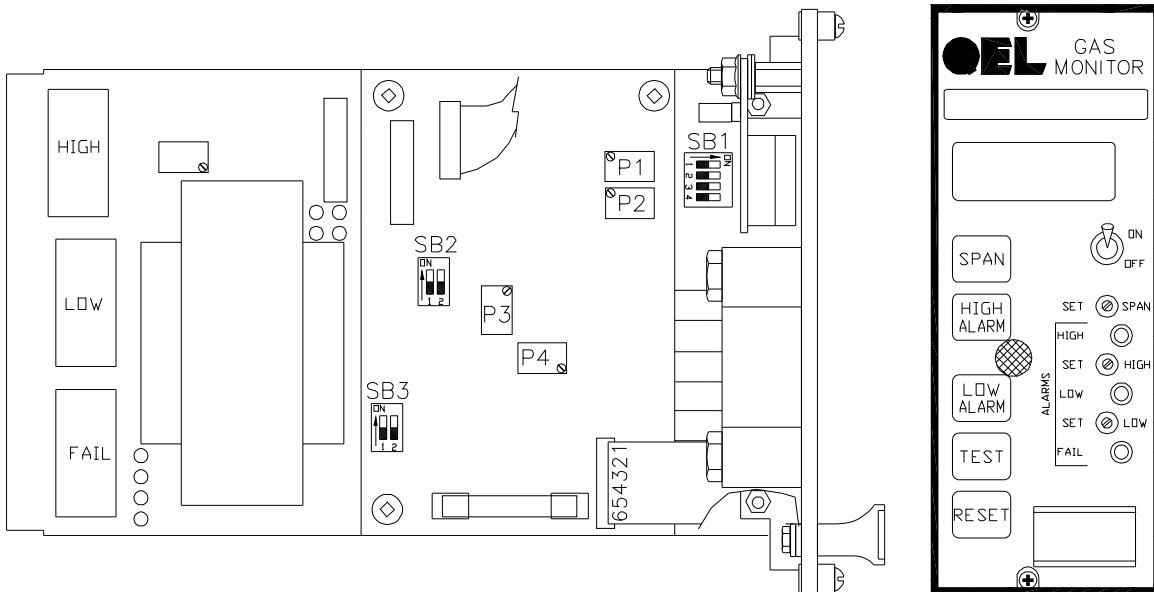


MODEL QAS-51000 MONITOR



INSTALLATION OPERATION AND MAINTENANCE MANUAL

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QAS-51000 SERIES

S/N _____

Gas Label _____

Span Set _____

High Alarm Set _____

Lo Alarm Set _____

SWITCHES

OFF

ON

Latching Alarms

1. Fail Latching Alarm

2. Buzzer

3. Lo Latching Alarm

4. Hi Latching Alarm

Relay Inversion

1. Lo Invert

2. High Invert

* Please allow a 24 hour warm-up time period.

QAS-51000 SERIES GAS DETECTION SYSTEMS

TABLE OF CONTENTS

DESCRIPTION	PAGE
FRONT PANEL FEATURES AND ADJUSTMENTS	
Power On/Off.....	2
Display.....	2
Changeable Legend Window.....	2
Membrane Switch Functions.....	2
Adjustments.....	2
Set Span.....	2
Set Alarms.....	2
INTERNAL FEATURES	
Relays.....	3
Audio.....	3
Power Supply.....	3
Transmitter Power Supply.....	3
4 - 20 mA Signals.....	3
Fuse.....	3
Extracting Module From Rack.....	4
On-Board Switches.....	4
Audio.....	4
Latching Alarms.....	4
Decimal Place.....	6
Relay Inversion.....	6

QAS-51000 SERIES GAS DETECTION SYSTEMS

LIST OF FIGURES

FIGURE PAGE	DESCRIPTION	
1	Front Panel Features.....	1
2	Internal Features and Adjustments.....	5
3	19" Rack Front View.....	7
4	Rack Mount Hook-Up.....	7
5	Wall Mount Configuration - Up to Eight Channels.....	8
6	Wall Mount Box.....	9
7	Wall Mount Configuration - Up to Four Channels.....	10

QAS-51000 SERIES GAS DETECTION SYSTEMS

The QAS-51000 series rack or wall mount single channel controllers are designed to accept any 4 to 20 mA linear signal. The controller has a high visibility 3 digit LED display and 3 DPDT onboard relays with high, low and fail alarm levels. It will also support 2-wire and 3-wire remote transmitters at 25 to 30 VDC.

The QAS-51000 is an extremely compact unit, based on a 100 mm by 160mm eurocard with a two inch wide front panel. Eight controllers will fit in one standard 19" x 5.25" rack. Wall mount enclosures are available for 2, 4 or up to 8 controllers.

FRONT PANEL FEATURES

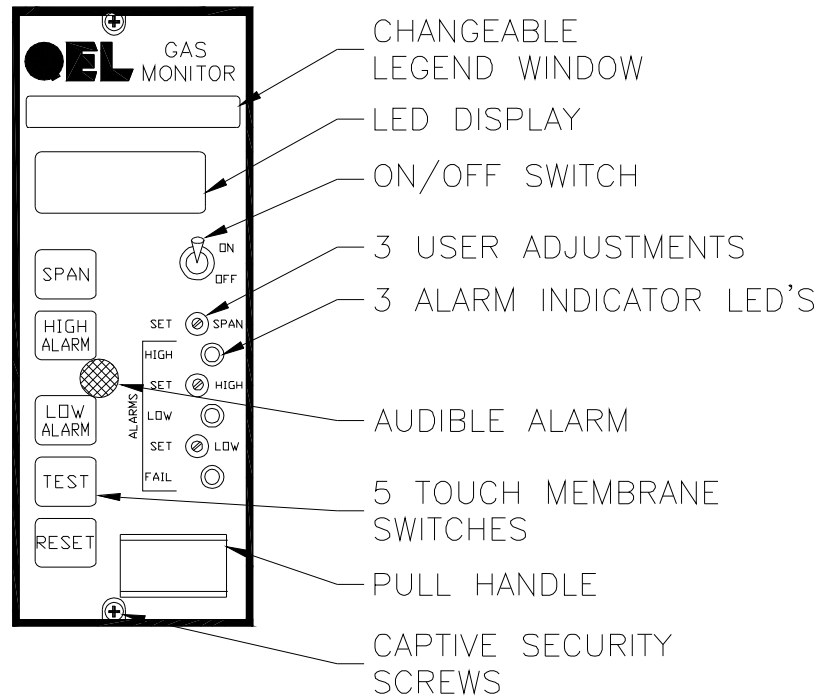


FIGURE 1

FRONT PANEL FEATURES AND ADJUSTMENTS

POWER ON/OFF

Individual on/off toggle switch. NOTE: The QAS-51000 has a delay on turn-on of approximately 1 minute to prevent turn-on surges from tripping alarms. The reading will appear near zero for this period.

DISPLAY

Three digit high visibility LED display.

CHANGEABLE LEGEND WINDOW

The QAS-51000 will display any 4 to 20 mA signal into a 3-digit display. A legend window is provided for labeling the controller: write or type the legend, e.g CH4 % LEL, on a strip of paper roughly 0.25 inch by 1.8 inch and slide it into the slot on the right of the panel. Cut off any excess. See figure 1.

MEMBRANE SWITCH FUNCTIONS

'Span' Displays reading expected when controller receives 20 mA signal.
'High' Alarm Displays setting of high alarm trip point
'Low' Alarm Displays setting of low alarm trip point
'Test' Injects a signal of approximately 22 mA into the controller to test all alarm features
'Reset' When alarm condition has been removed this will reset latched alarms

ADJUSTMENTS

Adjustments are made through holes in the front panel using a slot-head screwdriver or trimmer adjust tool.

SET SPAN

'Span' is the full scale reading, i.e. when the controller is receiving 20 mA. Press the 'Span' switch to display the current setting and adjust the 'set span'.

SET ALARMS

Press the high or low alarm switch to display the current setting and adjust. Note that the display will only show the turn-on points if the unit is not in alarm; if it is in alarm or if 'Test' is pressed simultaneously, the display will show where the unit will come out of alarm.

INTERNAL FEATURES

RELAYS

3 DPDT (form C) on board relays per module, for high, low and fail setpoints. Rated at 5 Amps at 250 VAC, 30 VDC Resistive.

AUDIO

Individual audio alarm (with internal on/off switch)

POWER SUPPLY

120 VAC or 240 VAC 50 to 60Hz, 10 VA. The on board transformer has dual primaries for either 120 VAC or 240 VAC. The standard configuration is for 120 VAC, however if 240 VAC is required a factory modification can be made.

TRANSMITTER POWER SUPPLY

The QAS-51000 has been designed to support any of QEL's line of remote transmitters as well as many other types. The power supply for the transmitters has regulated current and the voltage will vary from 24 VDC to 32 VDC depending on the load.

4 – 20 mA SIGNALS

QEL two and three wire transmitters all supply 4 to 20 mA linear signals. Those users who wish to monitor signals from other equipment may do so using only signal and ground connections. It is also possible to use QEL transmitters with local power supplies rather than that supplied by the controller where wire savings make this worth while

FUSE

The power supply is fused on the primary. The fuse is located on the bottom of the main circuit board.

EXTRACTING MODULE FROM RACK

Turn power switch OFF on front panel before removing a module. Make sure that none of the relay contacts are carrying large amounts of power (Fail is normally energized and will switch when power is turned off). Arcing when breaking contact can damage the connectors at the back of the board.

The QAS-51000 controller module is held in the rack on card guides and secured by captive screws through the top and bottom of the front panel. These screws must be loosened before removing the module. The module is held firmly in a card-edge socket at the back. Pull firmly but carefully on the handle after making certain that the retaining screws are no longer screwed into the rack frame, and slide the module out along the card guides.

Replacement is the reverse of this, sliding the module circuit board along the card guide and carefully pressing it into the socket at the back before securing with the screws.

ON-BOARD SWITCHES – User switched functions

There are three on-board switch blocks enabling the user to select certain functions as required. The switch blocks are referred to as, for instance, SB1(3) - the third switch on switch block 1.

AUDIO.

Switching SB1(2) on enables the buzzer to sound on fail and high alarms. When the controller is specified to be used for oxygen with deficiency and excess alarms or when otherwise specified the buzzer will sound for the low alarm condition as well.

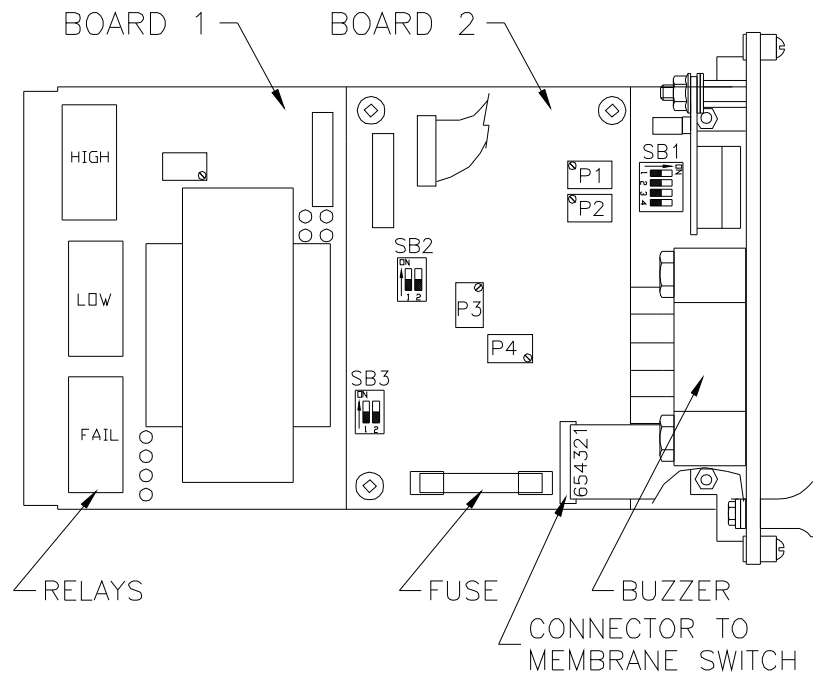
LATCHING ALARMS

Relays/alarms may be nonlatching or latching depending upon switches off or on respectively.

SB1 (1) Fail Relay

SB1 (3) Low Relay

SB1 (4) High Relay



**FIGURE 2
INTERNAL FEATURES AND ADJUSTMENTS**

MEMBRANE SWITCH CONNECTOR

1. Span
2. High
3. Low
4. Test
5. Reset
6. Common/Ground

SWITCHES

SB1. Latching Alarms and Audio

1. Fail Latching Alarms
2. Buzzer
3. Lo Latching Alarms
4. Hi Latching Alarms

SB2. Decimal Choice Switch

1. 0.00
2. 00.0

SB3. Relay Inversion Choice Switch

1. Lo Invert
2. High Invert

DECIMAL PLACE

The meter is not auto-ranging and so the range of interest and the accuracy is set by the operator depending upon the span used and the accuracy of the signal or transducer. As a rule of thumb choosing additional decimal places makes it easier to set the alarm levels accurately. Gas monitoring generally should not use more than one decimal place for practicality.

SB2(1) 0.00

SB2(2) 00.0

Note: If both switches are in the off position then no decimal places are shown 000

RELAY INVERSION

For some monitoring applications such as oxygen monitoring one is concerned that the concentration not fall below certain values. In these instances switches on switch block 3 invert the alarm trips so that the relays/alarms actuate as the signal falls below the setpoint.

SB3 (1) Low alarm invert

SB3 (2) High alarm invert

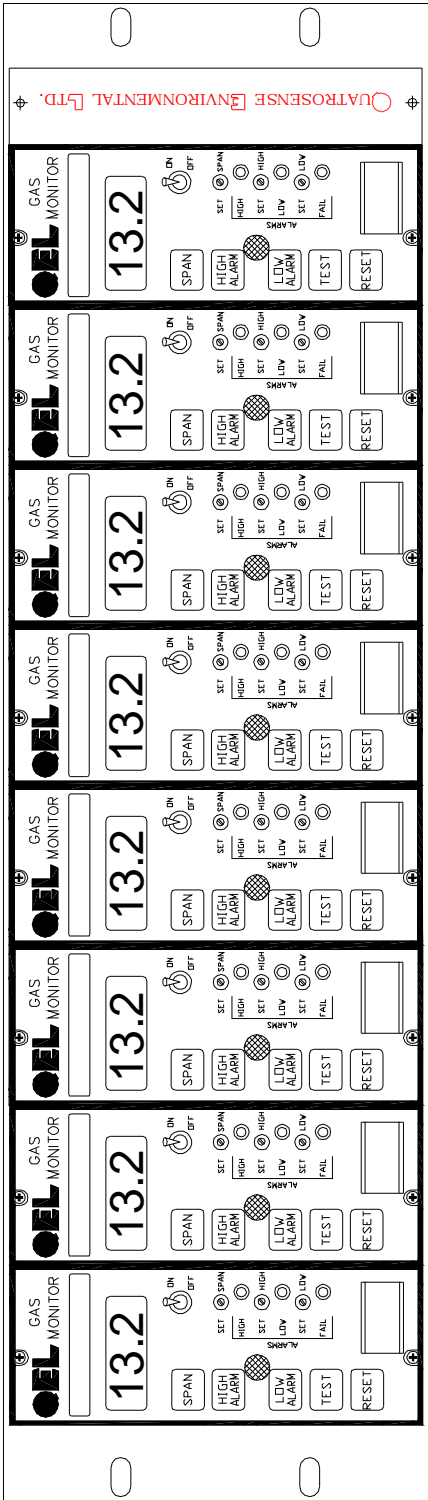


FIGURE 3
19" RACK FRONT VIEW

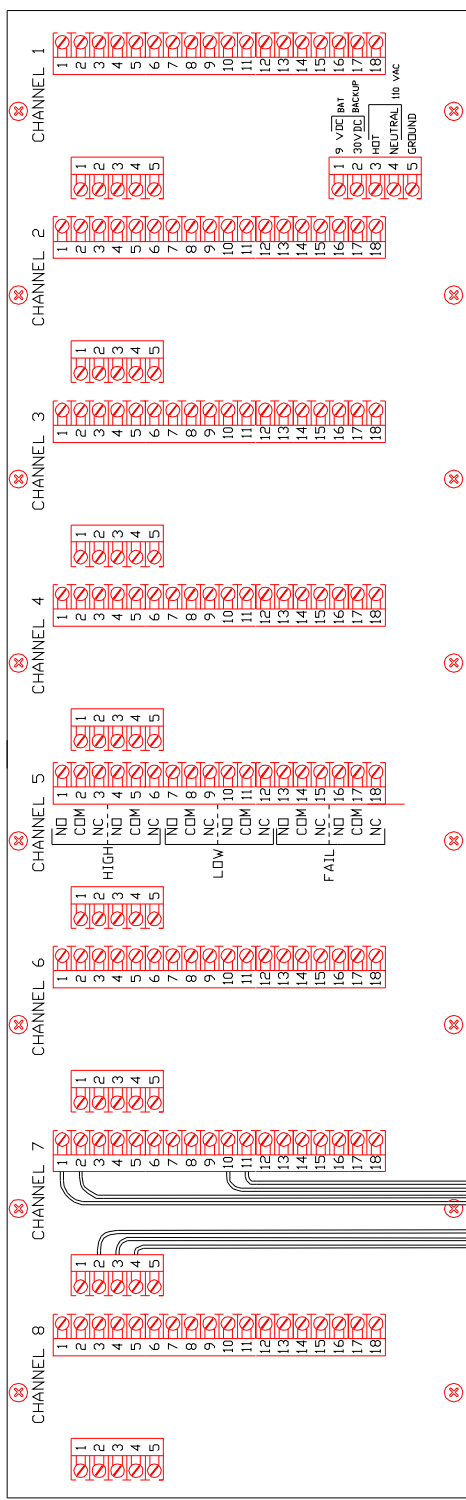


FIGURE 4
RACK MOUNT HOOK UP

TEMPERPROOF SHIELD MOUNTING HOLES

QUATROSENSE ENVIRONMENTAL LTD.

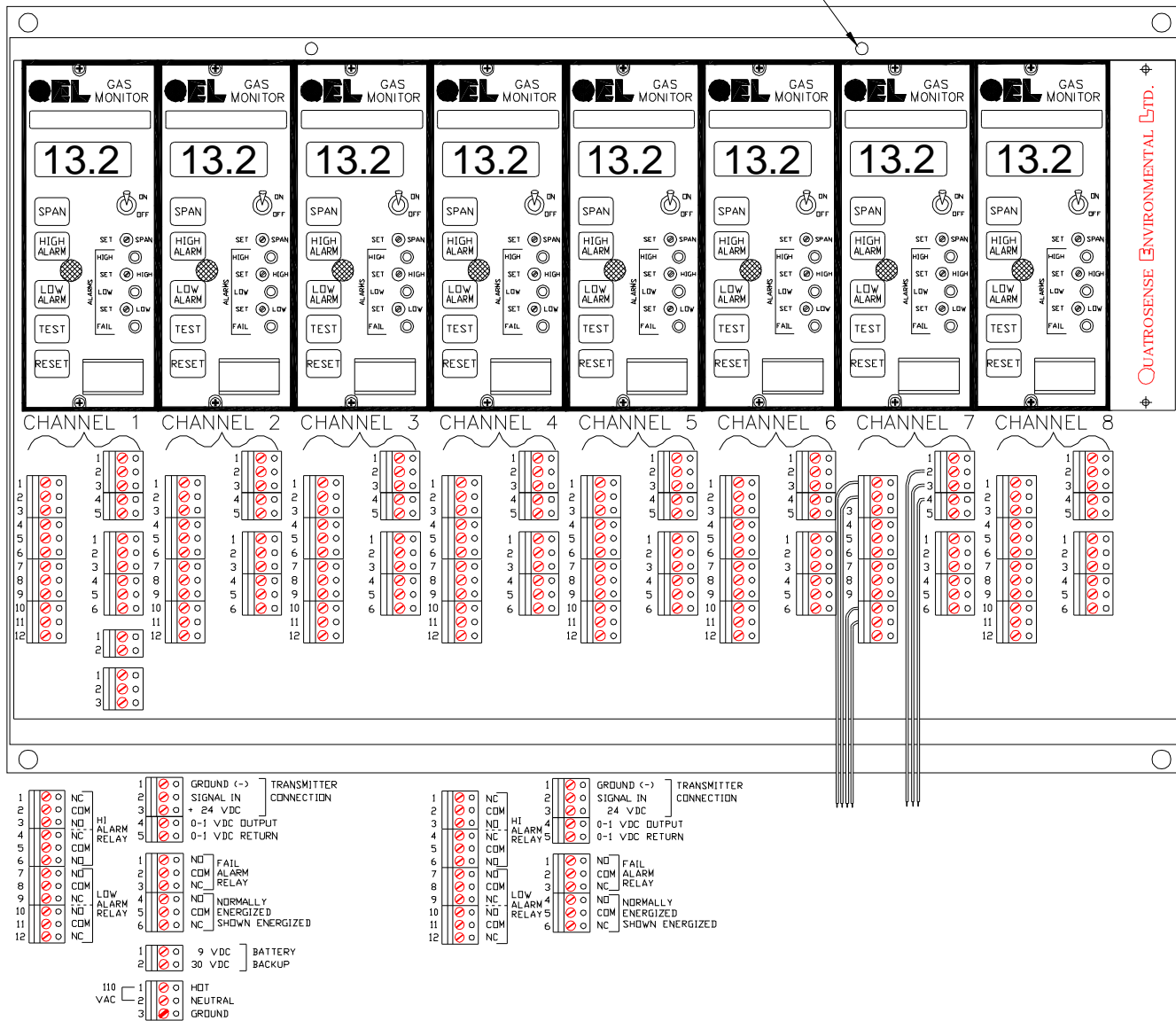


FIGURE 5
WALL MOUNT CONFIGURATION – UP TO EIGHT CHANNELS

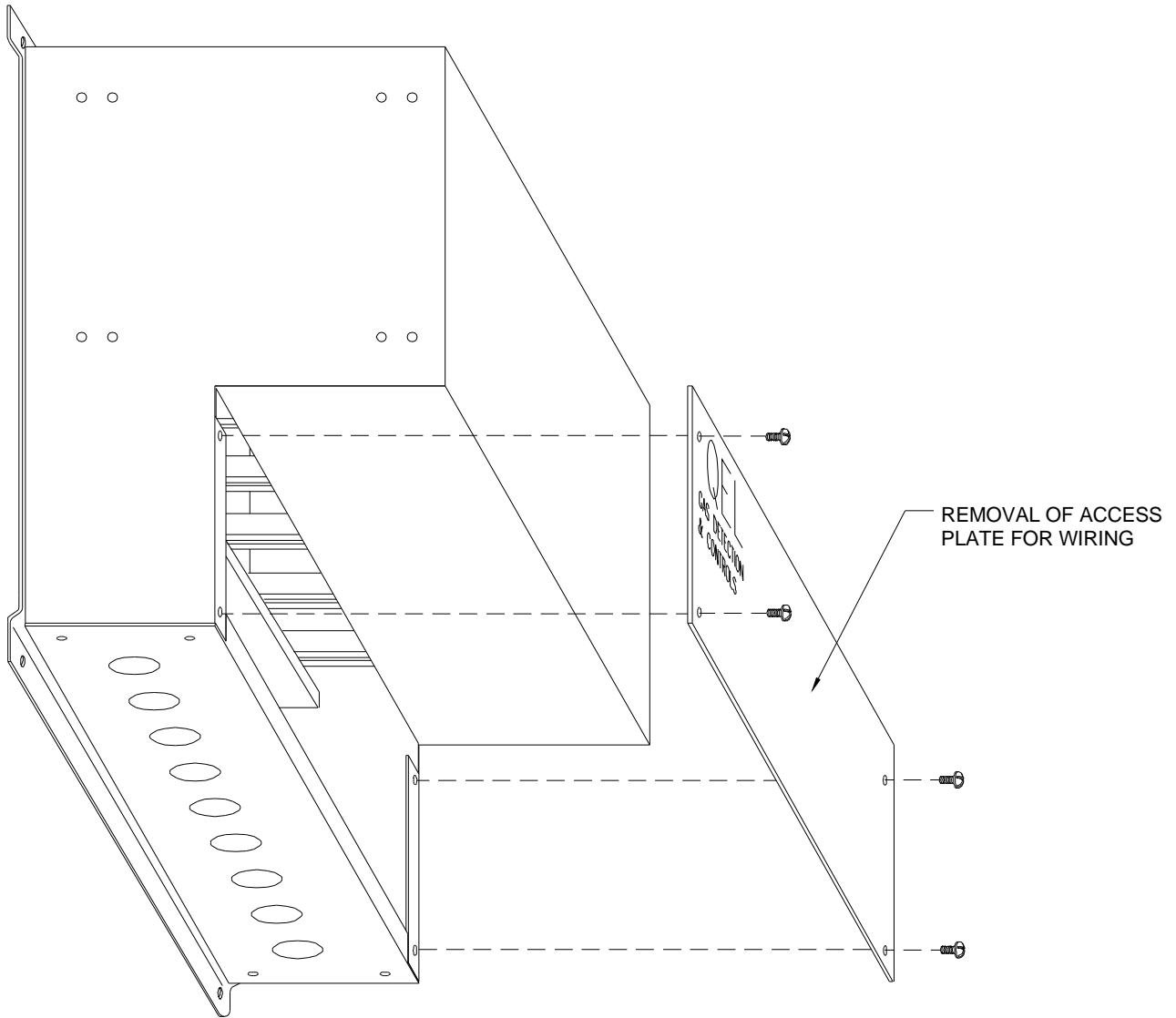


FIGURE 6
WALL MOUNT BOX

TEMPERPROOF SHIELD
MOUNTING HOLES

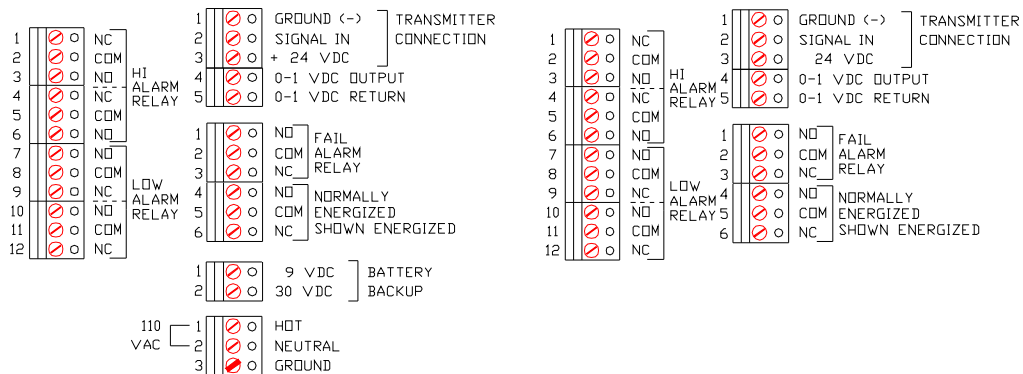
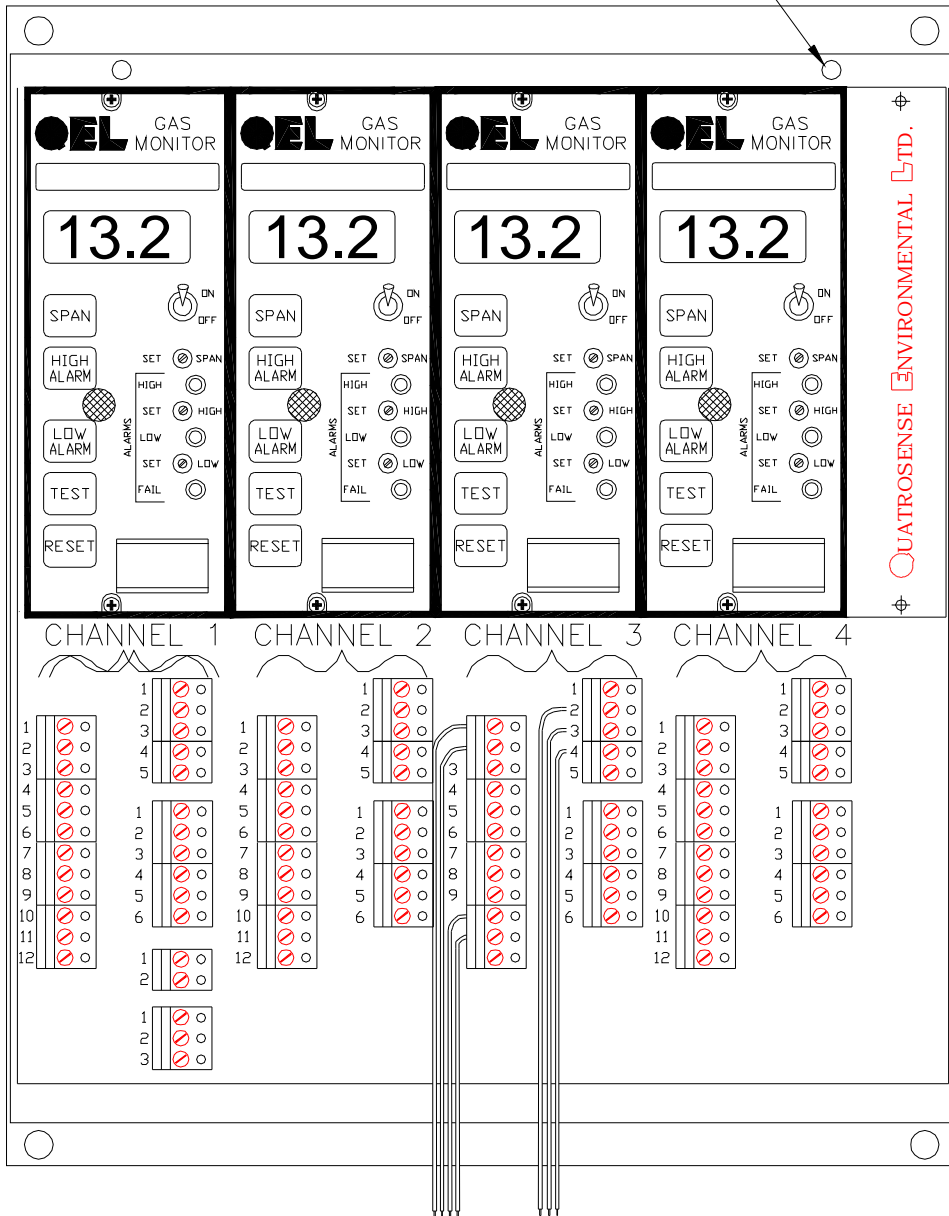


FIGURE 7

WALL MOUNT CONFIGURATION – UP TO FOUR CHANNELS

WARRANTY STATEMENT

The information contained in this manual is based upon data considered accurate; however, no warranty is expressed or implied regarding the accuracy of this data. All QEL equipment is warranted against defects in material and workmanship for a period of two years from date of shipment with the following exceptions:

Electrochemical Sensors (Toxic)	Six Months
Catalytic Sensors (Combustible)	One Year

During the warranty period we will repair or replace, at our discretion, any components or complete units that prove, in our opinion, to be defective. We are not liable for consequential or incidental damage to auxiliary interfaced equipment.

A returned material authorization number should be obtained from the factory prior to returning any goods. All return shipments must be shipped freight prepaid and a copy of the maintenance records should accompany the unit concerned.

Warranty should be considered F.O.B. the factory. Labour and travel time are chargeable for any field site visits required for warranty work.

LIMITED LIABILITY

All QEL systems shall be installed by a qualified technician/electrician and maintained in strict accordance with data provided for individual systems in the form of installation/maintenance manuals. QEL assumes no responsibility for improper installation, maintenance, etc., and stresses the importance of reading all manuals. QEL shall not be responsible for any liability arising from auxiliary interfaced equipment nor any damage resulting from the installation or operation of this equipment.

QEL's total liability is contained as above with no other liability expressed or implied as the purchaser is entirely responsible for installation and maintenance of systems.

This warranty is in lieu of all other warranties, expressed or implied, and no representative or person is authorized to represent or assume for QEL any liability in connection with the sales of our products other than that set forth herein.

NOTE: Due to on-going product development, QEL reserves the right to change specifications without notice and will assume no responsibility for any costs as a result of modifications.

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