SMART BOX

Digitax
AUTOMOTIVE ELECTRONICS

SMART BOX

Empower your smartphone Mobile Apps with every automotive HW/SW interface

Smart Box is the revolutionary and innovative device produced by Digitax. It was created to transparently interface data from any vehicle HW/SW system to a specific Android APP installed on a standard SmartPhone or Tablet, making the consumer device a powerful mobile data terminal and/or telematics device, able to function as e.g. Display & Navigation, Job Dispatch, Driver Console/Communication, On-board Mobile Data Terminal, Monitor, Diagnostics etc.

Normally SmartPhone/Tablet based fleet management applications encounter some limitations in HW/SW interfacing with all the data of the vehicle's electronic systems, not allowing many interesting functionalities typical of dedicated black boxes or professional mobile data terminals to be developed on the APPs.
Basically it consists of an extension the functionality of Android apps on smartphones or tablets, enhancing the two-way communication with the vehicle, while the smart device battery recharges simultaneously with the data transmission (wired connection in USB-C).

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The Smart Box comes with a simple and ready-to-use Android SDK that allows you to easily integrate often complex interfaces like CAN bus and Inputs/Outputs with your Android Apps.

Exclusive AITP (Automotive Intense Task Processor) interfaces through SDK:

- Odometer input
- RS232
- OBDII ELM327 stack
- Can Bus with FMS and J1939 stack
- K-Line
- Digital I/O
- Analog inputs
- Digital Inputs
- Ignition input
- Lights input
- Power Outputs
- Panic button input
- One wire serial protocol
- Automotive 8/32V power input

Android OS transparent standard interfaces:

- Ethernet
- USB Type A
- RS232
- RS485
- Audio In/Out

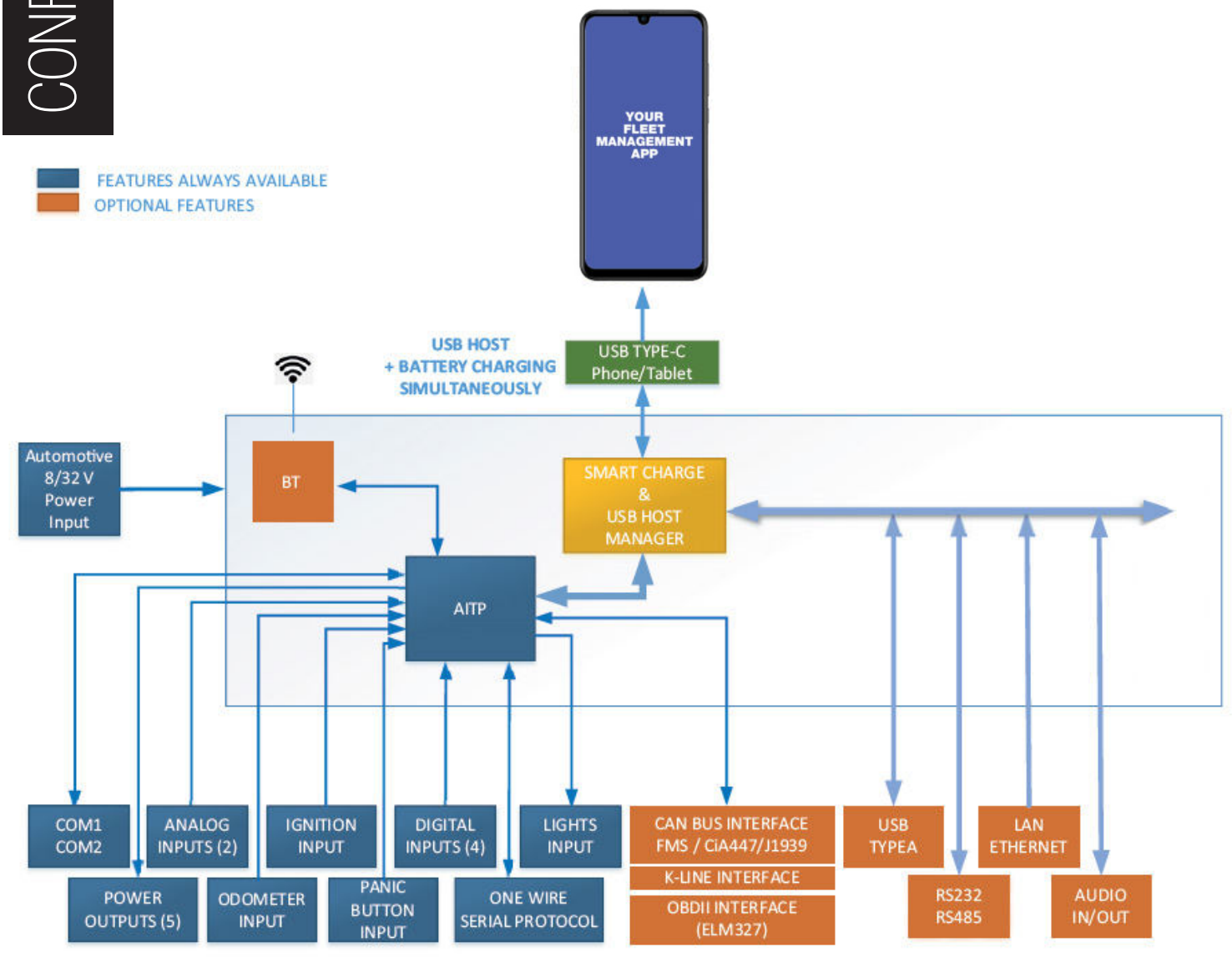
Available Versions:

- Wireless
- Bluetooth
- WiFi
- Digitax smart Box “Base”
- Digitax smart Box “Pro” Base + Smart Android platform, 4G modem, GPS, Bluetooth, WiFi

CONFIGURATIONS

SMART BOX BASE

Your
Fleet Management App



Digitax AUTOMOTIVE ELECTRONICS

CONNECTIONS

Connector AITP COM 2 (A)
PIN 1 = +12V/+5V
PIN 2 = RX COM3 SPLIT
PIN 3 = TX COM3 SPLIT
PIN 4 = GND
PIN 5 = PIO0
PIN 6 = PIO1
PIN 7 = GND
PIN 8 = RX COM2
PIN 9 = TX COM2
PIN 10 = +12V/+5V

Connector CAN BUS / ANALOG INPUT (C)
PIN 1 = ANA3
PIN 2 = ANA4
PIN 3 = ANA5
PIN 4 = ANA6
PIN 5 = K-LINE
PIN 6 = CAN2-L
PIN 7 = CAN2-H
PIN 8 = GND
PIN 9 = CAN1- L
PIN 10 = CAN1-H

Connector J30 Can bus (E)	
1	GND
2	GND
3	+10V to + 24V External Power Supply
4	+10V to + 24V External Power Supply
5	Panic button
6	Digital input 1
7	Ignition input
8	Digital input 2
9	Vehicle wheel pulses (Odometer)
10	Digital input 3
11	+Light (Car light input)
12	Digital input 4
13	Passenger Sensor Input
14	Analog input 1
15	Power out 5 – Solid state relay 3A
16	Analog input 2
17	Power out 4 – Solid state relay 1A
18	Power out 1 – Solid state relay 1A
19	Power out 3 – Solid state relay 1A
20	Power out 2 – Solid state relay 1A

Connector AITP COM 1 (B)
* PIN 1 = AUDIO IN -
* PIN 2 = AUDIO IN +
* PIN 3 = AUDIO OUT -
* PIN 4 = AUDIO OUT +
PIN 5 = AUX 1
PIN 6 = AUX 2
PIN 7 = GND AITP COM 1
PIN 8 = RX COM 1 AITP UART 4
PIN 9 = TX COM 1 AITP UART 4
PIN 10 = +12V/ +5V by JUMPER

Connector COM Ports (D)
PIN 1 = +12V/+5V
PIN 2 = RX COM2
PIN 3 = TX COM2
PIN 4 = GND
PIN 5 = NOT USED
PIN 6 = NOT USED
PIN 7 = GND
PIN 8 = RX COM1
PIN 9 = TX COM1
PIN 10 = +12V/+5V

Connector USB HOST (F)

Connector ETHERNET LAN (G)

* Not yet implemented features

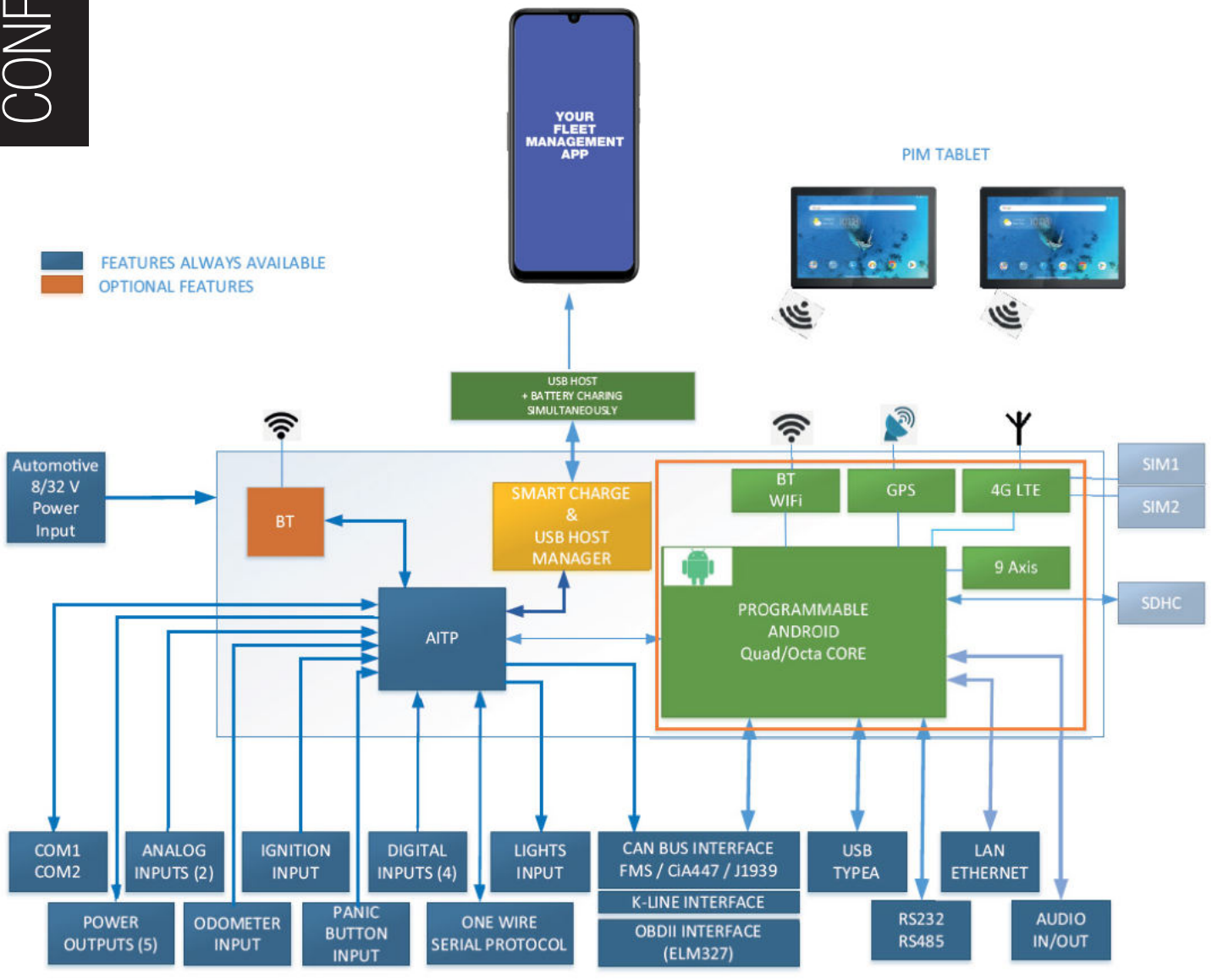
* Audio and video features are available only on some specific Android devices

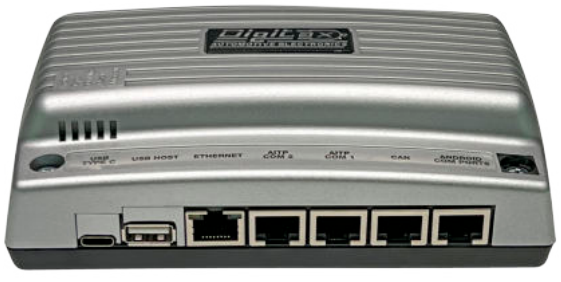
Technical specifications and external appearance are subject to change without notice

CONFIGURATIONS

SMART BOX PRO ANDROID

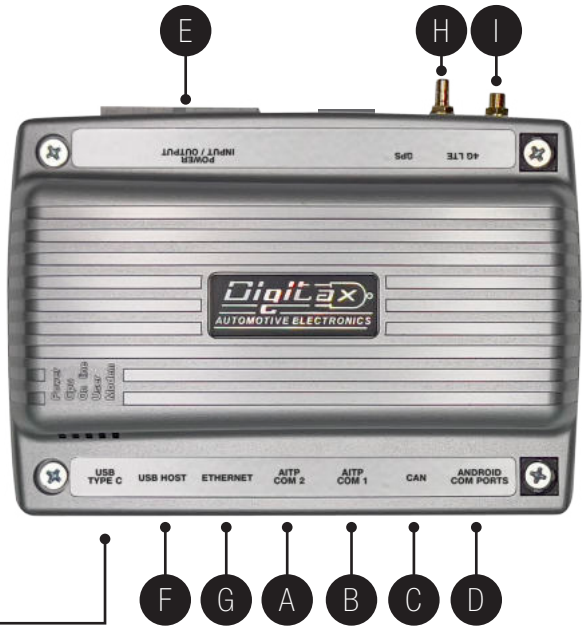
Your
Fleet Management App





Digitax AUTOMOTIVE ELECTRONICS

CONNECTIONS



Connector AITP COM 2 (A)
PIN 1 = +12V/+5V
PIN 2 = RX COM3 SPLIT
PIN 3 = TX COM3 SPLIT
PIN 4 = GND
PIN 5 = PIO0
PIN 6 = PIO1
PIN 7 = GND
PIN 8 = RX COM2
PIN 9 = TX COM2
PIN 10 = +12V/+5V

Connector CAN BUS (C)
PIN 1 = ANA3
PIN 2 = ANA4
PIN 3 = ANA5
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PIN 6 = CAN2-L
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PIN 9 = CAN1- L
PIN 10 = CAN1-H

Connector J30 Can bus (E)	
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18	Power out 1 – Solid state relay 1A
19	Power out 3 – Solid state relay 1A
20	Power out 2 – Solid state relay 1A

Connector AITP COM 1 (B)
PIN 1 = ANDROID AUDIO IN -
PIN 2 = ANDROID AUDIO IN +
PIN 3 = ANDROID AUDIO OUT -
PIN 4 = ANDROID AUDIO OUT +
PIN 5 = AUX 1
PIN 6 = AUX 2
PIN 7 = GND AITP COM 1
PIN 8 = RX COM 1 AITP UART 4
PIN 9 = TX COM 1 AITP UART 4
PIN 10 = +12V/ +5V by JUMPER

Connector COM Ports (D)
PIN 1 = +12V/+5V
PIN 2 = RX COM2
PIN 3 = TX COM2
PIN 4 = GND
PIN 5 = ANDROID DEBUG SERIAL TX
PIN 6 = ANDROID DEBUG SERIAL RX
PIN 7 = GND
PIN 8 = RX COM1
PIN 9 = TX COM1
PIN 10 = +12V/+5V

Connector USB HOST (E)

Connector ETHERNET LAN (F)

Connector GPS (G)

Connector 4G LTE (H)

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DATA SHEET

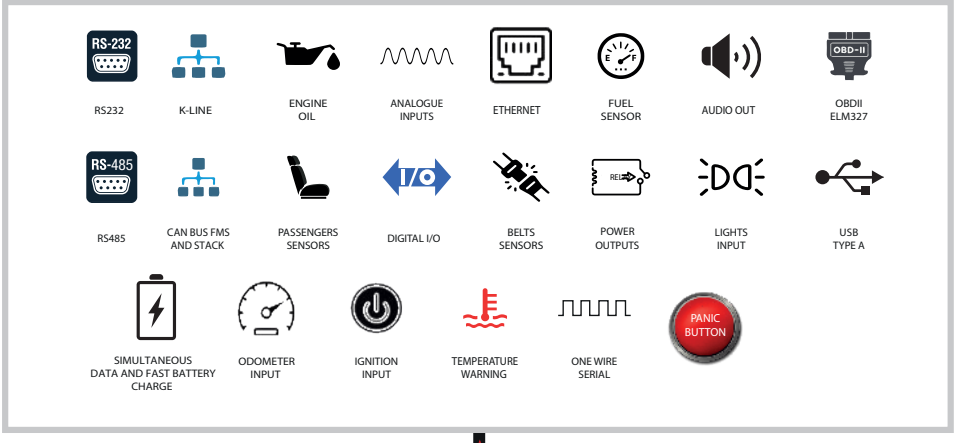
SMART BOX PRO
ANDROID

CPUs	Fanless Device with Primary CPU Qualcomm MSM8909 chipset, Quad-core ARM Cortex-A7 64-bit CPU @1.1GHz. Adreno 304 GPU: OpenGL ES 3.02, OpenCL3, content security, and decreased power consumption. AITP (Automotive Intensive Task Processor) Cortex ARM CPU processor for Taximeter and Automotive Intensive Tasks.
Ram Memory	+2GB LPDDR3
Can Bus	Double Can Bus interface OBD-II OBD2-FMS Stack
Alarm and Security	Panic Button input / Emergency Switch input Internal Anti Tamper sensor
Power Supply	8 - 32 V with Surge Protector
Battery	Internal Battery Package (option)
Inertial Platform	9-axis inertial platform to detect vehicle movement and crash situations
Multimedia	Audio: MP3, AAC+,eAAC, AMR-NB, -WB, G.711, WMA 9/10 Pro Video: Encode:30fps 720P (H.264), 30fps WVGA (MPEG-4/VP8) Decode:30fps 1080P (H.264/MPEG-4/VP8/H.265 DivX4/5/6), 30fps WVGA (H.263)
Remote Desktop Display	Possibility to view Android desktop from remote devices through Wi-Fi connection or wired LAN connection.
Operating Temperature	-20°C to 75°C
Humidity	Humidity up to 95% non-condensing.
Vibration	Vibration Sine wave, 10 ~ 500 ~ 10Hz, 1.5G, 0.37oct/min 3 axis, 1hour/axis.
Storage Solid State Hard Disk Memory	16GB EMMC
SD	Up to 256 GB for external storage
Communication Modem	LTE Cat 4 GSM / GPRS Class 12 HSUPA Modem with 150Mbit/s downlink and 50Mbit/s uplink data rates based on LTE network (max) 1 Sim Card slots.
GPS Receiver	Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment.
Antennas	Internal GPS-WiFi-BT-LTE or External GPS-WiFi-BT-LTE Rugged Combo antenna (option)
USB Ports	1 USB 2.0 Host (with USB Support for Mouse and Keyboard) Hi-Speed 1 USB 2.0 / OTG Host / Device to debug and O.S. settings
API provided	Soft/Hard Reset Soft Reset available through HW switch Soft Reset available through API calls
Connectivity	Ethernet: 10/100 Mbps LAN Controller Wi-Fi Connection 2.4G/5.8G, 802.11 a/b/g/n Bluetooth class 2 BT2.1+EDR/3.0/4.1 LE
Operating System	Android 7.X Development Tools Adb/Android Studio IDE with USB debugging support SDK for Android O.S. Sample code for SDK Digitax Framework (Digitax Libraries): GPS, Odometer, Taximeter, Hardware Keys, WatchDog, OTA, Stealth Mode Controller, Logs, And Restore, Light Dimmer, Hardware Identification, Alarm, Card Reader and Windows Status Serial port driver and test tools Digital I/O driver
Dimension	155mm x 110mm x 45mm (WxHxD)
Weight	325 gr

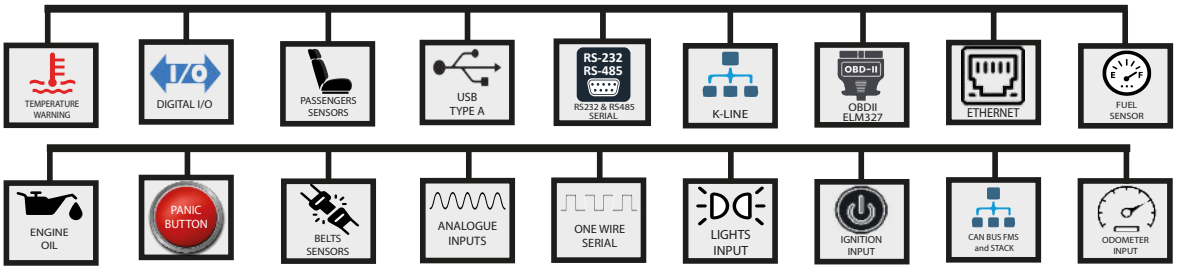
SMART BOX

AVAILABLE AN SDK WITH HIGH LEVEL INTERFACE LIBRARIES THAT ALLOW A FULL AND SIMPLE ACCESS TO ALL RX/TX VEHICLE HW/SW DATA

HIGH LEVEL INTERFACE LIBRARIES SDK

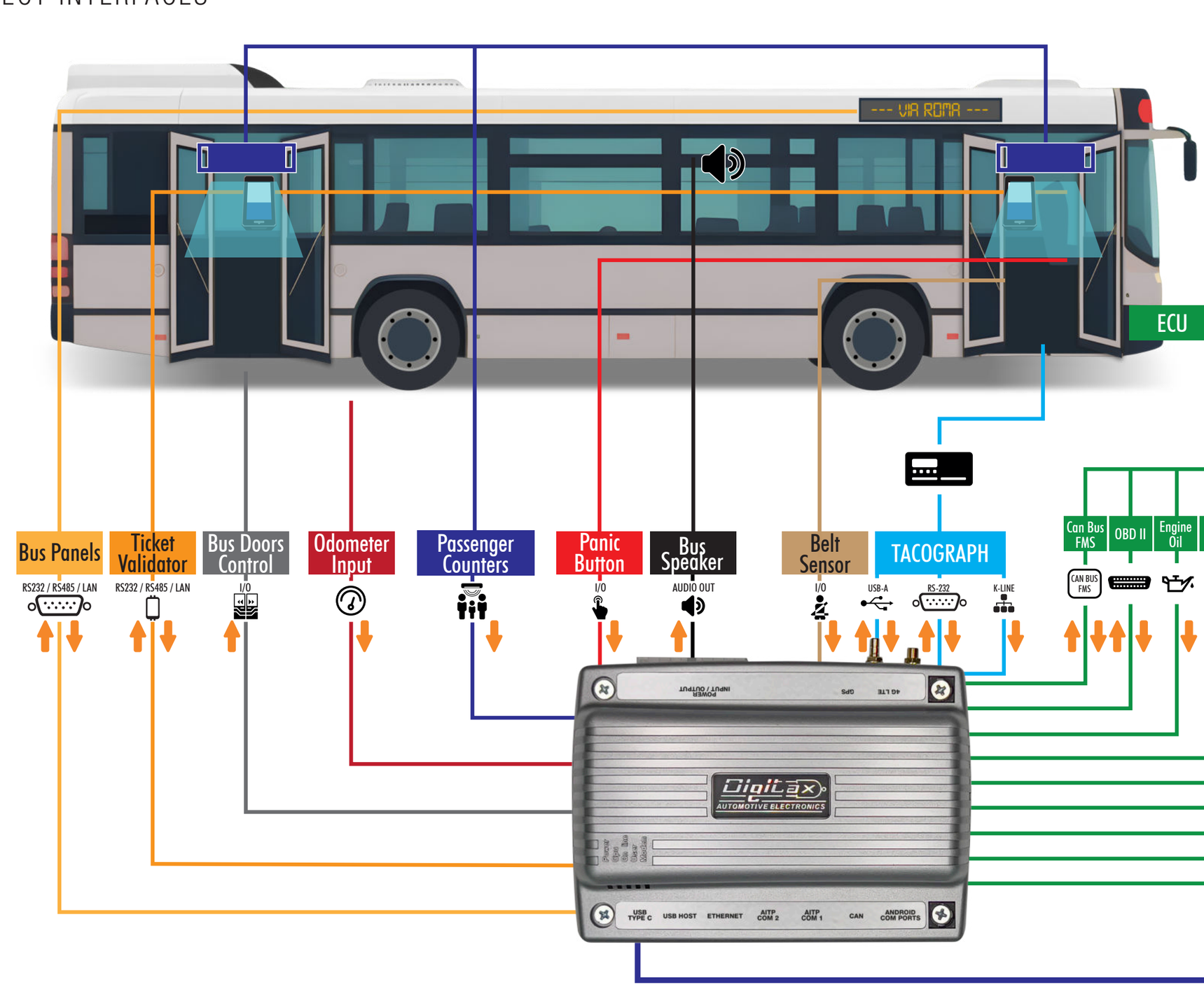


VEHICLES HW/SW DATA SOURCE



SMART BOX

DIRECT INTERFACES



Mobile Device

Bus Display	ah2k777tgsf
Ethernet	ah2k787tgsf
Bus Door	1
Odometer	1000
Video Out	ah2k787tgsf
Audio Out	
Panic button	0
Belt sensor	1
USB	ah2k777tgsf
RS232/485	ah2k787tgsf
K-line	ah2k777tgsf
Fuel	123
Lights	0
Engine Oil	352
Digital I/O	1
Engine temp	756
Can bus FMS	ah2k777tgsf
OBD II	ah2k777tgsf
Analogue Input	980
Ignition Status	1

ECU

Battery Charging

USB Host Data

Bus Panels — RS232 / RS485 / LAN

Ticket Validator — RS232 / RS485 / LAN

Bus Doors Control — I/O

Odometer Input

Passenger Counters

Panic Button — I/O

Bus Speaker — AUDIO OUT

Belt Sensor — I/O

TACOGRAPH — USB-A, RS-232, K-LINE

Can Bus FMS — CAN BUS FMS

OBD II

Engine Oil

Digital I/O

Engine Temp

Fuel

Lights

Analog Input

Ignition Status

REV 05.25

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