Wachendorff Elektronik
GmbH & Co. KG

SPECIFICATION OPUS 46	Art:	Doc
	Revision:	3
	Datum:	2007-01-31

OPUS 46 Terminal

OPUS46M0CANB0, OPUS46M0COPB0, OPUS46C0CANB0,
OPUS46CVCANB0, OPUS46C0COPB0, OPUS46CVCOPB0

Housing	Plastic moulded housing: Panel mount, dimensions approx. 224 x 134 x 70 mm (excl. connectors), Color NCS 3502 G, Surface structure VDI 3400 Ref 33. Portrait orientated. Antireflective glass window in front of displayback side flange
Ambient Operating temperature	-25°C … +65°C
Storage temperature	-30°C … +85°C
Vibration	10 mm @ 4 - 11 Hz 0,35 mm @ 11 Hz – 50 Hz 5g @ 50 – 300 Hz, 2 h per axis, 100 sweeps
Shock	30g, 11ms, 10 times each axis
Protection	IP 6k5, similar NEMA 4 from all sides
Immunity	RF: Complete unit 100 V/m in Stripeline (Limit IV) (150 mm Stripe Line), 200 V/m (150 mm Stripe Line) electronic system without Display disturbances ESD: air discharge 15kV Conducted Immunity: acc to ISO7637
Radiation	(ISO/EN 14982) 75/322/EWG (only component test without „e“-approval), Limit curve A.5 (broad band) and A.6 (narrow band)
Display	FSTN-monochrome Display transmissive 5,6“, 320 x 240 Pixels with 16 levels of grey, CCFL-Backlight with max. 220 cd/m², automatic adaptation to ambient light via sensor. Contrast: typ. 10, user adjustable, viewing angle: +-45° horizontal, -40..+20° vertical, viewing direction 12’clock, max. response time 310 ms, Portrait orientation or TFT - Color Display, 5,6”, 240 x 320 Pixel, 16 colors (ISO+Grund+nd+Transp.), min. 400 cd/m2 , contrast typ. 300, automatic adaptation to ambient light via sensor, Portrait orientation.
Keyboard	11 Keys silicon keypad, Touchable click, Night design with green LEDs, Force>3 N (max. value 20 N)

LED Indicators	5 LED indicators 12 x 12 mm above display (green, red, blue, red, green), can be equipped with customized symbol foil, up to 3 can be hardwired remaining will be software controlled 1 red LED indicator 42 x 7 mm top of the front side, with red plastic in front, can be operated by software
Encoder	1 encoder with click, 30 incremental pulses per rev. Dynamic incremental input, torque: 1,5 Ncm +1/-1 Ncm, click force > 6 N +/- 2 N (max. value 20 N)
Processor	16-Bit-Processor C167CR-LM, Speed 20 MHz
Memory	1 MByte Flash for BIOS 4 Mbyte Flash for User Interface Data 1024 kByte SRAM Serial EEPROM 32 kBit**.**
Interfaces	1) CAN bus acc. to ISO 11896 CAN 2.0 B active, EMC-optimized for 250 kBit/s, with 82C251 transceiver, non isolated, short circuit protected against GND and VCC (protection limited to max. +36 VDC @ Supply voltage of +12 VDC) 2) RS-232 serial interface (RXD, TXD only), EIA-level, non isolated, short circuit protected against GND and VCC (protection limited to max. +50 VDC @ Supply voltage of +12 VDC) 3) up to 3 digital inputs for indicators 1 to 5, active high min 8V, Vin low max 3 V, non isolated, short circuit protected against GND and VCC (protection limited to max. +38 VDC @ Supply voltage of +12 VDC)
Beeper	Piezo – Beeper. Output level minimum approx. 75 to 80 dBA in 1 m distance to frontside (Remark: The beeper output is located on the bottom of the unit, therefore the volume depends on mechanical mounting of the unit), beeper frequency: 3,7 kHz
Real Time Clock	RTC buffered 2 weeks with Gold Cap, average accuracy over temperature range: +/- 30 seconds/month

Optional Video Input

(color units only)

Video input acc. to CCITT
Color coding models: PAL 50 Hz, NTSC 60 Hz, automatic detection
Video input level: 1 Vpp @ 75 Ohms,
Display method als alternative to project

Power Supply

8 – 50 VDC (nominal 12 VDC), max. 1 A with switched power supply, non isolated. Protected against reverse polarity up to –60 VDC.

Electronic system function (without Display) at low power > 8V.

Connectors

Deutsch rectangular connector, DT15-12 with 12 Pins

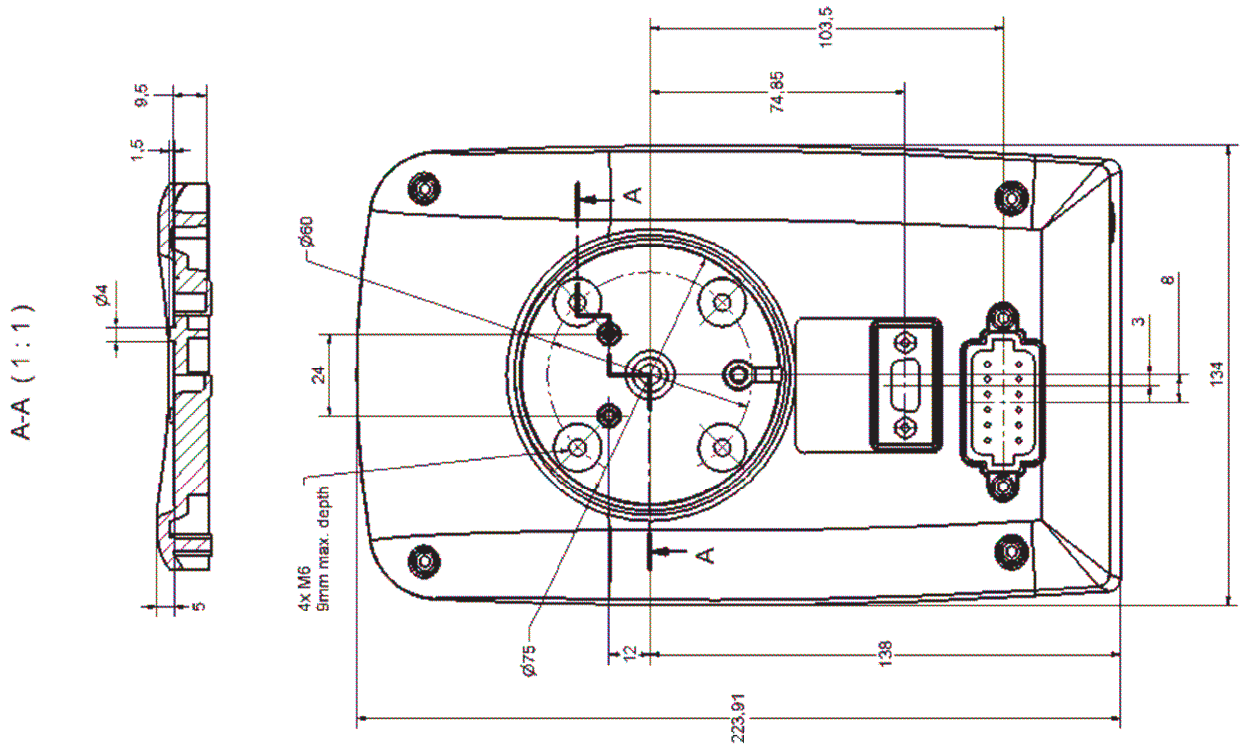
Pin	Signal
1	Indicator A input
2	Rxd RS 232
3	CAN 1 Hi
4	CAN 1 Lo
5	Txd RS 232
6	RS Ground
7	Indicator B input
8	+ Ignition input (Clamp 15)
9	+ Battery input (Clamp 30)
10	Battery GND
11	Indicator C input
12	Vehicle chassis ground

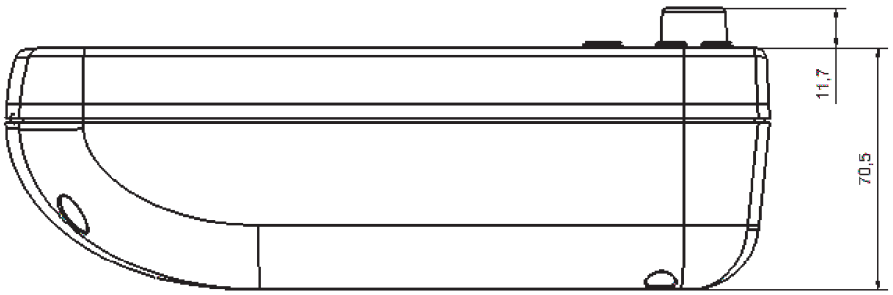
Video Connector: BNC-SubD (Conec: 4005W1SCT88S40X)

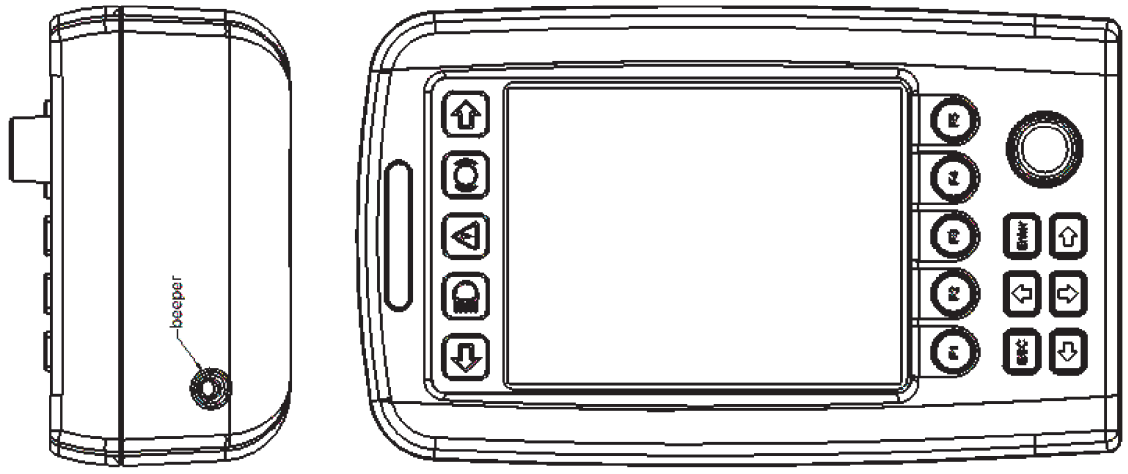
Operating System

Projector tool-based Operating System for easy design of screen pages of the user interface. Access to CAN-Bus on various supported CAN protocols

Dimensions:


A-A (1 : 1)
9,5
1,5
Ø4
5
103,5
74,85
Ø60
A
24
4x M6
9mm max. depth
Ø75
12
138
223,91
3
8
134


11,7
70,5


beeper