Short Manual

DAVIT LCD Terminal

(Version 1.6)

Contents:

1.0 General Description

The two-line DAVIT LCD Terminal serves as a DAVIT MASTER device and displays average speed and distance-traveled measurements from a connected DATRON sensor. The DAVIT-LCD-Terminal can be set to display metric or english units via a single function key. A separate switch input enables the user to freeze the current speed display at any time.

The following DATRON sensors can be connected:
0 DLS 1, DLS 2, DLS 3, M2, M3, from version 1.6: DI 2

1.1 Hardware/pin assignment

Serial interface (back)
9-pin D-Sub insert

2:	TxD
3:	RxD
5:	GND

Power
4-pin Binder plug

1:	+ 12 V
2:	+ 12 V
3:	GND
4:	GND

Analog output
BNC insert

inside:	Signal
outside:	GND

Switch input
9-pin D-Sub plug

4:	+ 12 V
5:	GND
8:	Switch

2.0 Operation

2.1 Power-on

After power-on (with no sensor connected), the DAVIT LCD Terminal displays the message:

DAVIT-LCD Vx.x
Switch on sensor

Press the yellow key to select language (German or English) and display value units (kmh, m/mph, ft). All 4 combinations are possible. The last setting selected will be saved with power-down (from version 1.4).

2.2 Display adjustments

Adjustments to display contrast and backlighting are possible in any operation mode. Both adjustments are saved with power-down.

Lighting on/ off:
Press and hold green key, press red key: on/ off

Contrast adjustment:
Press and hold green key. Adjust contrast by pressing yellow key repeatedly until setting is as desired.
16 contrast levels are available. Upon reaching the highest level, the adjustment will return to the minimum setting. Changes in temperature may affect contrast level.

2.3 Master operation, sensor connection

The following sensors can be connected to the DAVIT LCD Terminal:
DLS 1, DLS 3, M2, M3, DI 2.
Connection may be made directly, or via 9-pin 1:1 extension cord.
Never power the sensor on until AFTER the display is powered-on. This is the only case in which the sensor assignment from TTL output to DAVIT can be guaranteed to operate properly. Additionally, the sensor must be configured to 115 kBaud (DLS program).

Immediately upon connecting a valid sensor to the display, the user will see the following:

37.3 kmh 0.0 m
/ LB Unit Reset

The upper line displays the sensor test values v and s in either metric or English units. The lower line displays the current key assignment. Display status can be seen at the bottom left. A rotating cross indicates data transfer between sensor and DAVIT LCD display.

2.4 Operation in DAVIT master mode

At any time while the display is in operation, the user can toggle between metric and English units by pressing the yellow key.

Pressing the green key resets the distance reading to 0.

By pressing the red key, the user can trigger the light-barrier input, freezing the speed reading on the display. The distance reading will simultaneously reset to 0 and the terminal will display the distance-traveled after the speed value is frozen. The status display changes from a rotating cross to a blinking '*' to indicate operating mode. The ongoing distance-traveled measurement value will be displayed until speed reaches 0. When 0 is reached, the coast-down or braking distance value will be saved (from version 1.6).

To return to standard display mode, press the green reset key.

The first position on the display indicates the status of the light barrier input. An arrow (←) will appear when the light barrier is connected and active. No indicator will be present in this position when the input is inactive.

2.7 Program run

In standard operation, the display attempts to find a connected sensor every 3 seconds. MASTER mode demands new data from the sensor every 10 ms. Acquired speed and distance are saved. Data view on the DAVIT LCD Terminal is refreshed approximately every 250 ms, light-barrier inquiry every 52 µs.

Within a few seconds of disconnecting a sensor, the DAVIT LCD Terminal will display the power-up message, indicating that it is ready to accept a new sensor connection.

3.0 Service

3.1 Error messages

Due to the use of floating-point format calculations, a PIC with multiplication is required. When used with a PIC of the wrong type, the error message **'wrong PIC-Version'** will be displayed. DAVIT LCD software cannot run on this PIC.

Further errors:
Error with EEPROM handling: **'EEPROM-Error!'**
Interrupt error: **'Interrupt- Error'**
Error with floating-point calculation: **'Float-Error: xx'**
Byte xx is the error binary code:

- b0: integer overflow
- b1: floating-point overflow
- b2: floating-point underflow
- b3: division by zero
- b4: not-a-number exception
- b5: floating-domain error

Error messages can be deleted by pressing any key (exception: cyclic appearance). Generally, there should be no errors in operation. An error message indicates a hardware error.

3.2 Test mode

Pressing the green key for longer than 5 seconds sets a test flag. Test flags must be reset with any power-up. After sensor connection a digit will appear in the last position of the display, indicating the number of communication errors since sensor connection. This number must be 0.