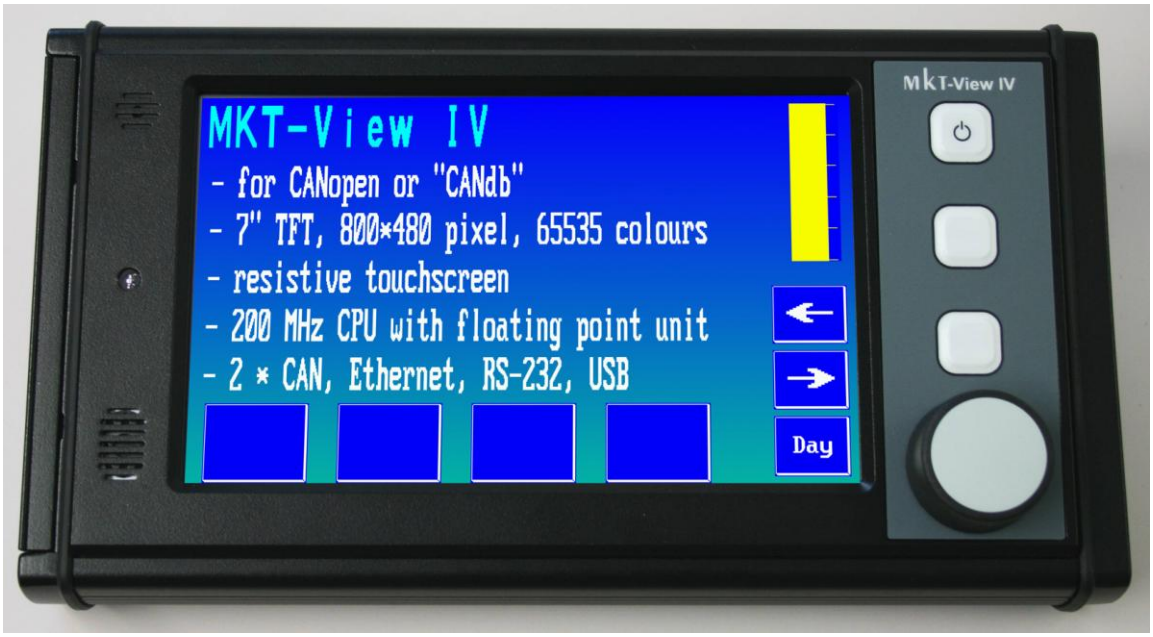
MKT-View IV

The multifunctional mobile visualization unit for CAN-networks



Features

- Sunlight readable 7“ display with 65356 colours and touch screen
- Function-keys backlighted by RGB-LEDs
- Voice in-/output
- Automatic brightness control of the display
- Wide range power-supply 6 ... 36 V DC and standby mode
- Mini-UPS for the defined saving of data
- Interfaces 2 x CAN / 1 x Ethernet / 1 x GPS-receiver module / 1x RS232
  1 x USB-OTG / 1 x Virtual COM Port (VCP)
- Two digital and four analog inputs
- Real-time clock
- SD-card slot
- Visualization and logging off CAN-bus-signals / visualization of CAN raw data
- Sending of CANdB data
- Script language

1. Pin assignment

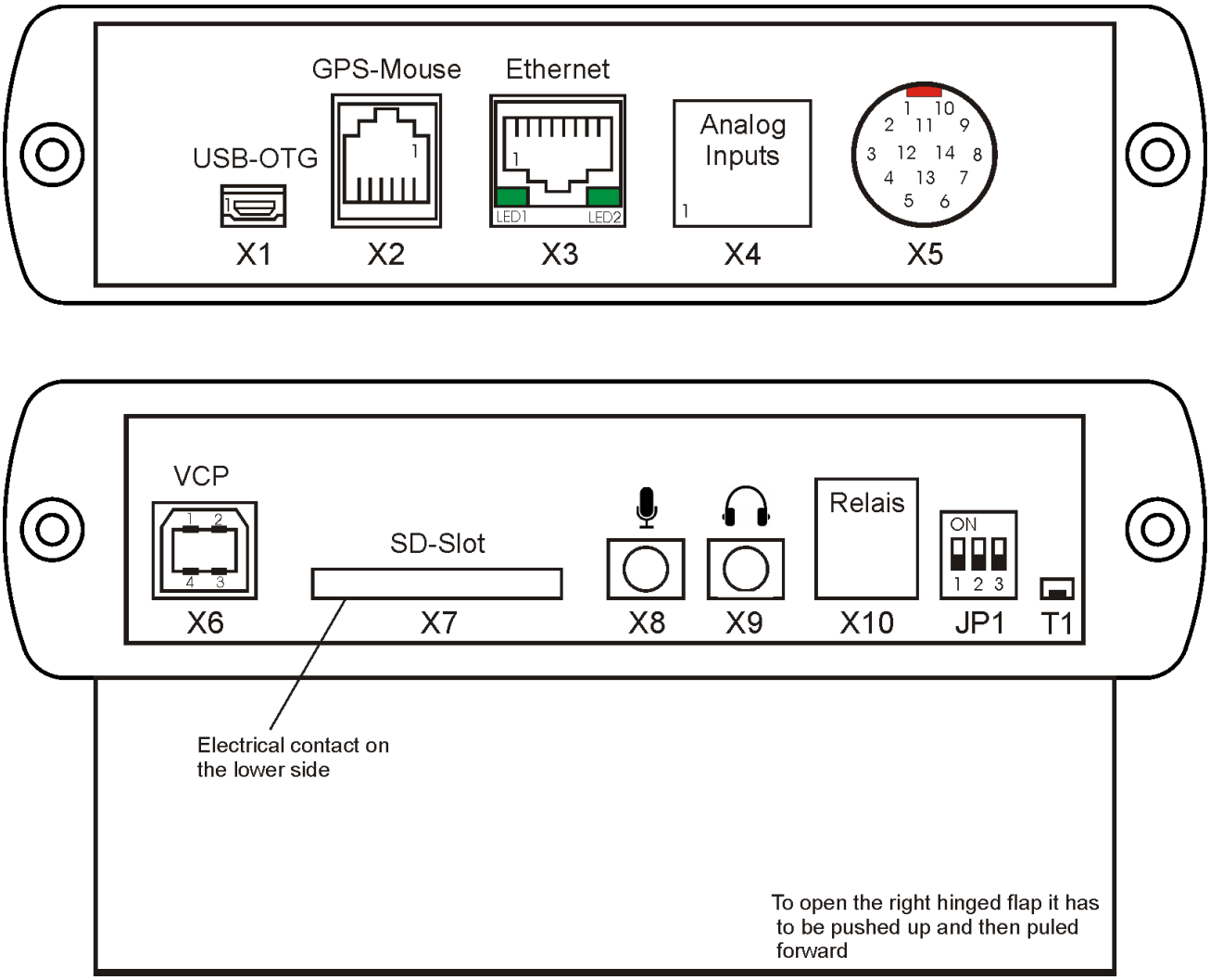


Figure 1: Connectors

X1 USB-OTG

Pin 1: 5 V DC (self powered)
Pin 2: Data-
Pin 3: Data+
Pin 4: ID
Pin 5: GND

X2 GPS-Receiver

Pin 1: open
Pin 2: TxD
Pin 3: RxD
Pin 4: U_{ON} (Power supply)
Pin 5: U_{BAT} (Continuous supply for standby operation)
Pin 6: GND

X3 Ethernet

LED 1:	Link / Act	→	on:	Network connected
			flashing:	Data communication active
LED 2:	Speed	→	off:	Transfer rate 10 MBit/s
			on:	Transfer rate 100 MBit/s

X4 Analog Inputs 3/4

Pin 1: ANALOG_IN3
Pin 2: ANALOG_IN4
Pin 3: ANALOG_GND

Wiring recommendations:

To ensure an EMC-compatible operation, shield on X5 has to be connected to chassis ground.

Serial interface signals RxD and TxD refer to the MKT-View IV

X5 Power supply / CAN / RS232 Digital Inputs / Analog Inputs 1/2

Pin 1:	CAN1_HIGH	Pin 8:	RS232_TxD
Pin 2:	CAN1_LOW	Pin 9:	RS232_RxD
Pin 3:	CAN2_GND	Pin 10:	DIGITAL_IN1
Pin 4:	CAN2_HIGH	Pin 11:	DIGITAL_IN2
Pin 5:	CAN2_LOW	Pin 12:	ANALOG_IN1
Pin 6:	U_B	Pin 13:	ANALOG_IN2
Pin 7:	GND	Pin 14:	ANALOG_GND

X6 Virtual COM Port (USB to UART)

PIN 1: 5 V DC (bus powered)
Pin 2: Data-
Pin 3: Data+
Pin 4: GND

X7 SD-Connector

Push-Push connector with card detect and write protect

X8 Microphone

Input for a mono microphone with a 3,5 mm stereo jack plug. Automatical switching between external an internal microphone

X9 Headphone

Output for a mono or stereo headphone with a 3,5 mm stereo jack plug.

X10 Relay Output

Isolated, potential-free output

JP1 DIP-Switch for boot-mode selection

Boot-Mode	SW1	SW2	SW3	
UART	OFF	ON	ON	(RS232 on X5, default)
USB	ON	OFF	OFF	(USB-OTG interface)
QSPI	ON	OFF	ON	(internal serial flash)

Normally the terminal boots from the internal flash of the main processor. Die dip-switch will be sampled either there's no executable code in the internal flash or T1 will be pushed when the power supply is switched on.

T1 Push button for In-System-Programming

To activate In-System-Pprogramming T1 has to be pushed when the power supply is switched on. For example, it's possible then to load the MKT-Preloader through the UART interface on connector X5.

2. Mechanical data

2.1 Enclosure

2.1.1 Material	Aluminum
2.1.2 Size	248,5 x 141 x 37 mm (w x h x d)
2.1.3 Weight	1150 g
2.1.4 Protection class	IP20
2.1.5 Colour	black

3. Display / Keyboard

3.1 Display

3.1.1 Resolution	800 x 480 pixel / 7“-TFT with 65356 colours
3.1.2 Touchscreen	resistive
3.1.3 Contrast	temperature compensated, contrast ratio 400:1 (nom)
3.1.4 Brightness	max. 400 cd/m^2, automatically controlled

3.2 Keyboard

3.2.1 Keys	3 keys with snap domes and stamping, material polyester
3.2.2 Backlight	3 x RGB-LED; single controlled
3.2.3 Encoder	16 detents per turn, integrated push button
3.2.4 Life time keys / encoder	1.000.000 switching cycles

4. Elektronic

4.1 Temperature

4.1.1 Operating	-20 … + 60 °C
4.1.2 Storage	-30 … + 70 °C

4.2 Power Supply

4.2.1 Operating voltage U_B:	6 … 36 V DC
4.2.2 Current consumption:	
Ultracaps ungeladen	≤ 600 mA bei U_B = 12 V DC
Ultracaps geladen	≤ 400 mA bei U_B = 12 V DC
4.2.3 Standby current:	3 mA (nom)

4.3 Microcontroller / Memory

4.3.1 µP	Cortex-M4/M0 / LPC4357 / 200 MHz
4.3.2 FLASH-EEPROM	1 MByte
4.3.3 QSPI-Flash	8 MByte
4.3.4 SDRAM	32 MByte
4.3.5 EEPROM	32 KByte

4.4 Interfaces

4.4.1 CAN	2x High-speed CAN transceiver up to 1 Mbit/s 120 Ω termination resistor, to be electronically hooked on (not available in standby operation) CAN2 interface galvanically isolated
4.4.2 RS232 - V.24	1x
Transfer rate	max. 250 kBit/s

4.4.3	Ethernet	1x
	Receptacle	RJ45
	Transfer rate	100 MBit/s
	Connecting cable	Twisted Pair 2x2 or 4x2, 100 Ω, CAT5, SF/FTP, SF/UTP or S/FTP
	Wire cross section	AWG 26/7 up to AWG 22/1
	Cable length	max. 100 m (only with a wire cross section of AWG 22/x)
4.4.4	USB-OTG	1x USB 2.0
	Transfer rate	max. 12 MBit/s (Full-Speed)
	Receptacle	Mini-USB-AB
4.4.5	VCP	1x
	Receptacle	USB-B
	Transfer rate	max. 250 kBit/s
4.4.6	SD-Slot	1x for SD cards up to 32 GB
4.4.7	Interface for GPS module	1x
	Receptacle	RJ12
	Current consumption	≤ 100 mA

Note:
The MKT GPS-Mouse with the order-no. 20380 can be used in combination with the MKT-View IV without a need of an additional adapter

4.5 Inputs / Outputs

4.5.1	Digital Inputs	2x	
		Input resistance	> 30 kΩ
		Input voltage range ‚low'	0 ... 3 V DC
		Input voltage range ‚high'	6 ... 36 V DC
4.5.2	Digital Outputs	1x relay, potential-free contact	
		Contact load / Output current	≤ 1 A
		Switching voltage	≤ 60 V AC/DC
4.5.3	Analog Inputs	4x	
		Voltage input	0 ... 15 V DC
		Input resistance	> 200 kΩ
		Resolution	10 Bit

Note:
Optionally each voltage input can be assembled to function as a current input 0 … 20 mA

4.6 Audio

4.6.1	Audio input	Voice recording can be selected via internal or external microphone with adjustable gain
4.6.2	Audio output	Integrated speaker for voice output Stereo headphone output with 3,5 mm stereo jack plug
4.6.3	Buzzer	70 dB (nom) at a distance of 10 cm and a frequency of 3200 Hz

Note:
The external microphone has to be a mono microphone with stereo jack plug.The use of a mono jack plug leads to a failure of the automatic switching function between internal and external microphone.

4.7 Real Time Clock

4.7.1 Format	Display of time and date, with automatic leap year compensation
4.7.2 Resolution	1 second
4.7.3 Battery	CR 1/3 NSLF 170mAh
4.7.4 Battery life time	> 10 years

4.8 Power on/off characteristics

4.8.1 Power on:

$U_B \geq 7{,}0$ V DC → switching on from standby using key F1, digital Input 1 ($U_{DI1} \geq 7{,}0$ V DC) or CAN 1 (according to the configuration in the 'system menu')

$U_B \geq 7{,}0$ V DC → automatic switching on through the power supply

4.8.2 Power off:

$U_B < 6{,}0$ V DC

With completely charged Ultracaps, the colour of the power flag icon down right on the display is green and a power supply failure up to 1 s will be bypassed by the internal 'USV'. If U_B then is still below 6,0 V DC the MKT-View IV goes into power off.

Note:
For all specified voltages the voltage drop as a result of cable losses is not included. According to the used cable and the current consumption (ultracaps charged or not), this voltage drop typically will be 0,2 … 0,6 V DC. Information about the resistance of the used cable can be taken from the appropriated data sheet

5. Cleaning hints

- The terminal has to be cleaned with normal cleaning supplies such as standard glass cleaner. Do not use any abrasive cleaning supplies.
- The touch screen has to be cleaned carefully with a microfiber cloth only.
- Do not use the touch screen with sharp-edged material, otherwise irreparable damages could be the result. The touch screen should be used with the *Touch Stylus* which is also available as an accessory (order number 60208).
- Take Care that no liquid gets into the gaps near the speaker and microphone.

Revision	Description	Date	Name
A	Document generated	10.09.14	Lücke
B	Power Supply	05.01.15	Lücke