T8520 Rev C
Modular Driver Display System

**Feature Summary
and
System Specifications**

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T8520	C0	12/1/12	Lectronix Proprietary and Confidential
Specifications are subject to change without notice.			

Feature Summary

The T8520 provides the operator of heavy vehicles the first truly open architecture unit with comprehensive information processing, communication, and high resolution TFT LCD. This system features a state of the art 1 GHz ARM Cortex A8 32bit processor, 512Mbytes SDRAM, 4Gbytes Flash, 3D graphics accelerator, built in WIFI and uses Android – the world's most popular mobile operating platform. The T8520 is based off a low power architecture optimized for the harsh heavy vehicle environment.

The T8520 advanced architecture provides the processing power and communication resources to allow for future Andriod applications.   These applications may even be offered by the OEMs, thus increasing the OEM revenue stream from the vehicle.

- Hours of Service
- Performance monitoring
- CSA Safety Performance
- Driver Analytics
- Critical Event reporting
- Fleet Management

Features of the T8520 include:

Android

The T8520 uses the Android operating system which is supported by a large community of application developers. More than 500,000 applications are currently available and Android is the most widely used operating system in the world. The Android applications that come with the T8520 are:

Calculator	Application Launcher	Gallery
Camera	Sound Recorder	Settings Configurator
Clock	Music	Ivona Text to Speech
Browser	Calendar	Media Playback

Navigation System Software (Optional)

Navigation is optionally provided by ALK CoPilot for Trucks. The Navigation Software provides street-level digital maps of the North American Road network (United States, Canada, and Mexico). Detailed features of the Navigation system include:

- Seven million points of interest
    - Truck-specific categories including truck services, truck stops, rest areas, weigh stations, CAT Scales
    - Custom POI support for OEMs and fleets
- Truck specific routing
    - Vehicle height, weight, width and length limits
    - Low bridge heights and clearances
    - Left-hand and dangerous turns
    - No U-turns for trucks
    - Hazardous materials restrictions
- Powerful route calculation
    - Calculate routes using industry-standard PC*MILER mileage
    - Optimize routes by reordering up to 50 stops
    - Detour button to instantly find an alternative route
- State mileage logs to provide an accurate record for billing and tax calculation
- Advanced Premium Navigation features
    - Clear 2D, 3D and Driver Safety views
    - Detailed voice instruction using Text-to-Speech technology to pronounce full street names
    - Lane Assist: Real sign post information combined with lane indicator arrows provide clear guidance to which lane to take
    - CoPilot ClearTurn™: Get a clear, realistic view on the approach to complex intersections and highway exits

Please contact ALK for the latest product information.

Vehicle Run-Time Information and Diagnostics System

The T8520 monitors vehicle information via a direct connection to the vehicles J1939 bus. Over 30 vehicle operating parameters are monitored. Out of range information is provided to the operator as alerts (ex. Low oil pressure) so action can be taken before it becomes a serious truck or driver problem. Views of vehicle data are categorized in five convenient truck classifications. They are:

- Engine and Transmission Operating Parameters
- Road and Fuel Economy
- Environmental Data
- Electrical System Performance
- Tire Pressures per wheel, with actual pressure values.

The T8520 also provides the operator with additional useful information that includes:

- Driver alerts for faults
- Maintenance scheduling with reminders
- Advanced trip computer with per-trip mileage, fuel usage, and time. Mileage is automatically logged by State for tax purposes.
- Driver checklist(s) for routine inspections and procedures
- Checklists for driver inspections are supported and can be easily customized for fleet specific applications. The checklist tasks can be organized into fleet-defined routines such as pre-trip or post-trip
- Tire pressure monitoring, alerting and pressure display

Standard Features

The T8520 provides the operator with many standard features such as:

- USB port for software and map updates
- GPS (external antenna required)
- WIFI 802.11bgn (built in antenna)
- J1939 CAN interface
- A single NTSC camera input
- A single stereo line output with an auxiliary J1939 output for audio control
- An RS-232 serial port for future expansion
- Customized OEM / fleet graphics can be provided (contact Lectronix for further details)
- Keep your system up to date with Lectronix software updates with your paid-up service plan

Optional Features

- Cellular Interface   (3G Modem with SIM card)

The Cellular option provides a means to implement a complete fleet management solution as an Android application.   This will allow one piece of equipment to act as the Telematics Gateway and the driver's information system.

Technical Specifications

Power and Grounding

Automotive nominal 12 volt, negative ground power

Mechanical Form Factor

Width 190 mm
Height 110 mm
Depth 70 mm

Environmental

Designed to meet SAE J1455 standards

Operating range: -30 to 70°C
Storage range: -40 to 85°C

Camera Inputs

- One(1) NTSC Video
- Video level 1Vp-p (75 ohms).

Standard In-Dash Display

- Color TFT LCD Flat Panel
- Resolution: 800 x 480 pixels
- Diagonal size: 6.5 inch
- Luminance: 360cd/m2 (typical)
- Response time: 22msec (typical)
- Contrast ratio: 300 (typical)
- Minimum LED half life: 10,000 hrs

GPS Performance

- 50 Channel, L1 frequency
- Accuracy – 2.5m horizontal
- Acquisition time
    Hot: < 1 sec
    Warm: ~ 32 sec
    Cold: ~ 32 sec
- Update Rate – 4 per second

Audio Out

- Stereo line out
- Audio On/Off request output (to external radio)
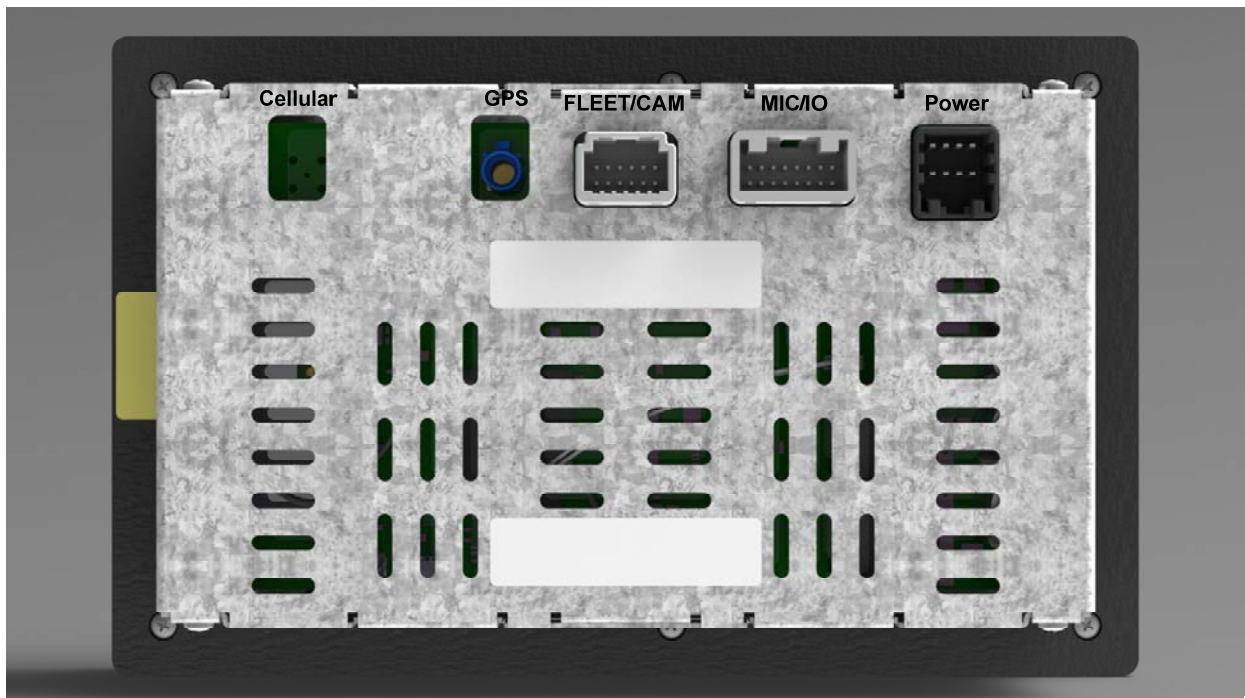
WIFI

- 802.11 b/g/n
- Internal Antenna

Connection Summary

A summary of the T8520 connections is shown in the following table:

External Connections Summary	
Vehicle Power	
VIN+ & VIN-	Raw vehicle battery voltage and return
Audio Output	
Audio Line Output	One (1) stereo line level output
Video Input	
Camera (unpowered)	One (1) differential camera input
Vehicle Input	
Accessory	Input status for key accessory indications
Vehicle CAN Bus	One (1) primary J1939/CAN network interface
Accessory CAN Bus	One (1) secondary J1939/CAN network interface
Serial Input	
USB	One (1) USB ports, Version 2.0 compliant (front)
Fleet Interface	RS-232 (RX and TX)
Mass Storage	
SD Card	One (1) SD Card interface (front)
Antenna Input	
GPS	GPS antenna (antenna not supplied with system)

Note: Table does not include unused I/O

Rear panel connector locations are shown below:

Connector Definitions

Vehicle Power (Rear)

Connector: AMP, 174971-2
Connector Mate: AMP, 174044-2
Connector Pin out:

Pin Number	Description	Pin Number	Description
1	VBATT+	5	EGND
2	VBATT-	6	ACC_CAN+
3	ACC_IN	7	ACC_CAN-
4	(reserved)	8	(reserved)

Fleet Management/ Camera (Rear)

Connector: AMP, 1473898-1
Connector Mate: AMP, 1717106-1
Connector Pin out:

Pin Number	Description	Pin Number	Description
1	Camera Input 1-	7	Earth Ground
2	Camera Input 1+	8	No Connect
3	No Connect	9	RS_232_TXD
4	No Connect	10	RS_232_RXD
5	(reserved)	11	Earth Ground
6	(reserved)	12	Digital Ground

MIC/IO (Rear)

Connector: AMP, 1565476-1
Connector Mate: AMP, 1717109-1
Connector Pin out:

Pin Number	Description	Pin Number	Description
1	Digital Ground	9	(Reserved)
2	(reserved)	10	Earth Ground
3	(reserved)	11	Audio_L+
4	(reserved)	12	Audio_R+
5	(reserved)	13	Audio_LR-
6	(reserved)	14	Audio_ON/OFF
7	(reserved)	15	Earth Ground
8	Vehicle CAN +	16	Vehicle CAN -

USB (Front)

Connector: Type A
Connector Mate: Type A
Connector Pinout:

Pin Number	Description
1	USB +5V Power
2	USB -
3	USB +
4	USB GND

GPS Antenna (Rear)

Connector: Amphenol, FA1-NCRP-PCB-6A
Connector Mate: Amphenol, FA1-NCSJ-C04-0 (Female) or equivalent
Connector Pinout:

Pin Number	Description	I/O
1	Center	Antenna
2-5	Outer Shell	GND