

CEL LC250 Weight Monitor System Installation And Operating Manual

Introduction

The CEL LC250 Weight Monitoring System provides monitoring of gas extinguishant bottles weighing 70kg to 140kg. The system monitors for loss of extinguishant through leakage and indicates a fault if a reduction in extinguishant load is detected. The LC250 has LED indications for supply healthy and fault conditions. Fault indication to a supervisory system is also available through both normally closed and fully monitored circuits. For monitoring large systems up to 15 monitors can be linked to a supervisory system using standard interconnect leads. Each LC250 is protected against power failure by storing its calibration data in non-volatile memory.

Installation

The CEL Weight Monitor comprises two parts, the gas bottle platform which incorporates the load cell and the monitor which is housed in a metal enclosure. The fixing holes for the platform and the electronics are detailed in Figure 2 - Dimensions Of The LC250 Weight Monitor System. Installation is as follows:

1. Fix the weight monitor platform to a suitable surface using the holes provided in the lower plate.
2. Remove the 4 screws from the enclosure using a 2.5mm Allen key and place the lid and screws in a safe place.
3. Fix the enclosure backbox in a suitable location using the two M4 hank bushes provided. When positioning the enclosure ensure that the lead from the load cell platform projects at least 100mm into the enclosure to allow correct termination of the cable.
4. Pass the load cell cable through the rubber grommet in the enclosure. Trim the length of the cable so that 100mm is present within the enclosure. Remove 80mm of the outer sleeving and cut back the brown and blue conductors which are not required. Bare 5mm of the cable ends of the remaining conductors.
5. Connect the 4 cables to the terminals on the lid mounted PCB following the colours designated on the PCB.
6. Carefully replace the lid onto the backbox ensuring that the cable is arranged neatly within the enclosure and fix with the socket screws.
7. If the LC250 is the only device or the first of a series of devices connect the supply and monitoring lead to one of the 5 way DIN sockets situated on the ends of the enclosure. Both sockets provide identical functions. If the device is not the first of a series of devices then connect the LC250 to the previous device using the LC250 interconnect lead.
8. Terminate the cores of the supply lead as shown in Figure 1.
9. Fit the Termination plug to the spare DIN socket on the last device if required. This plug is used to complete the monitoring circuits as shown in Figure 1.

Operation

1. Position the gas bottle on the load cell platform.
2. Switch on the 24V supply to the monitors. The green Healthy LED will illuminate to show that the supply is healthy. The device will begin operation using the most recent calibration data. This is most likely to result in a fault being indicated by the device.
3. Operate the calibrate switch on the LC250 by pushing a small screwdriver through the hole labelled CALIBRATE to initialise the device. The green healthy LED will blink for 2 seconds to indicate that the device is calibrating.

After initialisation the healthy LED will return to a steady condition and the yellow fault LED will extinguish. This indicates a quiescent condition.

Indication Of A Fault Condition

The LC250 monitors extinguishant leakage by a change in the weight applied to the load cell platform. If the weight decreases by more than a pre-determined safe level the LC250 indicates a fault condition. The normally closed fault contacts will open breaking any fault monitoring circuit connected to the devices and indicating a fault condition. The device will also connect a 680 Ω resistor across the monitored circuit to indicate a fault. The yellow fault LED illuminates to indicate the loss of extinguishant.

If the Watchman is calibrated with a load which is outside the specified weight range then the monitoring will not function correctly. The LC250 will indicate this by extinguishing the healthy LED to indicate an abnormal load. If the load exceeds the maximum the fault LED will also pulse. If the load is below the minimum the fault LED will illuminate continuously. The fault contacts will also operate to indicate a fault.

If the green healthy LED pulses once every 2 seconds this indicates an internal fault. In this situation the device will function correctly while power is connected but the calibration value will not be retained if the power supply is lost. If this situation occurs return the device for repair.

When the LC250 indicates a fault the indication is not cleared until the fault is removed or the device is recalibrated.

Specification

Operating Voltage:	22V to 28 V d.c.
Quiescent Current:	70mA @ 24V
Maximum Current:	70mA @ 24V
Operating Temperature:	0°C to 40°C
External Fault Indication:	1. Normally closed contacts rated at 1A @30Vd.c. 2. 680R resistor switched across a monitored zone.
Electrical connections:	2 off 5 pin 180° DIN socket
Operating Range:	70kg to 140kg
Weight Loss Indication:	2% - 4.6% (2.8% - 4.3% over 120kg to 140kg)
Monitor Mounting:	2 off M4 hank bushes 60mm centre to centre
Load Cell Cable Length:	1m
Connection Cable Length:	1m

Accessories

CEL LC250 interconnect lead (connects 2 or more devices) length: 1m.

Fault Finding

The CEL LC250 displays fault conditions using the two status LEDs labelled HEALTHY and FAULT. The following table shows all display combinations which the LC250 exhibits, along with the cause of the condition.

Healthy LED	Fault LED	Cause	Action
On	Off	Quiescent	None
On	On	Weight loss detected	Recharge bottle
Off	On	Calibration weight below lower limit	Use load within specified range
Off	Pulsed	Calibration weight above upper limit	Use load within specified range
Pulsed	Any condition	Internal fault	Return device for repair

If the LC250 system gives a fault indication during commissioning check that there is no mechanical contact between the load and other parts of the extinguishing system. Interaction between the cylinder and mounting brackets affecting the force on the platform is the most common cause of false indications. Fault indications of this type may appear continuously or intermittently and are often dependent on changes in ambient temperature.

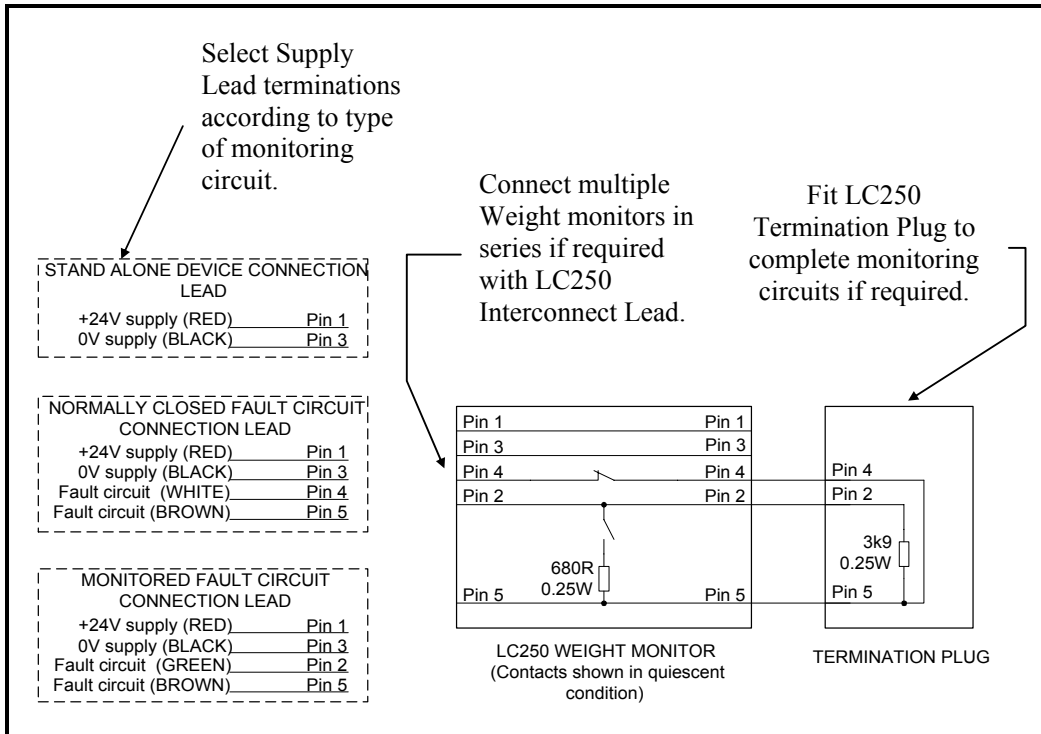


Figure 1 - Termination Details For The LC250 Weight Monitor System

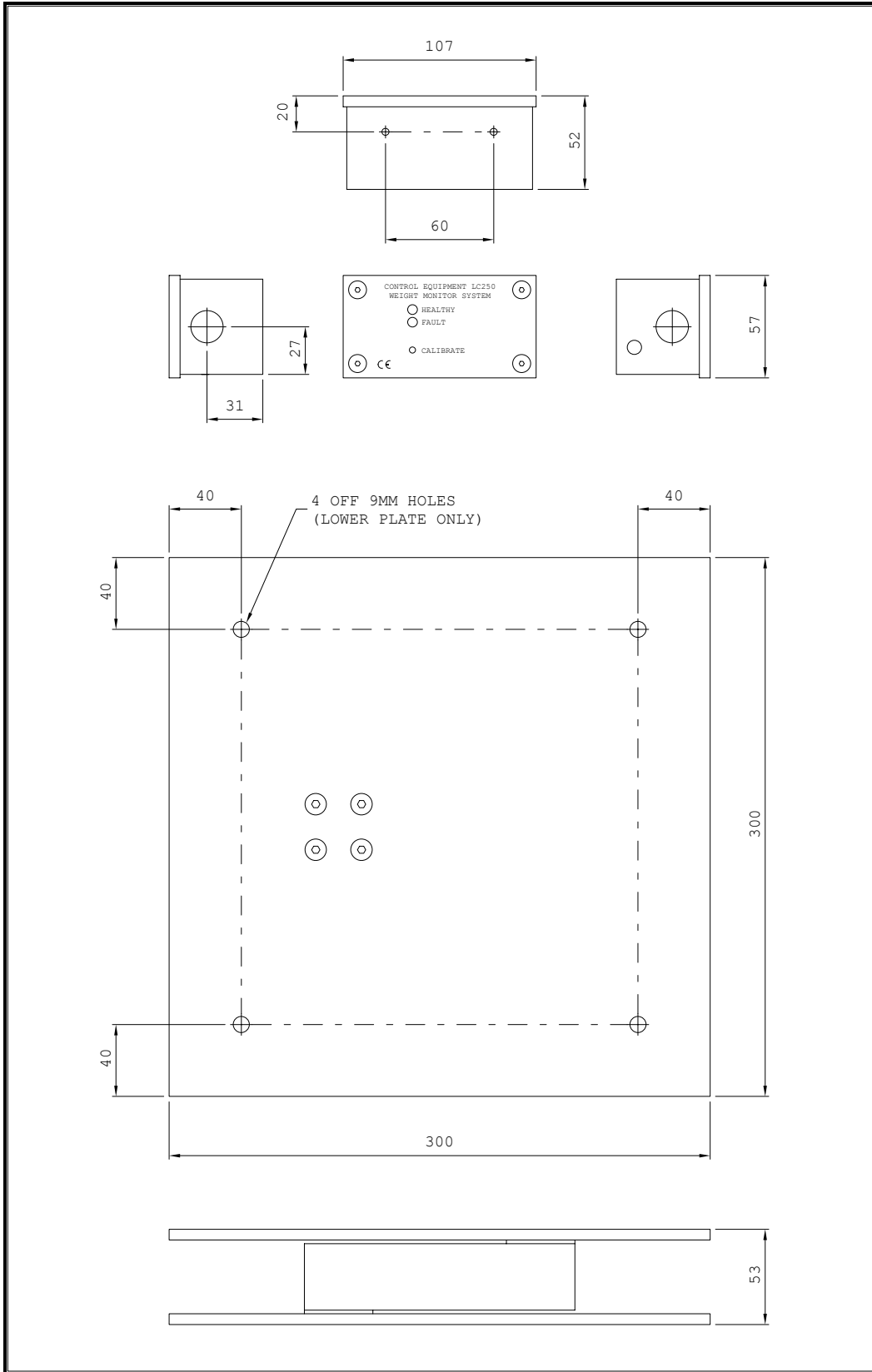


Figure 2 - Dimensions Of The LC250 Weight Monitor System