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# **ST8100 Display System**

## **Addendum to Users Guide**



## Purpose of this Addendum

This document describes the enhancements made to the ST8100 Display System since publication of the Users Guide (Part No. 542030-004).

These include:

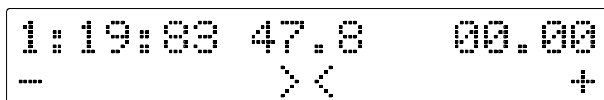
- The substitution of a predicted lap time for the relative time on the Predictive Lap Timer display layer.
- The fastest lap and its lap time may be displayed by pressing Switch 1.
- The ability to configure the ST8100 Display System to accept inputs from either a high range (0–150 PSI / 0–10 Bar) Fuel Pressure sensor or a low range (0–30 PSI / 0–2 Bar) Fuel Pressure sensor.
- The ability to adjust the duration for which the Lap Times pop-up message is displayed.

Modifications to the ST8100 Users Guide are described below with the page numbers to which they apply; all other parts remain unchanged.

## Standard ST8100 Display System Items (page 3)

The ST8100 Display System is now supplied with the following standard components:

| Quantity | Description   |
|----------|---|
| 1        | Display Module (ST86x) with 2 mounting brackets   |
| 1        | Wiring Harness (ST872)  |
| 1        | Oil Pressure Sensor (ST743, ST744, ST745 or ST746)  |
| 1        | High Range Fuel Pressure Sensor (ST743, ST744, ST745 or ST746)<br>Low Range Fuel Pressure Sensor (ST741 or ST742) |
| 2        | Temperature Sensors (ST760, ST761, ST762, ST763 or ST764)   |
| 4        | Switches (supplied with and to be connected to the wiring harness)  |

**Display Layer 4** (page 8)

Display layer 4 shows:

**Top Row**

- Best lap time
- Running time from start of lap
- Predicted time for this lap (this feature is active only if the Predictive Lap Timer has been purchased).

- **Bottom Row**

- A graphical comparison of this lap to the best lap (this feature is active only if the Predictive Lap Timer has been purchased).  
If the current lap is being driven faster than the best lap, the bar graph moves to the right showing an increase in speed.

**Resetting the Peak Values** (page 11)

If the engine is running **below** its gate value, the peak value for Fuel Pressure is not reset to the current value but is set to one of the following values depending on the Fuel Pressure sensor selected:

| Parameter                                    | New Peak Value       |
|--|----------------------|
| Fuel Pressure ( <i>high range selected</i> ) | 999 PSI or 99.9 Bar  |
| Fuel Pressure ( <i>low range selected</i> )  | 99.9 PSI or 9.99 Bar |

## Configuration mode (page 16)

With the addition of two items, the configurable parameters are now displayed in the following order:

| Configurable Parameter                               | Setting Required   |
|--|--|
| Wheel Circumference                                  | Set a value in the units of measurement indicated.   |
| Wheel sensor pulses per revolution (W.S. PULSES/REV) | Set the value to the number of ferrous targets that the wheel sensor is to count for each wheel revolution.                    |
| Engine Speed (Cylinders)                             | Number of cylinders in engine (for RPM).   |
| GATE RPM   | Minimum RPM for the Fuel Pressure, Oil Temperature and Pressure, and Water Temperature warnings to operate.                    |
| LOG RPM  | RPM at which the logging option is started.  |
| SHIFT RPM  | RPM at which gear shift light is to come on.   |
| HIGH WATER   | Maximum water temperature alarm.   |
| HIGH OIL T   | Maximum oil temperature alarm.   |
| FUELP SENSOR   | Match the system to the Fuel Pressure sensor fitted. After changing this option, always check the following LOW FUELP setting. |
| LOW FUELP  | Minimum fuel pressure alarm.   |
| LOW OIL P  | Minimum oil pressure alarm.  |
| LOW BATT   | Minimum battery voltage alarm.   |
| LAP TIME   | Set the duration to display the Lap Time pop-up. Also disables that pop-up.  |

## Setting or resetting configuration values (page 18)

The two additional configuration displays are shown below:

### Fuel Pressure Sensor:

```
EDIT OPTION  
150PSI FUELP SENSOR
```

```
EDIT OPTION  
30PSI FUELP SENSOR
```

UK and US Versions

```
EDIT OPTION  
10BAR FUELP SENSOR
```

```
EDIT OPTION  
2BAR FUELP SENSOR
```

EC Version

The default configuration for the ST8100 Display System is to interpret an input signal from a high range (0–150 PSI / 0–10 Bar) Fuel Pressure sensor. With this enhanced version it is possible to configure the system to interpret a signal from a low range (0–30 PSI / 0–2 Bar) Fuel Pressure sensor. This is achieved by pressing either Switch 1 or Switch 2 to toggle between the two ranges whilst the above screen is displayed. The subsequent Low Fuel Pressure display will be automatically configured to use a scale appropriate to the selected sensor.

**Remember that this option does not physically change the operating range of the Fuel Pressure sensor which is fixed at manufacture.** If a low range sensor is installed and the system is configured to interpret the signal from a high range sensor, the display will show incorrect high values!

**Lap Time pop-up duration:**

```
EDIT POPUP  
LAP TIME      8.0  on
```

Use Switch 1 to decrease the duration for which the Lap Time pop-up is displayed and Switch 2 to increase it. The Lap Time pop-up duration may range between 0.4 and 40.0 seconds in steps of 0.4 seconds.

It is possible to disable (switch off) or re-enable (switch on) the Lap Time pop-up by pressing and holding Switch 1 and then pressing Switch 2. Disabling the Lap Time pop-up will prevent it from appearing whenever triggered by the trackside beacon or by pressing Switch 4.

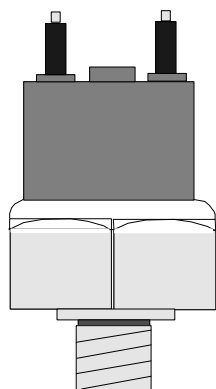
Note that even when disabled, the lap times will still be recorded.

## Fitting the pressure sensors (page 27)

The Display System is supplied with two pressure sensors; one for Oil Pressure and one for Fuel Pressure:

- The Oil Pressure sensor will always be one of the following high range (0–150 PSI / 0–10 Bar) types: ST743, ST744, ST745 or ST746.
- The Fuel Pressure sensor will be one of the following types:  
high range (0–150 PSI / 0–10 Bar): ST743, ST744, ST745 or ST746  
low range (0–30 PSI / 0–2 Bar): ST741 or ST742.

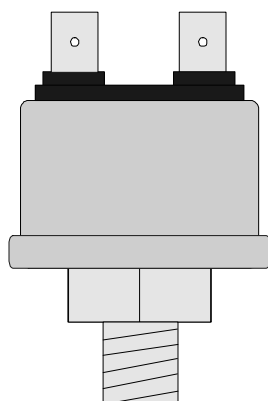
*The Display System must be set to the appropriate Fuel Pressure range to interpret these signals correctly.*



The ST744 pressure sensor has an M10 × 1 thread (UK, EC).

The ST745 pressure sensor has a 1/8" NPTF thread (USA).

The ST746 pressure sensor has a 1/8" BSP taper thread.



The ST741 pressure sensor has an M10 × 1 thread (UK, EC).

The ST742 pressure sensor has a 1/8" NPTF thread (USA).

The ST743 pressure sensor has a 1/8" NPTF thread (USA).



## Troubleshooting (pages 37 & 38)

| No. | Symptom   | Possible Cause                                | Remedy   | Notes  |
|-----|---|---|--|--|
| 7   | Fixed pressure reading of 999 PSI or 99.9 Bar                                   | Pressure sensor has failed                    | Replace sensor   |  |
|     | Fixed pressure reading of 99.9 PSI or 9.99 Bar (low range fuel pressure sensor) | Faulty sensor connections                     | Check continuity of sensor leads for open circuits                   | Pin D to the red OP wire, pin R to the red F wire and pin H to both the black OP and F sensor wires      |
| 8   | Fixed pressure reading of -99 PSI or -9.9 Bar                                   | Pressure sensor has failed                    | Replace sensor   | Disconnect sensor. If reading changes to that in [7] above, replace sensor                               |
|     | Fixed pressure reading of -9.9 PSI or -.99 Bar (low range fuel pressure sensor) | Faulty sensor connections                     | Check continuity of sensor leads for short circuits                  | Check the wiring harness for short circuit   |
| Add | Fuel pressure reading is either too high or too low                             | Incorrect fuel pressure sensor range selected | Reconfigure the system to use the correct fuel pressure sensor range | ST743, ST744, ST745 & ST746 use the 150 PSI / 10 Bar range<br>ST741 & ST742 use the 30 PSI / 2 Bar range |