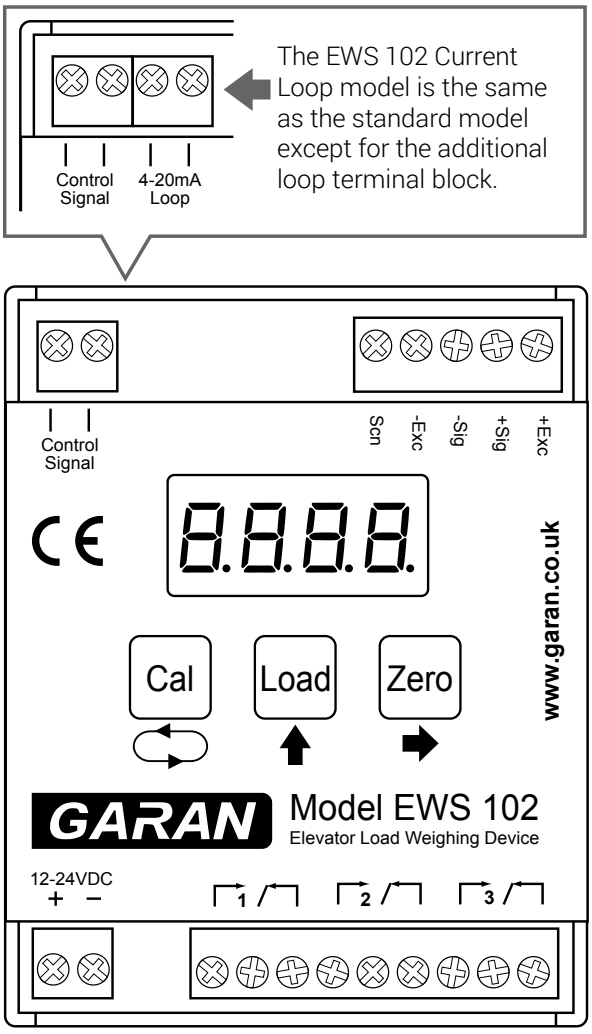
EWS-102 CONTROL UNIT USER MANUAL

Product Overview

The EWS 102 Elevator Load Weighing System is a compact, easy to install device that provides a comprehensive control system for use with a range of sensor/application types. The EWS 102 standard model monitors the elevator load and provides several alarm outputs. It automatically adjusts to prevent errors caused by friction/ compensation chain, and includes intelligent software that enables it to auto zero calibrate when the system is inactive. The EWS 102 current loop model performs all of the functions of the standard model and provides pre-torque control via a 4-20mA analogue output.

Fitting & Wiring

The EWS 102 can be mounted either on a DIN rail or on a flat surface (using a single screw mounting aperture in the rear plate).
Wire the chosen sensor type to the control unit (see separate data sheet for colour coding). Wire the control signal to receive a door open/ close signal (0 Volt contact).
Wire the NO/NC alarm relays to each alarm input.



EWS 102 Standard

System Programming

Once you have fitted the system, power up the EWS 102 and configure it to the specific requirements of the installation. The EWS 102 is configured using straightforward step-by-step procedures using the LED screen and three multifunction keys as follows:

Entering System Setup/Calibration Modes

Press the Cal and Load buttons together (display shows: CAL) and then press:

Cal for the system setup menu (display shows SYSt)
Zero for zero calibration (display shows 2Ero) or
Load for load calibration (display shows LOAd)

Navigation

Use the ⬆ button to step through the menu items.
Press ➡ to view the value of a menu item.

Editing Values

When a value is displayed, use ➡ to select each digit to edit (selected digit flashes) and use ⬆ to step through the values for that digit. Once the required value is displayed' press ⮌ to save it.

The system will revert to the operational display after approx. 10 seconds. Alternatively, return to the operational display by pressing ⮌ twice.

System Setup

Before starting the set up procedure, ensure that you have all the relevant data. Refer to the table below and enter

the required user values.

Setting	Meaning	Default Value	User Value	Connected to	Comment
CAP	Elevator capacity	1000kg		N/A	
AL 1	Relay 1 trigger value	1100kg			Must be +ve value
AL2	Relay 2 trigger value	1000kg			Must be +ve value
AL3	Relay 3 trigger value	-300kg			Can be +ve or -ve
HYSt	Amount load needs to drop after alarm to reset instrument	30kg		N/A	
Hour	Long term auto zero function. Defines how long the elevator must be at rest before the zero point is redefined.	1 Hour		N/A	Optional 'System Reset' function.
-00-	Defines the deviation allowed for the long term auto zero function (maximum value +/-99kg)	90kg		N/A	Optional 'System Reset' function.

Maximum Capacity
To set the maximum capacity of the elevator, enter the system setup menu and press ⬆ once to select the Maximum Capacity setting:



Press ➡ to view the current value. Change the value using the ➡ and ⬆ buttons and then press ⮌ to save the new setting and move to the next parameter.

Alarm Trigger Values
Each of the 3 alarm relays can be individually set to trigger at a particular load. Alarm relays 1 and 2 can trigger on any positive value. Typically, relay 1 would be set to trigger at 110% of the maximum load value would be used to prevent the elevator doors from closing. When relay 1 is triggered, the internal buzzer also sounds.
Relay 3 can be set to trigger at either a positive or negative value. The negative value can be used to indicate the presence of an obstruction affecting the free movement of the cabin.

Note: When setting a positive value for Alarm 3, ensure that the left hand digit is set to '0'. Ifi t is set to '-' the value be treated negative.

To set an alarm relay trigger value, enter the system setup menu and press the ⬆ button repeatedly until the required alarm is displayed (AL1 = alarm relay 1, AL2 = alarm relay 1, etc.)



Press ➡ to view the current value. Change the value using the ➡ and ⬆ buttons and then press ⮌ to save the new setting and move to the next parameter.

Hysteresis Value
Once an alarm has been triggered, it will not reset until the load has dropped below the trigger value by the hysteresis value set here. This prevents cycling of the alarm.

To set the hysteresis value, enter the system setup menu and press the ⬆ button repeatedly until the hysteresis menu item is displayed:



Press ➡ to view the current value. Change the value using the ➡ and ⬆ buttons and then press ⮌ to save the new setting and move to the next parameter.

Intelligent Software
The EWS 102 has two intelligent software features:

1. An AUTO ZERO function that is pre-set and designed to remove any zero drift issue as a result of temperature changes or potential loss of pressure in the elevator hydraulics.
2. A SYSTEM RESET function which is user defined and will re-zero the overload system when the elevator

To set the System Reset values, enter the system setup menu and press the ⬆ button repeatedly until the first of these parameters is displayed:



Press ➡ to check whether or not the function is activated:



To enable the function, press ⬆ to toggle to 'on' and follow the procedure described below. Otherwise press ⮌ to jump to the next parameter.



This defines the time the elevator must be at rest for (in hours up to a maximum 10 hours). Change the value using the ⬆ button and press ⮌ to save the new setting and move to the allowed deviation setting.



Press ➡ to view the current value. This defines the deviation allowed (maximum value +/-99kg). Change the value using the ➡ and ⬆ buttons and then press ⮌ to save the new setting and move to the next parameter.

Filter Value
The filter value determines the update rate and damping factor. The available settings are:
0 = 0.4sec, 1 = 0.8sec, 2 = 1.2sec, 3 = 1.6sec. To set the filter value, enter the system setup menu and press the ⬆ button repeatedly until the hysteresis menu item is displayed:



Press ➡ to view the current value. Change the value using the ➡ and ⬆ buttons and then press ⮌ to save the new setting and move to the next parameter.

Sounder Control
An internal sounder beeps when an overload alarm is triggered or when the keypad is pressed.



To change the setting, press ➡ and use ⬆ to toggle between ON and OFF. Press ⮌ to save the new setting and exit System Setup.

Calibration

Before starting, ensure that you have a suitable know weight available for calibrating the load. Carry out the zero and load calibrations as follows:

Zero Calibration
Enter the Zero Calibration mode (Press Cal and Load buttons together followed by Zero).



Ensure that the cabin is empty and press Cal to initiate the calibration. The display will count down from 10 to 1 and then displays CAL to indicate that the zero point has been calibrated and stored. Press Load within 10 seconds to proceed to the Load Calibration mode.

Load Calibration
If you didn't press Load within 10 seconds at the end of the last procedure, press Cal and Load buttons together followed by Load to enter the Load Calibration mode.



Place the know load into the cabin and press Cal:



Enter the weight of the known load in kg using the ➡ and ⬆ buttons and then press ⮌ to complete the input and start the calibration. The display will count down from 10 to 1 and then displays CAL to indicate that the load has been calibrated.

Error Codes

If after powering up the unit, the display shows an error message, this could indicate that the sensor positioning and/or wiring needs to be checked.

Error Code	Error	Cause/Solution
Err1	Sensor Signal Input - Negative	Reverse connection of sensor signal leads
Err2	Insufficient Sensor Signal	Installation Error - Contact Garan
Err3	Sensor Offset Too High - Positive	Installation Error - Contact Garan
Err4	Sensor Offset Too High - Negative	Installation Error - Contact Garan

4-20mA Output Option

This option provides a 4-20mA output proportional to the elevator load and provides a signal to allow the controller to pre-torque the motor. See below for fine tune.

Test and 4-20mA Loop Fine Tune

To begin the test and loop fine tune procedure, press the Cal button (unit beeps), hold it for about a second and then release it (unit beeps again). Use the ⬆ button to step through the tests. The unit will test the display screen by displaying All LCD segments. The next series of steps will operate or release each output relay to ensure that they are functioning. When the procedure reaches the loop fine tune options (Current Loop version only - see note below), the screen will display LOOP for 1 second and then:



Press ➡ to view the load value for the lower end of the current loop output or press ⬆ to move to the 20mA setting. Adjust the 4mA value, if necessary, using the ➡ and ⬆ buttons and save it by pressing ⮌.



Press ➡ to view the load value for the lower end of the current loop output or press ⬆ to exit the test mode. Adjust the 20mA value, if necessary, using the ➡ and ⬆ buttons and save it by pressing ⮌.

The test and fine tune is now complete.

Note: The current loop output is proportional to the elevator load including any attached chain (4mA when empty to 20mA when at capacity). Although the unit provides an accurate output without the need for any adjustment, this procedure offers a quick and simple means of measuring the output using a multi-meter connected in series with the 4-20mA Loop output terminals, and without having to monitor the sensor. The output can also be fine-tuned during the process, if required.
For a full explanation of the use of the 4-20mA Current Loop function, refer to the document 'EWS 102 4-20mA Current Loop Version – Supplementary Information'

Travel Compensation

The travel compensation prevents errors associated with the presence of a compensation chains. It is automatically activated when the Control Signal input is wired to receive a door open/close signal.

Note: For continuous weighing and calibration, you must fit a link between the Control Signal input terminals.