



The “**Communication Box**”, version 3 (CommBox3) is a purpose-build system platform for telematic applications inside vehicles and beside traffic routes. All system components are specified for operation under rough environmental conditions.

The CommBox3 features a powerful communication computer. Thus a variety of applications can be used, in particular safety-relevant functions such as firewall and VPN gateway. Furthermore, user-specific applications can be customised to this platform. The flash memory (CompactFlash) and the main memory (SDRAM) offer sufficient space even for complex telematic software including navigational software.

The communication connection with the fixed network is handled by built-in data modems alternatively via UMTS/GSM cellular network or via TETRA trunk radio communication system.

Additionally an integrated Wi-Fi radio modem allows IP communication with access points and mobile computers nearby.

The CommBox3 offers various interfaces for the connection of I/O devices like VGA displays, keyboards and card readers. The input/output of audio signals is also supported. For the connection to in-vehicle control signals the CommBox3 provides four digital input/output interfaces.

Together with an external odometer signal and a built-in rotation sensor (gyroscope) the integrated GPS receiver with its dead reckoning function features a continuous precise position determination even during breakdown of the GPS reception (e.g. in tunnels or street canyons).

Software

- integrated boot loader
- LINUX 2.6 Operating System
- Windows CE 5.0 Operating System
- Operating System and application software on CompactFlash card

External Interfaces

- 1 x LAN (10/100 Mbps)
- 2 x serial interfaces (e. g. for user terminal, bar code reader, external modem, RFID reader)
- 3 x USB 2.0 host
- VGA touch screen display (optional: DVI display)
- 4 x digital input, 4 x digital output
- antenna connectors for
 - UMTS/GPRS
 - TETRA
 - GPS
 - Wi-Fi
- vehicle signals for GPS Dead Reckoning
- CAN bus interface (on demand)

Internal Slots

- PCCard
- CardBus (e. g. for Wi-Fi option)
- CompactFlash
- Mini-PCI (optional)

OEM versions with customer-specific extensions on demand.

Electronics			
Processor	Intel XScale PXA 270@520MHz		
Firmware memory	4 MB (optional 32 MB)		
Program memory	512 MB CompactFlash card (optional up to 8 GB)		
Main memory	256 MB SDRAM		
LAN interface			
Number	1		
Type	10BaseT/100BaseTX IEEE 802.3 2000		
Connector	RJ45		
USB interface			
Number	3		
Type	host interface, USB V2.0		
Purpose	connection to USB end devices		
Data rate	up to 480 Mbps		
Serial interface			
Number	2		
Type	RS232		
Purpose	RFID reader connection, administration		
Transmission rate	up to 115 200 baud		
Connector	RJ45, 24 pin Molex Micro Fit		
Display interface			
Number	1		
Type	VGA with touch screen		
Purpose	general user interface		
Resolution	320x240, 400x234, 640x480, 800x480, 800x600, 1024x768 pixel		
Colour depth	16 Bit/24 Bit		
Connector	15 pin HD socket, audio output/touchscreen via USB, optionally via RS232, DVI interface (optional)		
Digital input			
Number	4		
Purpose	connection of controlling circuits		
Electrical parameters	max. 32 VDC, DC-isolated, threshold at nominal 6 VDC, reverse battery protection		
Connector	16 pin Molex Micro Fit		
Digital output			
Number	4		
Purpose	connection of actors		
Electrical parameters	switching capacity max. 32 VDC/1 A, DC-isolated		
Connector	16 pin Molex Micro Fit		
UMTS/EDGE/GPRS			
Type	integrated GSM/UMTS transceiver with modem functionality		
Purpose	data communication via GSM/UMTS-cellular radio network		
Radio frequency	GSM900, GSM1800, GSM1900, UMTS 1900/2000 MHz		
Operating modes	data transfer: GPRS: max. 48 Kbps downlink UMTS: max. 384 Kbps downlink EDGE: max. 384 Kbps downlink HSDPA: max. 3.2 Mbps downlink, max. 7.2 Mbps downlink (projected)		
Antenna connector	FME		
TETRA (optional)			
Type	integrated TETRA data modem		
Purpose	data communication via TETRA digital trunk radio communication system		
Radio network	TETRA (400 MHz band)		
Transmission rate	1 W (compl. to EN303035-1, class 4)		
Operating mode	Packet Data Application (PDA); encrypted		
Antenna connector	FME		
GPS			
Type	integrated GPS receiver		
Radio frequency	1575.42 MHz		
Number of channels	12		
Position accuracy	3 m CEP		
Operating mode	Dead Reckoning (Option DGPS)		
Antenna connector	SMB		
Additional input	speed indicator signal (odometer), driving direction		
Wi-Fi (optional)			
Type	integrated modem for Wireless LAN (IEEE 802.11a/h/b/g)		
Purpose	IP communication with mobile PCs and fixed access points		
Operating mode	access point, adhoc mode		
Radio frequency/transmission rate	2.4 GHz / 5 GHz band max. 54 Mbps		
Security	encryption methods: WPA, WPA2, AES-CCM & TKIP Encryption, 802.1x, 64/128/152 bit WEP		
Antenna connector	SMA		
Power supply			
Power consumption	< 8 W		
Input voltage	10.5 ... 16 VDC, reverse battery protection		
Connector	24 pin Molex Micro Fit		
Mechanics			
Housing material	nickel-plated sheet steel		
Front panel	steel plate, powder coated, colour: black		
Protection class	IP 32		
Dimensions max.	180 mm x 51 mm x 160 mm (automotive radio slot, DIN ISO 7736)		
Weight	ca. 1,200 g (basic version)		
Cooling	convection cooling		
Product safety			
Electromagnetic compatibility (EMC)	EN 60950-1:2001, A11:2004 First Edition, low voltage directive 73/23/EWG		
EMV conformity (e mark)	KFZ EMV directive 72/245/EWG in the version of 2006/28/EG EU licence: e1		
Shock/vibration test	EN 60721-3-5 class 5M2		
Operation environment			
Operating temperature	-20 °C ... +60 °C		
Storage temperature	-20 °C ... +85 °C		
Software			
Linux	Kernel version 2.6		
Windows	CE 5.0		
Order information			
Product code	101957		

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