SmartReader

Combined reader for tachograph charts and tachograph cards

With the introduction of digital tachographs, it has become mandatory to collect and check tachograph data. Where drivers use vehicles both with digital and analogue tachographs it is now important to be able to analyse data from analogue charts along with the data from digital tachographs.

The SmartReader is a tachograph chart reader with the option of a tachograph card (smart card) reader for use with an external computer with appropriate drivers' hours analysis software. It is suitable for use with almost any drivers' hours analysis software package, and has been selected by several suppliers of drivers' hours analysis software.

Convenience

The SmartReader is designed for comfortable hand-held operation. All the controls needed whilst entering data from charts are on the unit. The duty buttons naturally fall under the thumb of one hand whilst the chart table is easily rotated by a finger of the other hand.

By rotating the chart by hand and indicating duties manually, any editing of the chart trace can be carried out as the chart is being scanned, thus avoiding the need to edit the data later. Scratched or dirty charts are easily handled. Whilst entering the data from the chart, any other chart errors can easily be recognised without needing an additional stage in the process.

Whilst entering data from smart cards the unit is entirely controlled from the associated computer and software.

Installation – USB

The SmartReader USB version has a cable that provides a data connection to the associated computer. The USB connector on the end of this cable should be connected to a standard USB port on the computer or to a port on a USB hub which is itself connected to the computer.

The power for the SmartReader USB version is provided from the connected computer via the USB cable. In this case there is no need for batteries or mains adapter.

Suitable USB driver software is available suitable for use with Windows versions from 98SE up to and including Windows 10. USb drivers are also available for Linux and MAC OS. Having connected the SmartReader to the associated computer, the driver must be installed in the normal way. After installation, the SmartReader will be recognised as an additional COM port. The drivers hours software must be instructed to communicate with the SmartReader via that COM port.

Power-On Indicator

There is a single green LED on the front of the unit. This is illuminated whenever the unit is on and the battery (or external supply) voltage is sufficient. When the batteries are nearing the end of their life the green LED will start to flash, thereby indicating 'low battery'. When the battery voltage is too low for reliable operation the green LED will no longer illuminate.

The on/off state of the unit is controlled externally via the data cable. When batteries are inserted the unit will generally remain in the 'off' state until turned on by the external computer.

Controls – Chart Reading
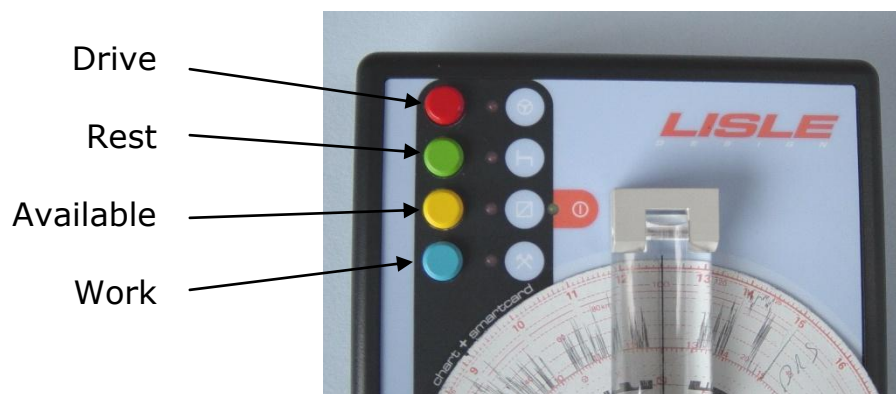
On the front of the SmartReader there are four buttons used when analysing tachograph charts. These correspond with the four types of duty recorded on tachograph charts:

Red – Drive
Green – Rest
Yellow – Available
Blue - Work

Each has a corresponding red LED that lights when that duty has been selected.

Inside the unit is a chart table with its knurled rim protruding from the side of the unit. This is available for rotation of the chart. The chart should only be rotated using this knurled rim – rotating the chart itself is likely to cause damage to the centre of the chart.

On the front of the unit is a pear-shaped boss on the rotating chart table. The chart to be read is fitted under the lens and onto the boss taking care not to damage the hole in the chart. The lens has a cursor identifying the selected time and magnifies the trace either side of the cursor.

Smart Card slot

Wheel for turning chart

Controls – Smart Card Reading

There are no controls associated with the smart card reader. The unit switches automatically to smart card mode when a card is inserted, and switches back to chart reading mode when the card is removed. With a card inserted all control of the unit is carried out from the external computer.

Chart-reading mode calibration

When the SmartReader is first switched on it is initially uncalibrated. This is indicated by one of the red LEDs flashing. Calibration is carried out as follows.

Insert a chart. Rotate the chart until midnight is exactly under the cursor on the lens. Press and hold (any) one of the buttons for two seconds. At the end of two seconds all the red LEDs will light until the button is released again. The unit is then calibrated and the red LED will stop flashing.

The calibration of the SmartReader is maintained until the power is removed. It is therefore not essential to recalibrate for each individual chart. However there is always some variability when fitting a chart over the pear-shape on the chart table. Some charts are a snug fit: other charts are looser. It may be beneficial in some cases to recalibrate immediately prior to reading a chart.

It should be recognised that the only effect of use of the unit uncalibrated is that the start time may be incorrect. The type and duration of all activities will still be identified correctly. The associated software package will generally have a function whereby the start time can be corrected to match the chart. After this correction then all the activities will be shown with the correct times.

Data entry from charts

Prior to entering data from a chart, the appropriate function must be selected on the drivers hours software package. As each segment of trace is entered, data is transferred to the computer, and (depending on the capabilities of the software application) may be shown on the screen.

After fitting of a chart and calibration of the SmartReader (as appropriate), the chart table with fitted chart should be rotated so that the beginning of the earliest trace of interest is immediately below the cursor. Then press the button corresponding with the trace immediately after the cursor. The LED

corresponding with that button will illuminate. Rotate the chart to the end of that segment of the duty trace.

Both forwards and backwards rotation of the chart are recognised correctly by the unit. Thus if a chart is rotated past the end of a duty segment and then back to the correct position, then the correct time will be recorded. However, if the end of one trace segment is recorded and then the end of the next segment is recorded as earlier than the end of the previous segment, the latest segment will be recorded as if the chart had actually been rotated forwards. Thus a segment entered as (for instance) minus 1 hour will be recorded as plus 23 hours.

On reaching the end of a segment, position the end of the trace exactly under the cursor. Now press the button corresponding with the duty of the next segment of the trace. On pressing the new button the data relating to the segment of trace just completed will be transferred to the computer and the new LED will light.

Continue in this way, rotating the chart to the end of a segment of trace and then pressing the button corresponding with the next segment until the end of the trace is reached.

At the end of the chart trace, rotate the chart until the end of the trace is exactly under the cursor. Then press the button with the illuminated LED (corresponding to the trace just completed). The LED will go out and data relating to the last segment will be transferred to the computer together will data indicating that reading of that trace has now been completed.

Use with tachograph cards

In order to read a tachograph card, insert the card into the card slot in the end of the unit. Make the appropriate selection on the associated drivers hours software package. The data from the smart card can then be read. The resulting data can then be analysed as required using the normal facilities of the chosen software package.

Communication Protocols

When the SmartReader is to be used with software not yet supporting the SmartReader, then knowledge of the protocol used between the SmartReader and the associated computer will be needed. This can be provided by arrangement.

Specifications

Dimensions	Case - 190mm high x 135mm wide x 45mm deep
Cable length	1.8m
Weight	550g

For more information please contact:

Lisle Design Ltd
New Technology Centre, North Haugh, St. Andrews, KY16 9DA, Scotland
Tel: +44 (0)1334 471435, Fax +44 (0)1334 471438
E-mail info@lisledesign.com, Web www.lisledesign.com