

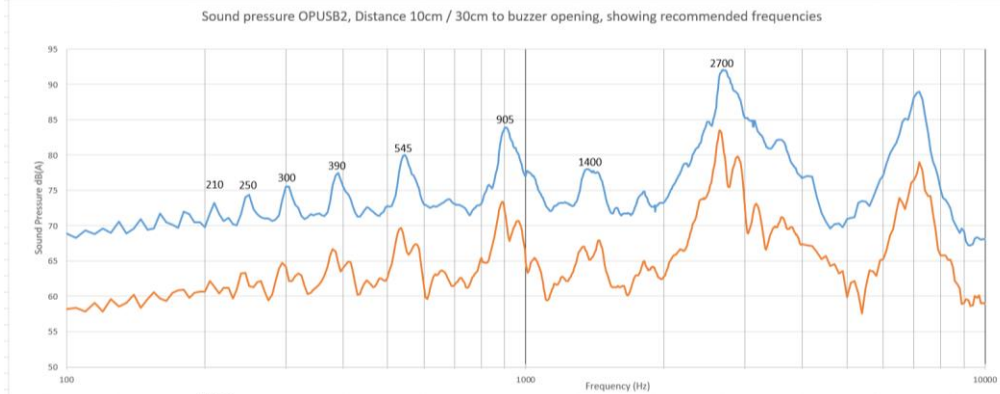
Technical Data Sheet OPUS B2-Plus < Draft >

TDS OPUS B2, 17.01.2023

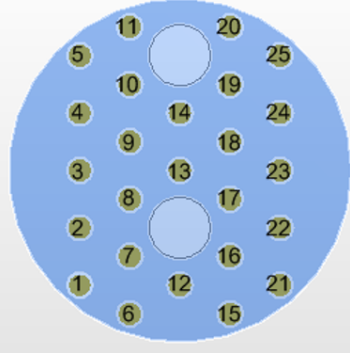


OPUS B2 Plus Eco

OPUS B2 Plus Standard

1 Order Numbers	OPUS B2 Plus ECO Basic	OPUS B2 Plus ECO Full	OPUS B2 Plus STD Basic	OPUS B2 Plus STD Full	OPUS B2 Plus Max/Option
OPUS...	B2EP1CANB000	B2EP1CANF000	B2SP1CANB000	B2SP1CANF000	-
2 Mechanical					
2.1 Dimensions	190 x 130 x 37 mm		210.5 x 130 x 37 mm		
2.2 Housing	Glas, PC/ABS		Glas, PC/ABS, Autotex XEF200		
2.3 Mounting	- landscape or portrait - standalone, e.g. with RAM-Mount (additional accessory) - In-dash, e.g. with in-dash-mounting frame (additional accessory)				
3 Display					
Type	TFT Color Graphic LCD, LED backlight, optical bonded, all view, normal black, 45° polarized chemically strengthen glass, hardness 7H				
Size	7"				
Resolution	800 x 480				
Colors	16.7 Mio				
Brightness	typ. 900 cd/m²	typ. 850cd/m²	typ. 900 cd/m²	typ. 850cd/m²	typ. 850cd/m²
Contrast Ratio	typ. tbd				
4 In-/Output Devices					
4.1 Touch	-	PCT, Multifinger	-	PCT, Multifinger	PCT, Multifinger
4.2 Keys on Keypad	-		6 keys w/o Key-Backlight		8 keys Key-Backlight
4.3 LEDs on Keypad	-		-		3 LEDs or 1 MC-LED
4.4.1 Light Sensor on Keypad	-				1
4.4.2 Light Sensor on Glas	-				1
4.5 Buzzer, frequency programmable	-	92 db(A) 10cm@2700Hz	-	92 db(A) 10cm@2700Hz	92 db(A) 10cm@2700Hz
Sound pressure OPUSB2, Distance 10cm / 30cm to buzzer opening, showing recommended frequencies 					
5 Electronics					
5.1 Processor platform					
CPU	NXP MCIMX6Y2CVM05AB-i.MX 32-bit MPU, ARM Cortex-A7 core, 528MHz				- 08AB 800 MHz
Mass storage	2 GB (4GB eMMC in pSLC-Mode)				16 GB (32GB)

RAM	256 MB, DDR3L, 1600Mbps					1GB						
EEPROM	64Kbit (Internal Use)											
RTC	w/o Buffer	w/o Buffer	w/o Buffer	w/o Buffer	Buffered > 4 months							
5.2 Interfaces												
5.2.1 Power supply												
Operating voltage range	9-36V				5-36 V							
Protection	overvoltage, inverse polarity											
Overvoltage resistance	yes 48V @5m, load dump pulse 5b (clipped)											
Inverse polarity protect	Yes -48V @5m											
Current consumption (without USB power)	ON: xxx@12V	ON: xxx@12V	ON: xxx@12V	ON: xxx@12V	ON: xxx@12V							
	Low-Power: ~ 40mA@12V (< 0,5 W)											
	Sleep: ~ 30mA@12V (< 0,35 W)											
	OFF: ~ 0,08mA@12V (< 1 mW)											
5.2.2 CAN Interfaces	2 x ISO 11898, CAN-specification 2.0 B active, CAN FD tolerant											
5.2.3 USB Interface	USB 2.0, Type C, high speed, min. 1A, short protected against Vbus, thermal protected, fault flag											
5.2.4 Ignition (Clamp 15)	Yes, over-voltage protected up to 48V, required to power up the device											
5.2.5 Service Enable (Digital Input)	Low: Device is starting in normal mode High: Device is booting in service mode											
5.2.6 Service Connector	Backside, Covered with rubber plug, for engineering purpose only											
6 Connections/Pinout												
Main connector Customer side: Deutsch DT06-08SA	Klemme 30, V _{Bat}		4		5	CAN 2 L						
	Klemme 31, GND		3		6	CAN 2 H						
	Klemme 15, Ignition		2		7	CAN 1 L						
	Service Enable		1		8	CAN 1 H						
USB Connector Type C	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12
	GND			V _{Bus}		D+	D-		V _{Bus}			GND
	GND			V _{Bus}		D-	D+		V _{Bus}			GND
	B12	B11	B10	B9	B8	B7	B6	B5	B4	B3	B2	B1

Service Connector Requires engineering adapter	Pin	Bezeichnung	View from rear side to connector 
	1	GND	
	2	+3V3	
	3	CPU_MOD	
	4	POR#	
	5	GND	
	6	CPU_TDI	
	7	CPU_TDO	
	8	CPU_TMS	
	9	CPU_TCK	
	10	UPDATE /Extboot	
	11	Service Enable	
	12	GND	
	13	CPU_TRSTB	
	14	GND	
	15	CPU_RX	
	16	CPU_TX	
	17	n.c.	
	18	GND	
	19	GND	
	20	GND	
	21	GND	
	22	n.c.	
	23	n.c.	
	24	n.c.	
	25	GND	

7 Software	
7.1 Operating System	Linux
7.2 Application Programming	C++ or Projektor/PCClient

8 Testing and Verification	
8.1 CE-Compliance	EU Directive 2014/30/EU (EMC) according to • EN 13766-1: Earth-moving and building construction machinery (EMC) • EN ISO 14982: Agricultural and forestry machinery - Electromagnetic compatibility - Test methods and acceptance criteria • DIN EN 50498: Electromagnetic compatibility (EMC) - Product family standard for aftermarket electronic equipment in vehicles • Tbd: EN 12895: Industrial Trucks – Electromagnetic compatibility • Optional: EN 61000-6-2: Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments • Optional: EN 61000-6-4: Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments
8.2 E1 - Type approval	EU Directive ECE R 10
8.3 Protection Level	IP66 according to ISO 20653: Road Vehicles – Degrees of protection (IP-Code) – Protection of electrical equipment against foreign objects, water and access
8.4 Electrical	12V and 24V systems according to: • 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	• 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 • Mechanical Shock: Level 2 • Random Vibration: Level 2 • Sinusoidal Vibration: Level 2
8.6 Climate	• According to ISO 16750-4: Road Vehicles – Environmental conditions and testing for electrical and electronic equipment – Climatic Loads - 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