

Technical Data Sheet OPUS A6 STANDARD Basic

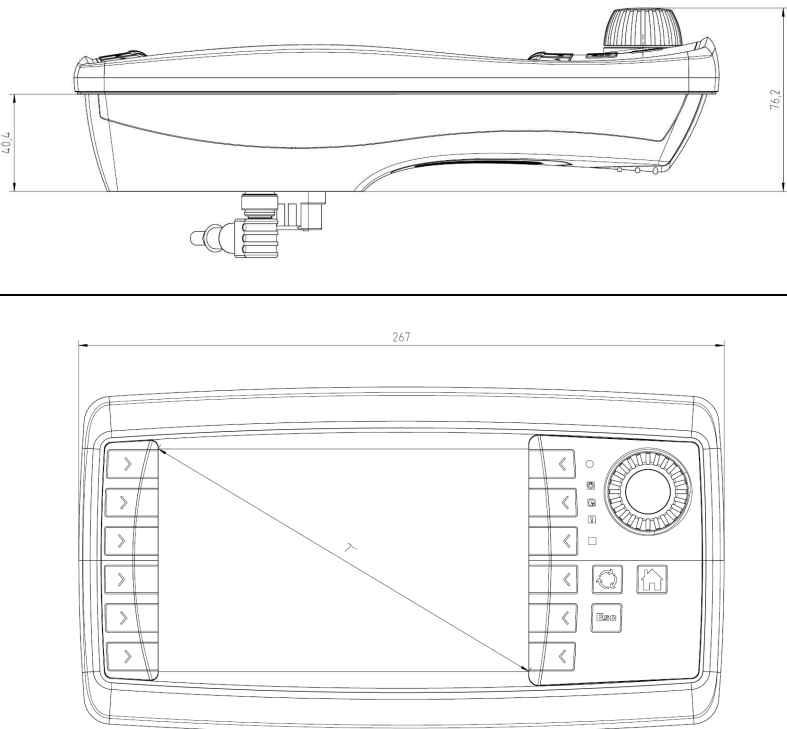
TDS OPUS A6sB, 02.10.2012

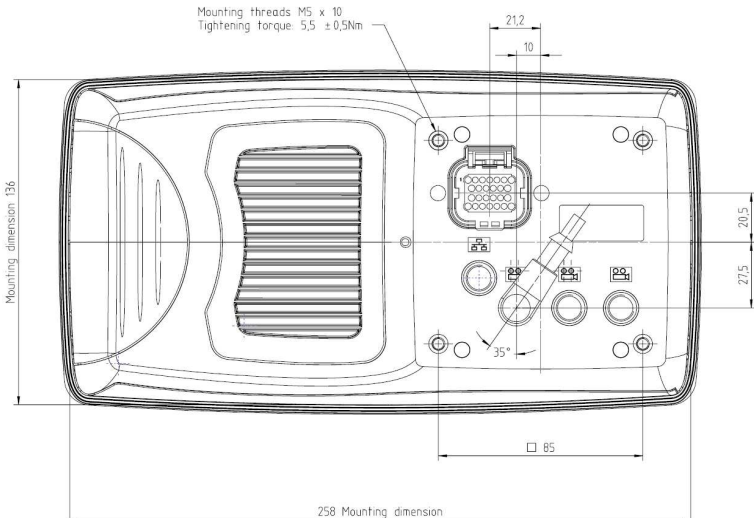


OPUS A6 STANDARD Basic Landscape



OPUS A6 STANDARD Basic Landscape/Portrait

1 Order Numbers	OPUS A6 STANDARD Full
Wachendorff Projektor	
Landscape	OPUSA6SL1CANB000
Landscape/Portrait	OPUSA6SN1CANB000
CoDeSys	
Landscape	OPUSA6SL1CDSB000
Landscape/Portrait	OPUSA6SN1CDSB000
ISO-VT	
Landscape	OPUSA6SL1ISOB000
2 Mechanical	
2.1 Dimensions	 <p>The technical drawing consists of two views of the projector. The top view is a side profile showing a length of 267 units and a height of 76.2 units. A detail of the lens assembly is shown below it. The bottom view is a front-facing view of the control panel, showing a width of 267 units and a diagonal dimension of 7 units. The control panel includes a large central display, a circular dial on the right, and several buttons on both sides.</p>

	
2.2 Housing	Plastic housing, colored light grey (RAL 7035) with black rubber frame
2.3 Mounting	<ul style="list-style-type: none"> • landscape or portrait • standalone • in-dash <p>Mounting accessories (not included):</p> <ul style="list-style-type: none"> • In-Dash mounting frame (OPUSA6ZBEB001) • Standalone mounting adaptor for RAM® mounting system (OPUSA6ZBAH001)
3 Display	
Type	TFT Color Graphic LCD with LED backlight
Size	7", 152 mm (W) x 91 mm (H)
Resolution	800 x 480 px (WVGA), 15:9
Colors	262k
Brightness	typ. 400 cd/m ²
Contrast Ratio	typ. 500:1
4 Input Devices	
4.1 Left Keypad	<ul style="list-style-type: none"> • 6 keys with tactile feedback • blue LED backlight • Lifetime 1.000.000 actuations
4.2 Right Keypad	<ul style="list-style-type: none"> • 6+3 keys with tactile feedback • blue LED backlight • Lifetime 1.000.000 actuations
4.3 Indicators and Sensors	<ul style="list-style-type: none"> • Light sensor • 1 Multicolor-LED • 3 Status-LED's
4.4 Encoder	<ul style="list-style-type: none"> • optical encoder with 16 mechanical detents and push function • lifetime: 1 million cycles

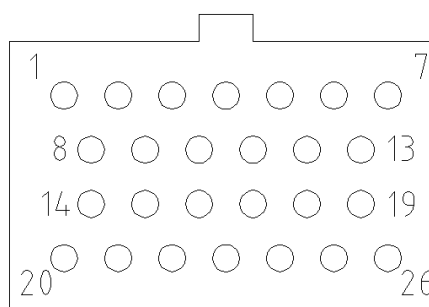
5 Electronics																
5.1 Processor platform																
CPU	Freescale I.MX35®, 532 MHz															
Mass storage	512 MByte (approx. 450 MB for customer use)															
RAM	128 Mbyte															
RTC	buffered by gold cap															
5.2 Buzzer	<ul style="list-style-type: none"> • 65 dB(A) in 30 cm distance • lifetime min. 1000h 															
5.3 Interfaces																
5.3.1 Power supply																
Operating voltage range	9 ... 36 V DC															
Protection	short circuit protection															
Overvoltage resistance	48V for 2 minutes															
Inverse polarity protection	up to -48 V DC															
Current consumption (without external load), max	<table border="1"> <thead> <tr> <th>Power Mode</th> <th>current at 13,5 V DC</th> <th>current at 27 V</th> </tr> </thead> <tbody> <tr> <td>On</td> <td>900 mA</td> <td>500 mA</td> </tr> <tr> <td>Low-power</td> <td>200 mA</td> <td>120 mA</td> </tr> <tr> <td>Sleep</td> <td>100 mA</td> <td>65 mA</td> </tr> <tr> <td>Off</td> <td>0 mA</td> <td>0 mA</td> </tr> </tbody> </table>	Power Mode	current at 13,5 V DC	current at 27 V	On	900 mA	500 mA	Low-power	200 mA	120 mA	Sleep	100 mA	65 mA	Off	0 mA	0 mA
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Low-power	200 mA	120 mA														
Sleep	100 mA	65 mA														
Off	0 mA	0 mA														
5.3.2 Can Interfaces	<ul style="list-style-type: none"> • 2 x CAN-Interfaces • ISO 11898, CAN-specification 2.0 B active, • up to 1 Mbit/s (default 250 Kbit/s, 500 Kbit/s, 750 Kbit/s and 1 Mbit/s) 															
5.3.3 RS232	1 x RS232-Interface															
Type	EIA232 (only RxD, TxD, GND)															
Speed	max. 115 Kbps															
5.3.4 USB	Host 2.0															
Main connector	1 x Full speed															
5.3.7 Video-Interface	<ul style="list-style-type: none"> • analog video input, 1 Vss • camera control output (open drain) for special functionality (mirror, shutter, heating etc.), • ampacity 300mA @ 12V DC 															
5.3.8 Ethernet-Interface	1 x 10/100 Mbit/s Base T															
6 Connections																
Main connector	Tyco-AMP 1437288-6 <ul style="list-style-type: none"> • Mating connector (customer) Tyco-AMP 3-1437290-7 • Mating crimp contact (customer) Tyco AMP 3-1447221-4 															
Video connector	M12 round connector, female, 5-pole, B-coded acc. to EN 61076-2-101															
Ethernet connector	M12 round connector, female, 4-pole, D-coded acc. to EN 61076-2-101															
Connector pinout	see chap. 9.															

7 Software	
7.1 Operating System	Linux 2.6.28
7.2 Application Programming	<ul style="list-style-type: none"> • Wachendorff Projektor Tool • Optional: Codesys-Tools (3.5) • Optional: ISO-VT (Q4/2012) • Optional: C/C++
8 Testing and Verification	
8.1 CE-Compliance	EU Directive 2004/108/EC (EMC) according to <ul style="list-style-type: none"> • EN 12895: Industrial Trucks – Electromagnetic compatibility • EN 13309: Construction machinery – Electromagnetic compatibility of machines with internal electrical power supply • EN ISO 14982: Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria
8.2 e1 - Type approval	EU Directive 72/245/EWG (Jan-2013)
8.3 Protection Level (IP Code)	IP 6k5 according to ISO 20653: Road Vehicles – Degrees of protection (IP-Code) – Protection of electrical equipment against foreign objects, water and access
8.4 Electrical Requirements	12 and 24V-Systems according to: <ul style="list-style-type: none"> • ISO 16750-2: Road Vehicles – Environmental conditions and testing for electrical and electronic equipment – Electrical loads • ISO 15003: Agricultural Engineering – Electrical and electronic equipment – Testing resistance to environmental conditions
8.5 Mechanical Requirements	<ul style="list-style-type: none"> • According to ISO 16750-3: Road Vehicles – Environmental conditions and testing for electrical and electronic equipment – Mechanical loads, Code L • ISO 15003: Agricultural Engineering – Electrical and electronic equipment – Testing resistance to environmental conditions <ul style="list-style-type: none"> ○ Mechanical Shock: Level 2 ○ Random Vibration: Level 2 ○ Sinusoidal Vibration: Level 2
8.6 Climate Requirements	<ul style="list-style-type: none"> • According to ISO 16750-4: Road Vehicles – Environmental conditions and testing for electrical and electronic equipment – Climatic Loads <ul style="list-style-type: none"> ○ Operating Temperature Range: -30 ... +65°C ○ Storage Temperature Range: -40 ... +85°C • ISO 15003: Agricultural Engineering – Electrical and electronic equipment – Testing resistance to environmental conditions

9 Pinout
9.1 Main connector pinout

pin no.	assignment	description
1	VCC	supply voltage +; terminal 30
2	Ignition Input	ignition input; terminal 15
3	GND	supply voltage - ;terminal 31
4	CarGND	Car GND
5	n. c.	Not connected
6	n. c.	Not connected
7	n. c.	Not connected
8	CAN1H	CAN 1 high
9	CAN1L	CAN 1 low
10	CAN2H	CAN 2 high
11	CAN2L	CAN 2 low
12	USB_VCC	USB +5V supply
13	USB_GND	USB supply GND
14	USB_D-	USB Data -
15	USB_D+	USB Data +
16	RS232 RxD	RS232 receive data
17	RS232 TxD	RS232 transmit data
18	RS232 GND	RS232 GND
19	n. c.	Not connected
20	n. c.	Not connected
21	n. c.	Not connected
22	n. c.	Not connected
23	SERV_EN	service enable
24	n. c.	Not connected
25	n. c.	Not connected
26	n. c.	Not connected

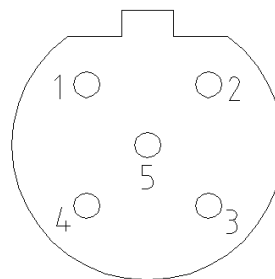
view on rear side of the A6



9.2 Video connector pinout

Round Connector, 5 pins, M12	
1	VidSig+
2	Mirror
3	Camera+
4	Camera -
5	VidSig GND

Video- Connector, M12, female, 5 pins, b-coded,
view on rear side of the A6


9.3 Ethernet connector pinout

Round Connector, 4 pins, M12, acc. To IEC 61076-2-101	
1	TD+
2	RD+
3	TD-
4	RD-

Ethernet Connector, M12, female, 4 pins, d-coded,
view on rear side of the A6

