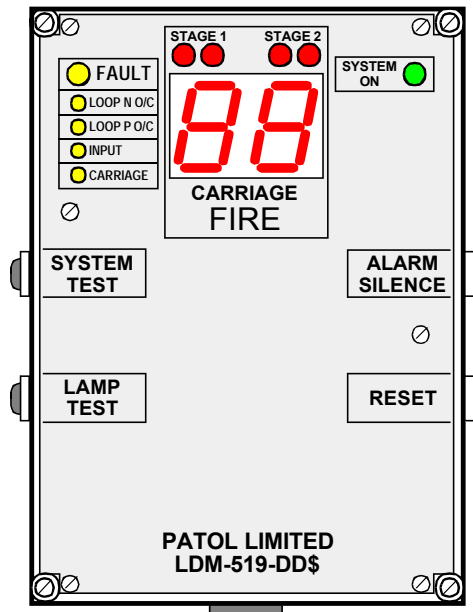


TRAFIX DRIVERS DISPLAY UNIT LDM-519-DDE **Rail Vehicle Fire Protection : Detection, Alarm & Control**



The Driver's Display Unit (DDU) forms part of the Patol TRAFIX - Train Fire Control System. The DDU is designed for installation at the driver's control position of the locomotive, and displays fire alarms and fault warnings related to the train's carriage fire protection equipment. The unit monitors the TRAFIX train signal bus scheme which is a two core cable loop interconnecting all train vehicles.

Both visual and audible warnings are provided, together with driver's alarm control push-buttons and test functions.

The unit is powered from the locomotive / train supply and has wide operating range.

The primary features of the display unit are:-

- .. **LED indication of 1st and 2nd stage alarms.**
- .. **Numeric display of initiating carriage.**
- .. **Audible warning and flashing indicator alarm sequences.**
- .. **System Test feature exercising all monitoring and alarm circuit channels.**
- .. **Specifically designed to automatically accommodate for differently marshalled train configurations and carriage orientations.**
- .. **Check feature includes numeric display of connected carriages.**
- .. **Integral Test, Alarm Silence and Reset push-buttons.**
- .. **Signal bus and carriage control equipment monitored for fault conditions**
- .. **Accommodates trains of up to 19 carriages.**
- .. **Wide d.c. train supply operation - 40 to 75 Vdc**

TRAFIX DRIVER'S DISPLAY UNIT LDM-519-DDE

Principles

Each carriage is equipped with fire protection and an associated TRAFIX Carriage Control unit (CCU).

Carriage interconnection cable are located at each carriage end. Each end is fitted with both male and female couplers in order to accommodate carriage reversals.

The TRAFIX Driver's Display Unit (DDU) is located in the locomotive. This is powered from the locomotive / train supply.

A train may be configured with between 1 and 19 carriages. Carriages may be coupled in either orientation. The locomotive is equipped with connectors at both ends and also may be operated in either direction. The free cables at the locomotive and last carriage are connected to the associated fixed socket

The system is self configuring and where the locomotive has a single driving position no further action is required from personnel.

Double ended locomotives with two driving positions will have two DDU's installed and the driver will select the appropriate position.

After marshalling the driver operates the DDU Reset PB. If the Train Signal line has been correctly coupled the Train Signal fault LEDs will extinguish.

If the train signal bus is not correctly connected or has a cable failure, the Fault indicators remain illuminated.

The location of a disconnection/fault may be targeted by analysis of the yellow Train Signal Fault LEDs at the DDU, and the orange Train Signal Indicators at the CCUs.

The driver may activate the DDU System Test feature. The Fire and Fault alarm channels will be automatically exercised in turn. The test sequence takes approximately 20 seconds.

At the end of the test sequence, if the Train Signal is correctly coupled, the numeric display will change to GREEN and indicate the number of carriages connected.

If any CCU registers a Stage 1 (A1) alarm this is annunciated at the DDU by means of flashing red A1 Fire LEDs and alarm sounder operation.

The numeric display will illuminate in RED and indicate the initiating carriage.

The driver may cancel the audible by means of the Alarm Silence push-button. The LEDs will steady.

If the CCU registers a Stage 2 (A2) alarm the A2 Fire LEDs will flash and the sounder will re-operate.

If any CCU registers a fault this is annunciated at the DDU by flashing LEDs and pulsed audible alarm.

When Fire and Fault conditions have been normalised the DDU indications may be cancelled by operation of the Reset push-button.

A block diagram is shown in Fig.1

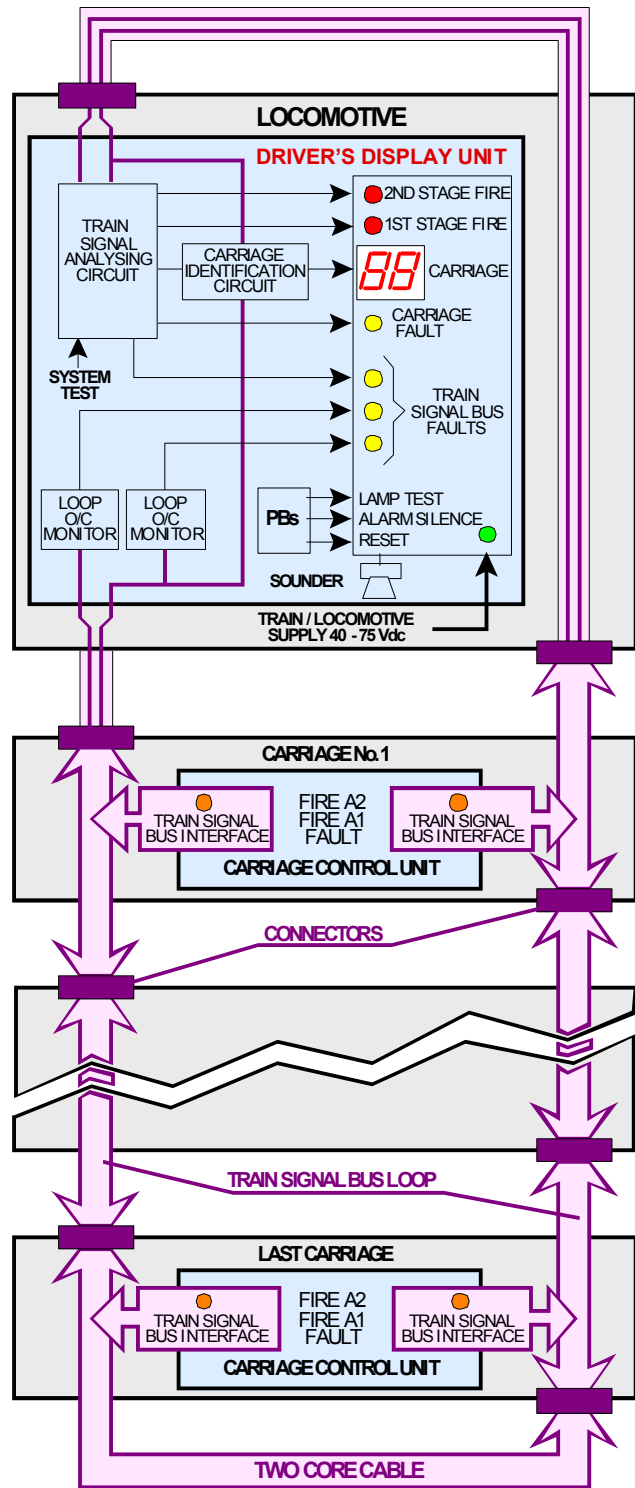
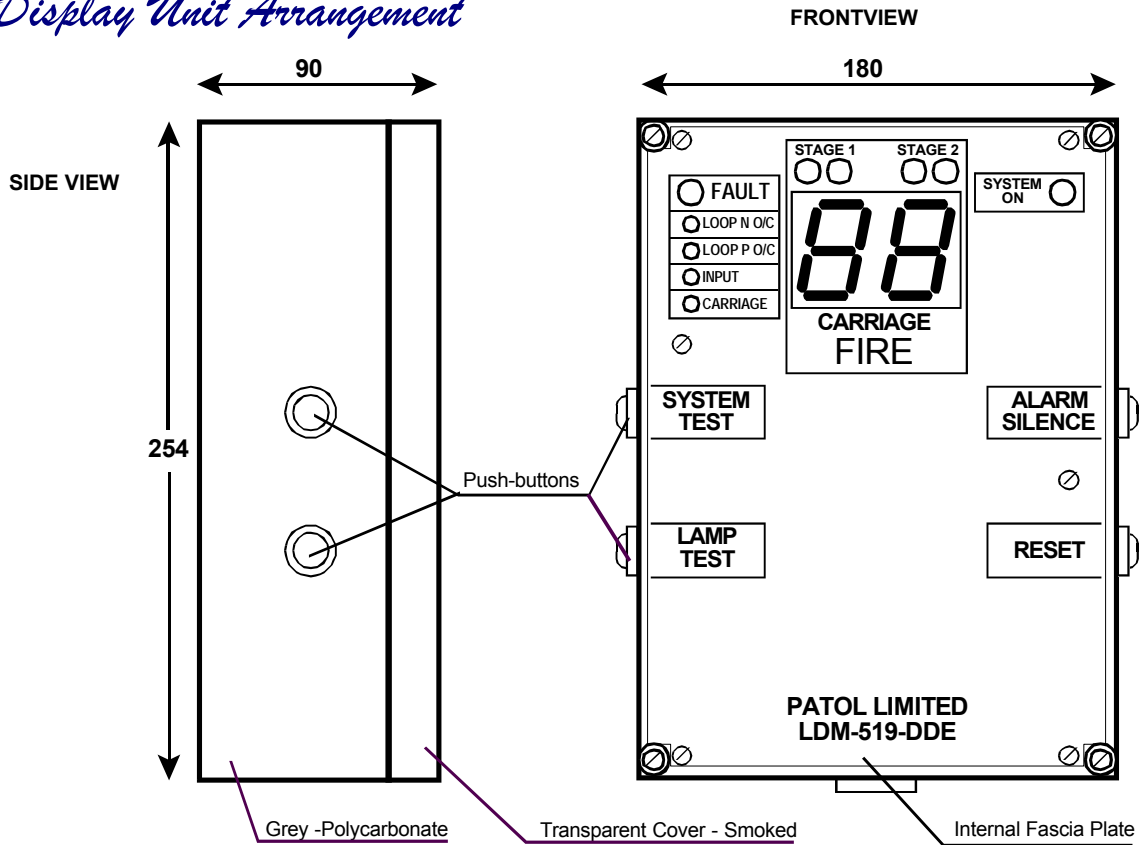


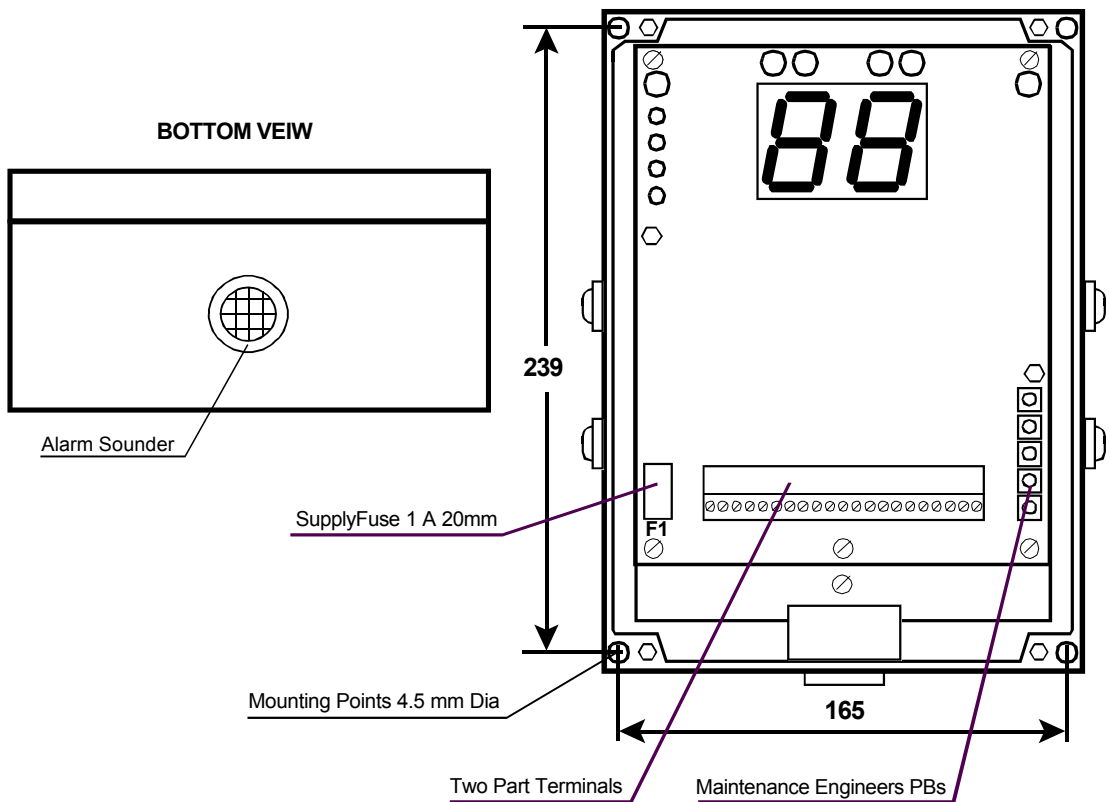
FIG.1

TRAFIX DRIVER'S DISPLAY UNIT LDM-519-DDE

Display Unit Arrangement



VIEW WITH COVER & FASCIA REMOVED



TRAFIX DRIVER'S DISPLAY UNIT LDM-519-DDE

Specification

Construction: Grey polycarbonate case with smoked transparent cover.
Size 254 h x 180 w x 90 d (mm)
Rating IP 67
Weight 2 kg

Train Supply:

Voltage: 40 Vdc to 75 Vdc
Current: Quiescent - 50 mA
 Max (Alarm) - 400mA
Fuse Protection F1 - 1A 20mm QB

Train Signal: 2 Core Bus Loop
 Monitored from both ends

Monitor Mode Differential Voltage
Carriage Fault 18.6 Vdc signal
A1 Fire 13.2 V dc signal
A2 Fire 7.2 Vdc signal
Input Fault Low Voltage - S/C
Return Fault - A Positive Loop Core - O/C
Return Fault - B Negative Loop Core - O/C
Interrogate Mode Constant Current Loop

Push-buttons:-

System Test Initiates DDU self test routine
Lamp Test Illuminates all fascia indicators - excluding carriage display.
Alarm Silence Accepts new alarms. Silences sounder & steadies LEDs.
Reset Resets latched alarm indicators

Alarm Indicators:-

Stage 1 Fire Twin Red LEDs 10mm
 A1 Alarm Trip.
Stage 2 Fire Twin Red LEDs 10mm
 A2 Alarm Trip.
System On Single Green LED 10mm
 DDU Operating.
Fault (common) Single Yellow LED 10mm
 Any fault as below.
Loop N O/C Single Yellow LED 5mm
 Negative return open circuit
Loop P O/C Single Yellow LED 5mm
 Positive return open circuit
Input Single Yellow LED 5mm
 Differential volts low / S/C
Carriage Single Yellow LED 5mm
 Any Carriage Control Unit Fault
 LHDC, Alarm, Brake, Supply, faults and Isolate operated.

Carriage Display:

Type Red/Green 2 digit 7 segment
Stage 1 Fire Initiating carriage number: **Red**
System Test Connected carriages: **Green**
Data Fault **FL** (Failed Loop) : **Amber**

Auxiliary Relay:

Operates on A2 Fire
Contacts 1 set - One pole change over
Rating 1 A @ 24 Vdc / 120 Vac

Connections & Locomotive Wiring

