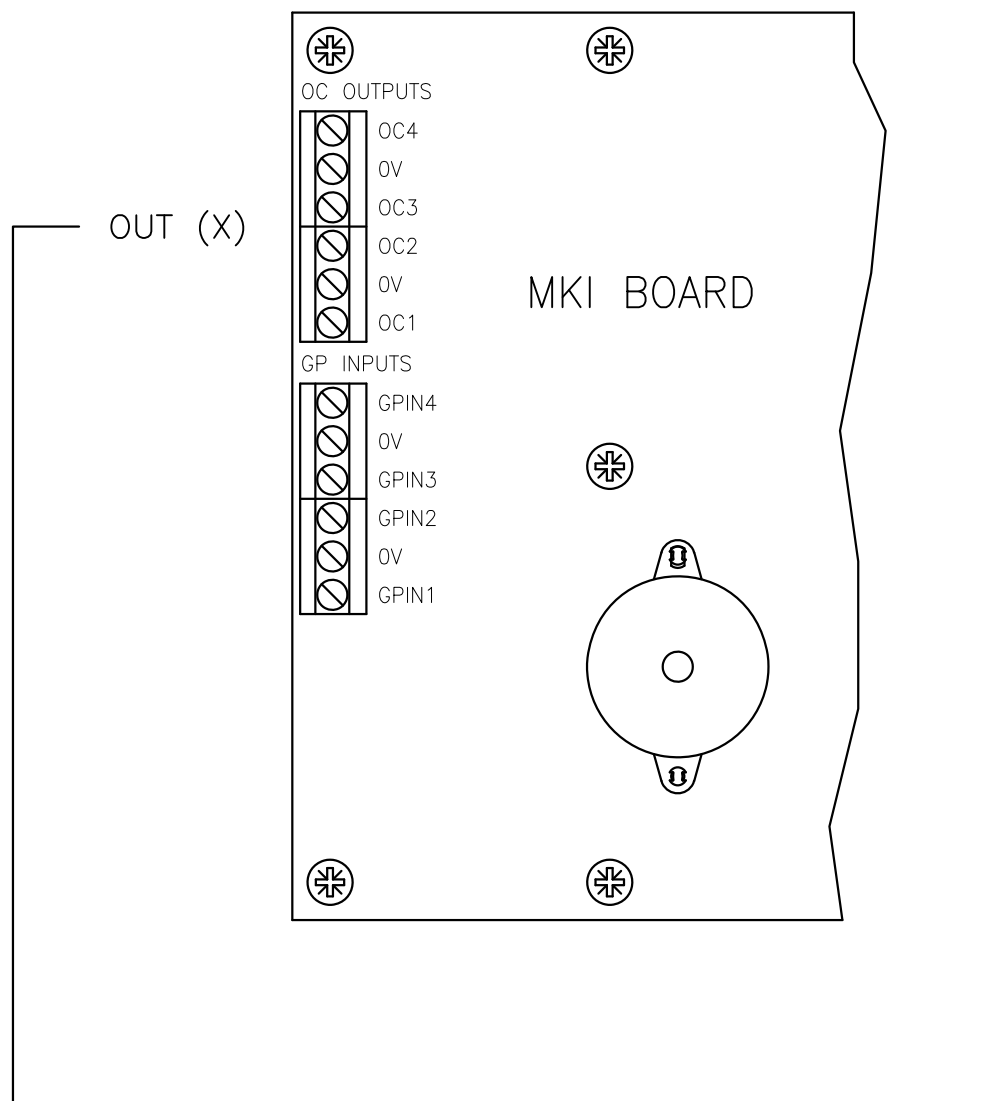
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**QE20 MUI MODULE
GP INPUTS, 2/3/4 WAY SWITCHES
WIRING DIAGRAM**

DRAWING No: 2001-2 SHEET 703 of N

A3 ISS/REV A PART No:



NOTES:

1. RATING OF OUTPUT DEVICE MUST MATCH SUPPLY VOLTAGE.
2. SELECT SERIES RESISTOR R FOR LED TO MATCH SUPPLY & REQUIRED CURRENT.
3. IF OUTPUT LEAKAGE CURRENT (250uA MAX) NOTICEABLE (EG ON LED) FIT 3K9 OR SIMILAR ACROSS LED.
4. OUTPUT RATINGS: 100mA MAX @ < 0.5V ON; 30V MAX OFF, 250uA LEAKAGE CURRENT.
5. MKI OUTPUTS ARE NOT SUPERVISED.

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3rd ANGLE PROJECTION

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**QE20 MKI MODULE
GP OUTPUTS
WIRING DIAGRAM**

DRAWING No: 2001-2 SHEET 704 of N

A3 ISS/REV A PART No: