LabSense - 01

INSTALLATION and COMMISSIONING INSTRUCTIONS

Product Overview

The ***LabSense*** range of products and ancillary equipment is designed to meet the safety requirements of the classroom environment – ensuring that the utilities on the benches (gas, water and/or electric plug sockets) are only enabled when the person in charge requires, and that any gas leaks are detected before the system is switched on.

The system has a number of models, you have selected

LabSense-01 intelligent controller with control for water, gas and electric supplies

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1.0 General Info

1.01 Opening the unit

The ***LabSense-01*** unit is made up of five (5) component parts, two (2) are PCB circuit boards and three (3) make up the enclosure.

The enclosure has a facia plate, two (2) side covers and a back box. The back box houses the main PCB circuit board and the facia plate has the touch pad PCB circuit board attached to it. These two sections are inter-connected via a ribbon cable.

To open the enclosure, first remove the snap-in clips at the bottom of the two side panels, then press the release pad on each side at the bottom of the enclosure and lift off each side panel in turn. This will reveal the four facia plate fixing screws, located at the four corners of the facia plate.

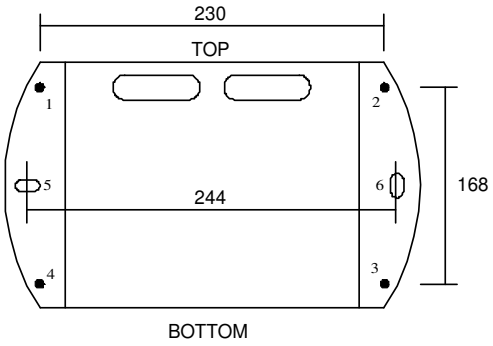
Unscrew these four screws and lift the facia plate from the back box, ensuring that the ribbon cable between the two PCBs has been unplugged at the main PCB end.

Place the screws, snap-in clips, side panels and facia plate in a safe place until the back box has been fixed, wired and is ready for reassembly and set-up.

1.02 Fixing details

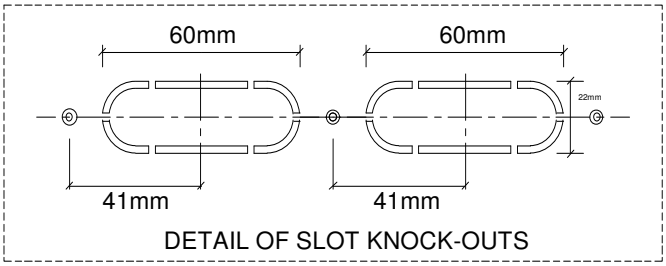
The ***LabSense*** unit has four (4) mounting holes which can be used *(as shown below)*

Note: Ensure that the enclosure is mounted on a clean and level surface



1.03 Cable entry

The ***LabSense-01*** unit has two knock-out slots in the back of the enclosure *(located at the top)* to enable back entry. The enclosure has an area 190 x 25 mm which can be drilled for conduit entry on the top edge of the enclosure.



1.04 Electrical connections

The ***LabSense-02*** system has two sets of terminals all mounted along the top edge of the main PCB circuit board.

Terminals 1 to 22 are the smaller terminals (1.5 mm² cable) and are used for the sensors, inter-locking devices, and on/off control.

Terminals 23 to 34 are the larger terminals (4 mm² cable) and are for the 240Vac power supply to the unit, and from the unit to the solenoid valves and contactors to enable the various utilities.

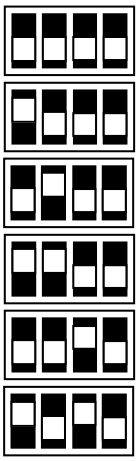
The terminals are of the rising clamp type with protection.

All cabling should be kept to the top of the unit within the designated area. No cables should be placed or laid across the PCBs as they may cause damage.

1.05 Timer selection

Once the installation has been carried out, but before the system is powered up, the duration of each session should be selected. This ensures that the LabSense system cannot be left enabled when it is not being adequately supervised, as it will automatically turn off the gas, water and electricity supply when the timer expires.

This is selected using the four way DIL switch mounted in the centre of the main PCB.



= 30 mins

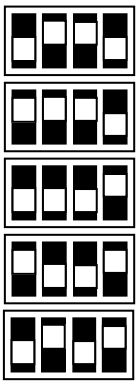
= 40 mins

= 50 mins

= 1 hr

= 1 hr 10 mins

= 1 hr 20 mins



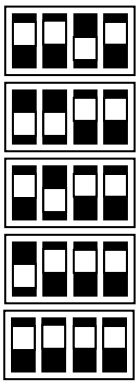
= 1 hr 30 mins

= 1 hr 40 mins

= 1 hr 50 mins

= 2 hrs

= 2 hr 10 mins



= 2 hr 20 mins

= 2 hr 30 mins

= 2 hr 40 mins

= 2 hr 50 mins

= DEMO MODE

If “DEMO MODE” is selected, the lesson duration is set to 2 minutes. This allows for demonstration of the unit to show the operator exactly what will happen at the end of each lesson.

2.0 Operating Instructions

The LabSense system is controlled via a series of touch pads on the facia in conjunction with a key switch to prevent unauthorised use of the utilities within the laboratory. The status of the system can be quickly and easily identified by observing the nine multi-colour LED indicators.

2.01 Selecting the required utilities

1) Press

●	POWER ON	○	KEY ACTIVATION
●	SYSTEM CONDITION	○	GAS SUPPLY
○	PERIOD EXTENSION	○	WATER SUPPLY
●	FIRE ALARM	○	ELECTRIC SUPPLY
●	REMOTE STOP		

2) Press SETUP button

●	POWER ON	○	KEY ACTIVATION
●	SYSTEM CONDITION	●	GAS SUPPLY
○	PERIOD EXTENSION	●	WATER SUPPLY
●	FIRE ALARM	●	ELECTRIC SUPPLY
●	REMOTE STOP		

The required utilities can be switched on and off by pressing

When the indicators for the required services are on, press

2.02 Gas tightness test

IMPORTANT – THIS STEP MUST ONLY BE CARRIED OUT BY A QUALIFIED GAS ENGINEER

This feature allows the gas engineer to switch on the gas for 5 minutes only, to allow checking of the gas pipe work via an external means. This should only be used if the gas cannot be turned on via the normal method.

1) Press

●	POWER ON	○	KEY ACTIVATION
●	SYSTEM CONDITION	○	GAS SUPPLY
○	PERIOD EXTENSION	○	WATER SUPPLY
●	FIRE ALARM	○	ELECTRIC SUPPLY
●	REMOTE STOP		

2) Press SETUP button and hold until beep.

●	POWER ON	○	KEY ACTIVATION
✹	SYSTEM CONDITION	✹	GAS SUPPLY
○	PERIOD EXTENSION	○	WATER SUPPLY
●	FIRE ALARM	○	ELECTRIC SUPPLY
●	REMOTE STOP		

The gas will be automatically switched off after 5 minutes, or when

is pressed.

2.03 System startup

1) Turn the key

●	POWER ON	✹	KEY ACTIVATION
●	SYSTEM CONDITION	○	GAS SUPPLY
○	PERIOD EXTENSION	○	WATER SUPPLY
●	FIRE ALARM	○	ELECTRIC SUPPLY
●	REMOTE STOP		

The operator now has 1 minute to select which services they require by pressing the appropriate pad. The system will beep, and the KEY ACTIVATION indicator will change colour when the minute is almost up.

✹ = 30 seconds remaining ✹ = 10 seconds remaining

PRESS

✹	GAS SUPPLY	*GAS TEST (OPEN)*
▼		
✹	GAS SUPPLY	*GAS TEST (CLOSED)*
▼		
●	GAS SUPPLY	*GAS ON*

Before the gas valve is opened permanently, a pressure test is carried out on the system. The gas valve is opened for a short time, and then closed for a short time. During this time the pressure is monitored. If the pressure falls while the gas valve is closed, the system will alarm. All gas taps should be checked before attempting to restart. In addition, if the gas pressure ever falls below 12mbar during normal operation, the system will alarm and close the gas valve.

2.04 System shutdown

The system can be shut down at any time by using

If all services are off, the system will shut down.

At the end of the pre-defined operation period, the system will automatically shut down. Five minutes before the timer expires, the PERIOD EXTENSION indicator will flash, and the system will beep every 30 seconds. For the last minute of the timer, the system will beep every 5 seconds.

= 5 minutes remaining

= 1 minute remaining

In order to extend the normal operating period by 15 minutes, press at any time.

Whilst in the extension period, the PERIOD EXTENSION indicator will flash.

= 15 minutes remaining

2.05 Restarting

Once stopped, the system cannot be restarted until the key has been switched to the “off” position, and then back to “on”. Whilst in this state, the KEY ACTIVATION indicator is red.

If the system has been stopped by an external source, for example a remote stop button or a fire alarm signal, the system can be reset by pressing

3.0 LED Indication

The ***LabSense-01*** unit has nine status indication LEDs. These change colour to allow instant diagnosis of the system state.

POWER ON:

- Lights up when power is applied to LabSense.

SYSTEM CONDITION:

- System condition is normal
- System is in "setup" mode
- System fault detected – see other LEDs for further details
- System is in "gas tightness test" mode

PERIOD EXTENSION:

- System within normal operating period
- System stopped
- 5 minutes left of operating period (press to extend)
- 1 minute left of operating period
- System within extension operating period

FIRE ALARM / REMOTE STOP:

- Fire alarm / remote stop in normal position
- Fire alarm / remote stop in alarm position

KEY ACTIVATION:

- System within normal operating period, key in "on" position
- System stopped, key in "off" position
- System stopped, key in "on" position (must be turned to "off" to reset)
- 30 seconds left of activation period, key in "on" position
- 10 seconds left of activation period, key in "on" position
- System within activation period, key in "on" position

  OR

  Key in "off" position and one of the services' touch pads has been pressed (see PERIOD EXTENSION indicator)

GAS SUPPLY:

Gas supply enabled

Gas supply not enabled

Gas pressure fault during initial test on startup

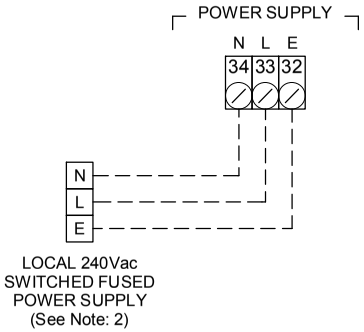
Gas pressure less than 12 mbar

Gas test - gas valve open

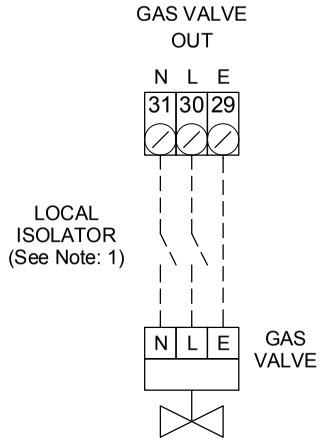
Gas test - gas valve closed

OR

Gas valve open for tightness test (see SYSTEM CONDITION indicator)

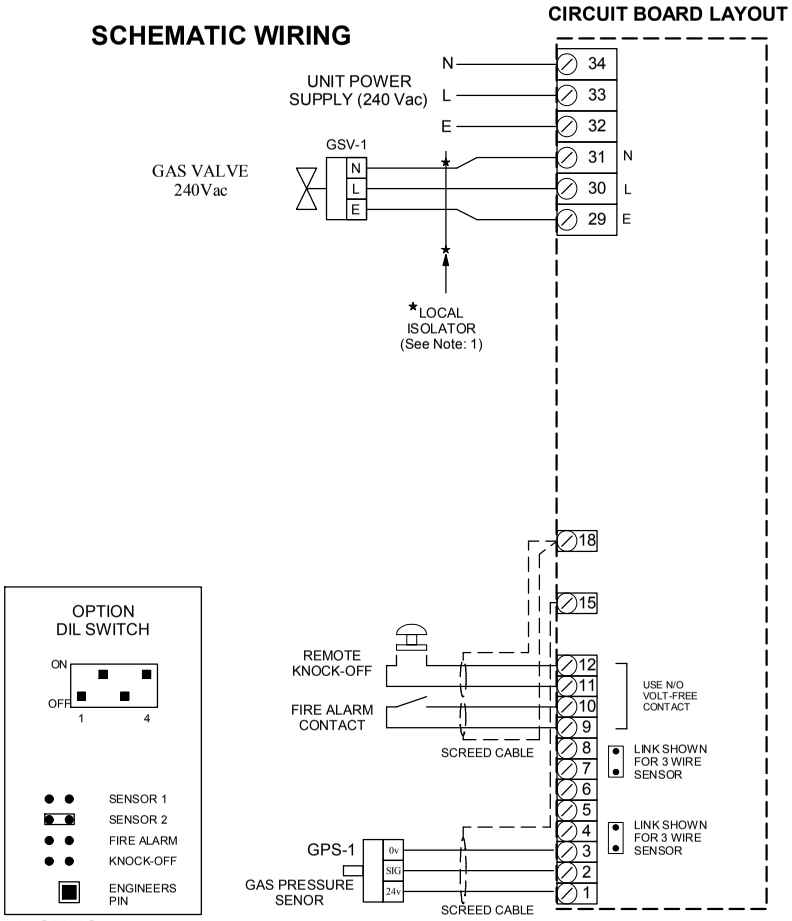


LABSENSE UNIT POWER SUPPLY



GAS VALVE OUTPUTS

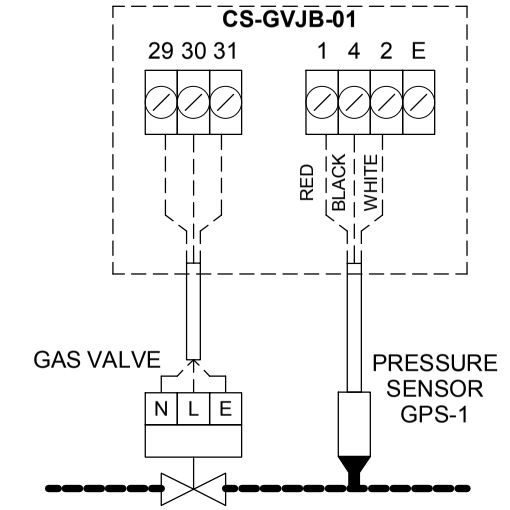
SCHEMATIC WIRING



NOTES:

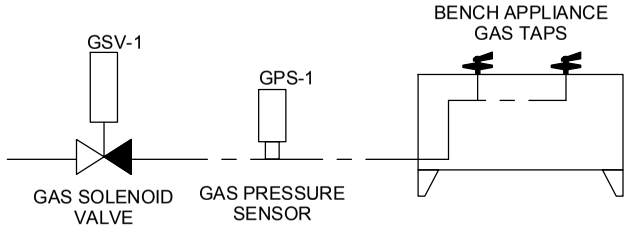
1) LOCAL ISOLATION MUST BE PROVIDED IN ACCORDANCE WITH THE CURRENT EDITION OF THE IEE REGULATIONS.

2) ENSURE THAT THE SWITCHED POWER IS CORRECTLY FUSED TO THE LOADING OF THE LABSENSE AND PLANT ITEMS.



GAS VALVE OUTPUT WITH POWER SUPPLY FROM LABSENSE VIA CS-GVJB-01

EQUIPMENT SCHEMATIC



TRENT
PRODUCTS
Tel: 01782 - 844688 Fax: 01782 - 844772

IF IN DOUBT, ASK	**DATE:**	**DRAWING No:**	**DRAWN BY**
LABSENSE - 01 WIRING & CONNECTION DETAILS	09/12/14	LS-WD-01	JH-P

Notes:

FOR FURTHER TECHNICAL ASSISTANCE, PLEASE CONTACT US BY

Phone: 01782 844688

Fax: 01782 844772

E-mail: info@trentproducts.com

Website: www.trentproducts.com

Note:

i) Ensure that the electrical installation has been installed in accordance with the current edition of the IEE regulations.

ii) Ensure that the gas installation has been installed in accordance with the current gas regulations (GAS SAFE).

iii) If in doubt, ask! (contact us on or by any of the above).

iv) Ensure that the client has been shown how to operate the system and that they have been handed the user guide.

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