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## **INSTALLATION INSTRUCTIONS**

### **L58 AUTO FUEL CONTROLLER**

**ISSUE 1 26/06/2009**

#### **1. System Description**

The L58 Auto Fuel Controller is a tank level and status display unit which can provide automatic level control when used in conjunction with a TLL50 Level Sensor, a TLL70 High Level Switch and a pump.

- Control of the fluid level is achieved using four adjustable relay switches.
- The 3 wire TLL50 provides the level input from the fuel tank.
- The TLL70 provides a high level cut off switch. This controls a set of volt free relay contacts.
- The fluid level is displayed as a % on the digital display. Four LED's indicate the state of the four relays.
- A red alarm status lamp warns of liquid levels less than Low Alarm or greater than High Alarm. Connections for a remote alarm are provided.
- A green fuel filling status lamp indicates that the pump is filling the tank. Connections for a pump are provided.
- A 4-20mA current output is provided for remote metering.
- An Auto / Off / Manual switch allows local control and a manual override on the fuel filling pump.

#### **2. General Specification**

##### **Environment**

Working Temperature Range : -25 to 60°C

Storage Temperature Range : -25 to 60°C

Weatherproofing : IP65



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## **Electrical Supply**

Voltage Supply : 24 VDC

Current Supply : Up to 6A Maximum. Protection provided by a 6A MCB

## **Electrical Output**

Current : 4 – 20mA  $\pm$  2% tolerance. 500 $\Omega$  Maximum Load

Pump Output : 24VDC, 2A available

Remote Alarm Output : 24VDC, 1A available

Volt Free Relay Contacts : 30VDC 5A rated

## **Physical & Materials**

Enclosure Size : 380mm width x 280mm height x 130mm depth

Enclosure Materials : Polycarbonate, Nylon Screws, Polyurethane Gasket.

Gland Holes : Four Nylon Plug sealed  $\varnothing$ 20mm holes are provided for connections.

## **Display**

14mm LED % Tank Level Digital Meter

4 x LED Indicators for Switch Point Status

Red 'Alarm' Status Indicator Lamp

Green 'Fuel Filling' Status Indicator Lamp

## **User Features**

Auto / Off / Manual Status Switch

4 x Adjustable Level Switches. Factory Settings are 6%, 15%, 80% & 85%

## **Electrical Connections**

For DIN Rail Conductors to be of the following sizes;

Stranded Conductor nominal 1.5mm<sup>2</sup> to 4mm<sup>2</sup> cross section

Solid Conductor nominal 0.5mm<sup>2</sup> to 4mm<sup>2</sup> cross section

Suitable Blade Conductor nominal 0.75mm x 2.3mm cross section

For MCB Conductor to be of the following sizes;

Stranded Conductor nominal 2mm<sup>2</sup> to 20mm<sup>2</sup> cross section

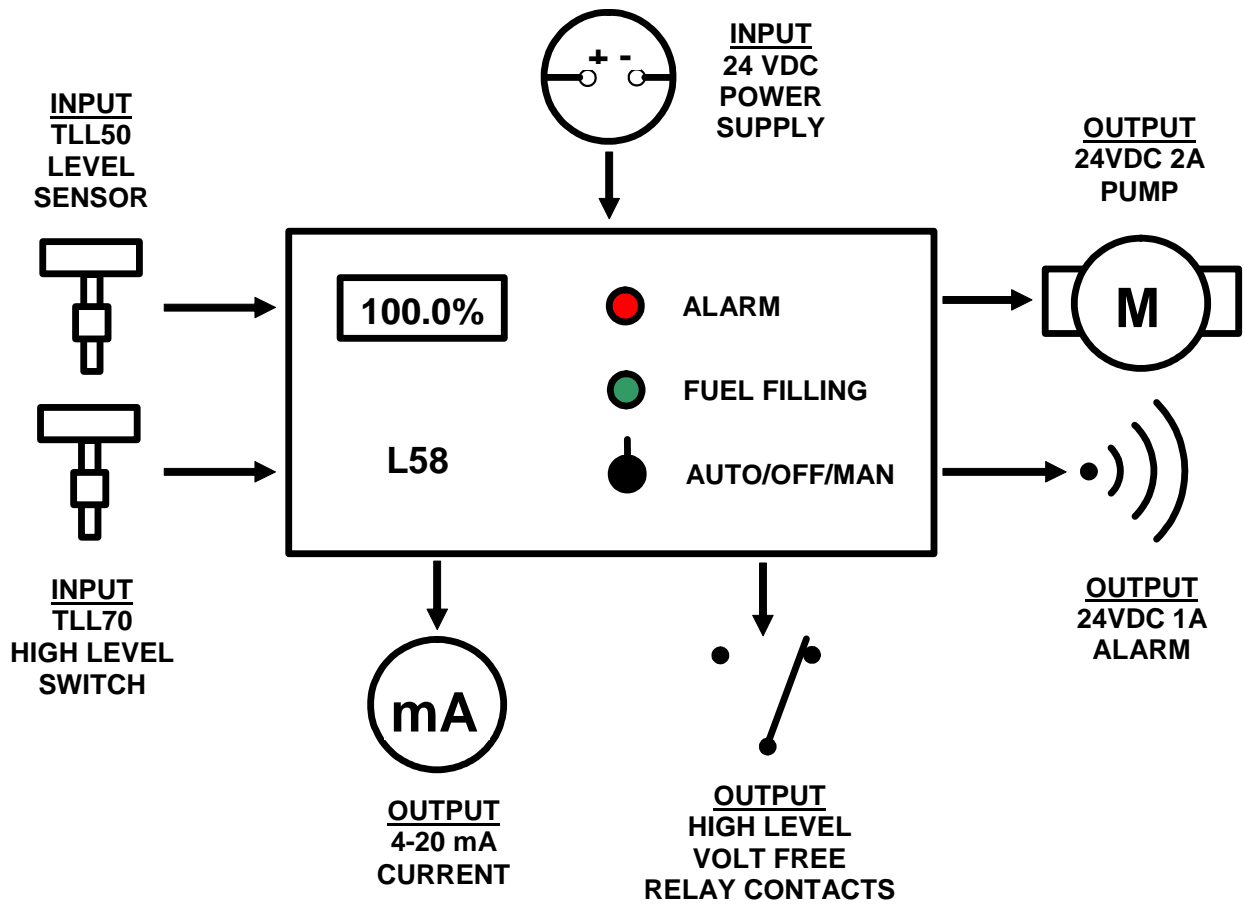
Solid Conductor nominal 1mm<sup>2</sup> to 20mm<sup>2</sup> cross section



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### 3. System Diagram

L58 Controller & Associated Inputs/Outputs

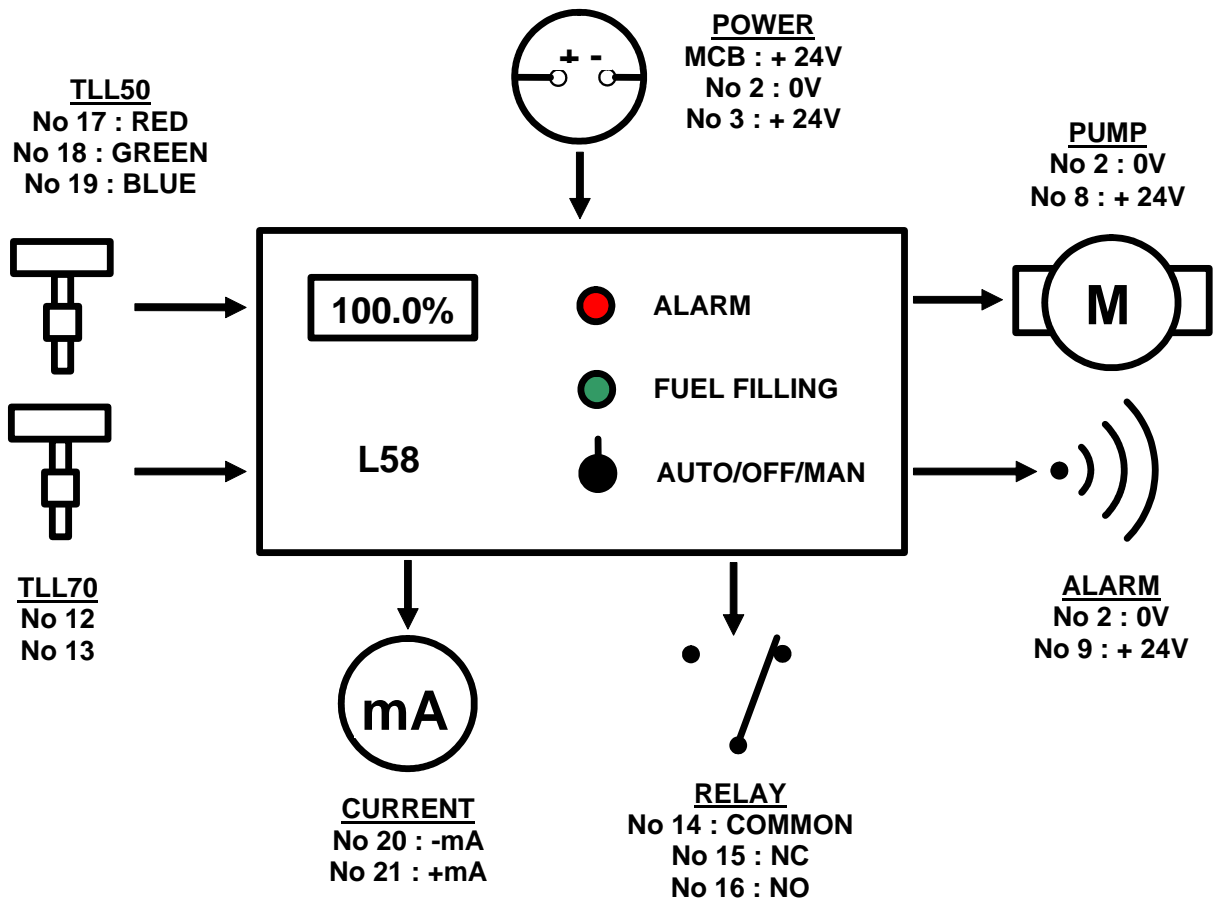




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#### 4. Terminal Diagram

##### L58 Controller & Input/Output Terminal Numbers





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## 5. Terminal Listing & Sizing

Terminal	Terminal Size	Description
MCB	MCB Size	24V Power Supply (6A MCB)
2	DIN Rail Size	0V Power Supply
3	DIN Rail Size	24V Fuel Supply
8	DIN Rail Size	24V 2A Pump Output
9	DIN Rail Size	24V 1A Alarm Output
12	DIN Rail Size	TLL70 Level Switch
13	DIN Rail Size	TLL70 Level Switch
14	DIN Rail Size	Volt Free Relay Common
15	DIN Rail Size	Volt Free Relay NC
16	DIN Rail Size	Volt Free Relay NO
17	DIN Rail Size	TLL50 Level Sensor (Red)
18	DIN Rail Size	TLL50 Level Sensor (Green)
19	DIN Rail Size	TLL50 Level Sensor (Blue)
20	DIN Rail Size	4-20mA Positive Output
21	DIN Rail Size	4-20mA Negative Output

## 5. Level Control Point Adjustment

In 'Auto' mode the four adjustable relay switches determine the minimum and maximum fuel levels for pump control and the alarm levels. They are factory set to the following

- Relay 1 (High Alarm) 85%
- Relay 2 (High Fuel) 80%
- Relay 3 (Low Fuel) 15%
- Relay 4 (Low Alarm) 6%

Referring to D1 - L58 Terminal Drawing below, they can be adjusted prior to installation in the following manner

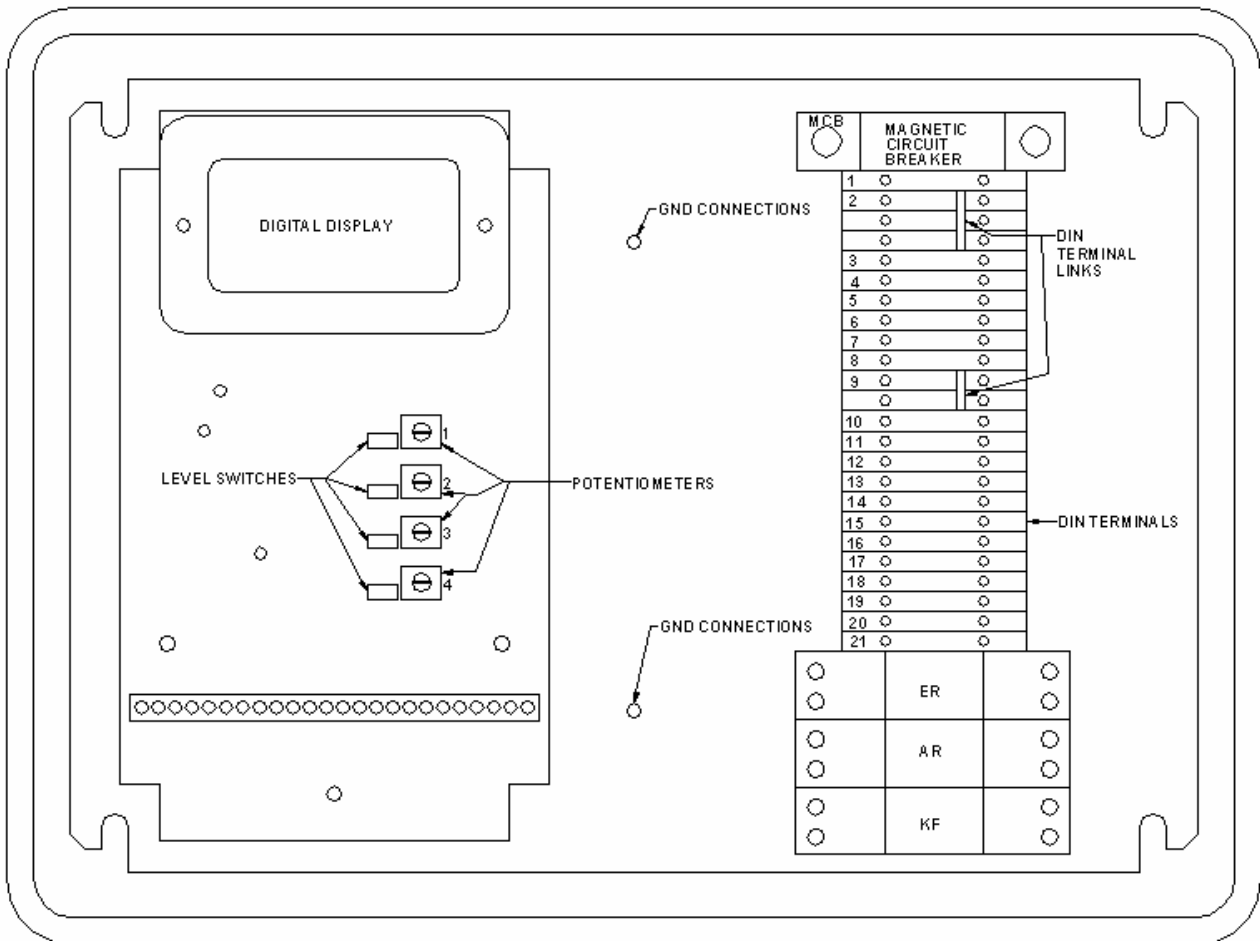
1. Unscrew the two corner bolts on the L58 and open the lid
2. Switch MCB to '0 OFF'
3. Attach a 24VDC 500mA supply to the MCB (+24V) and DIN Rail Terminal 2 (0V).
4. Switch MCB to '1 ON'. The LED % Display will initially display 0.0 then slowly increase.
5. Hold down a level switch. The LED display will show the control level.



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6. Continue to hold the switch and turn the adjacent potentiometer. The LED display will change to the new set value

7. Repeat for all four Level Control Points



D1 - L58 Terminal Drawing



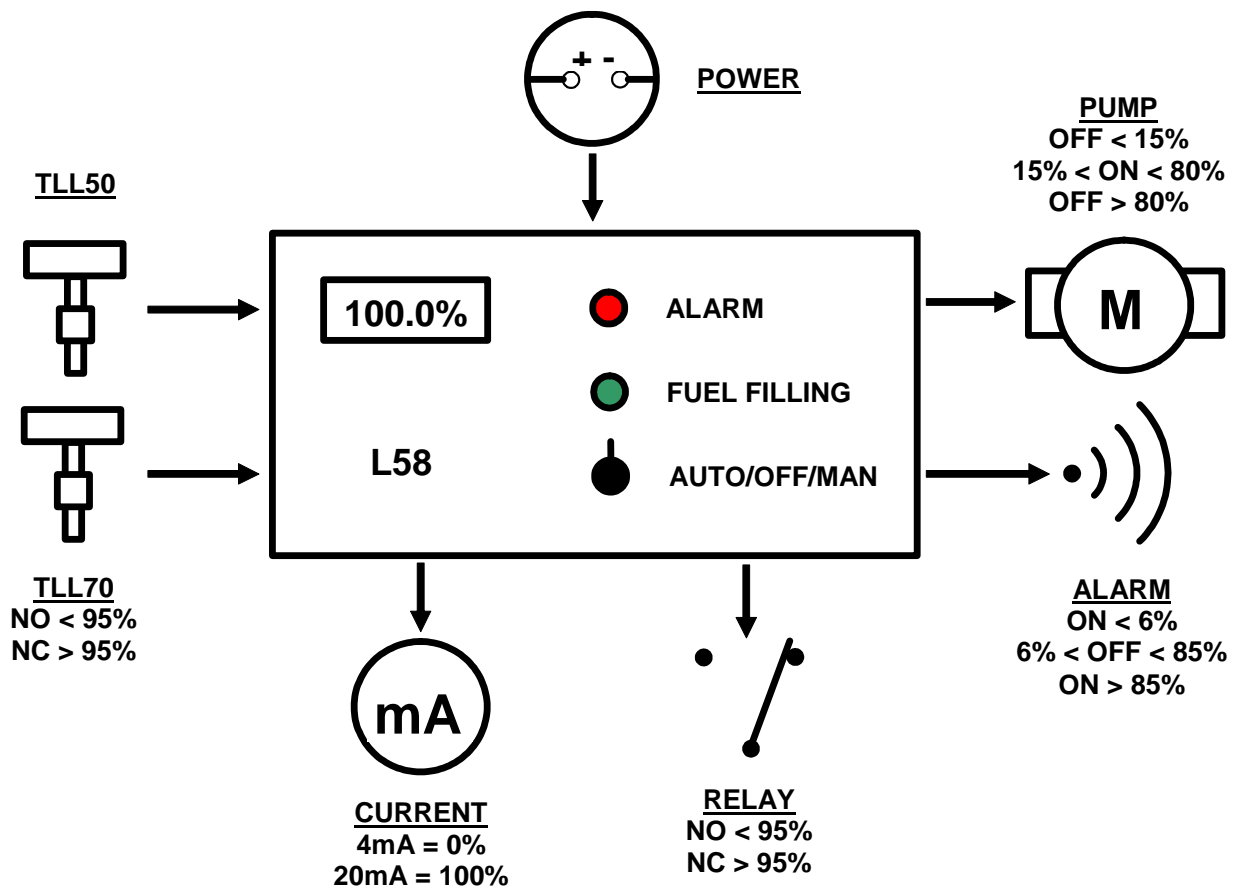
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## 6. 'Auto' Mode Operation

With the L58 Controller in 'Auto' (automatic) mode and assuming factory settings of;

- Relay 1 (High Alarm) set to 85%
- Relay 2 (High Fuel) set to 80%
- Relay 3 (Low Fuel) set to 15%
- Relay 4 (Low Alarm) set to 6%
  
- TLL70 High Level Switch set to 95%

The following diagram indicates the critical levels





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## **7. 'Man' Mode Operation**

When the L58 Controller is switched into 'Man' (manual) mode the pump can be activated at any fuel level below the TLL70 High Level Switch Point. It is necessary to hold the Auto / Off / Man switch in the 'Man' position.