



# TECHNICAL PRODUCT INFORMATION - BUS

Transmitter System (Product)	Frequency band [Hz]	Maximum output power [W]	Manufacturer
<b>ANTENNA</b>			
Multiantenna Housing Antenna Radio/GNSS/MBL	RADIO: AM 522-1710 kHz FM 87-108 MHz  DAB/DAB+: Band III: 174-240 MHz  GNSS: GPS 1571.42 - 1579.42 MHz GLONASS 1602-1610 MHz	Not Applicable	Antennentechnik Bad Blankenburg
GPS ANTENNA /WLAN WISI AT47	GPS: 1575.42 MHz  LAN: 2.40-2.48 GHz	max.: 20 W	WISI Automotive
Antenna 399.99.0039	Port 1: 698 – 960 MHz Port 2: 1710 – 2690 MHz Port 3: 1574 – 1610 MHz Port 4: Option	Port 1: 10W Port 2: 10 W Port 3: N/A Port 4: Option	Huber& Suhner



Antenna CGW 70 26 59 SF S	<p>Cellular: Gain typ. 2,5 dBi</p> <p>GPS: Voltage supply 3 - 5.5 VDC Gain typ. 2 dBic Amplification typ. 27 dB ± 3 dB Current consumption ≤ 25 mA typ. 20 mA</p> <p>WLAN + Bluetooth: Frequency range 2400 - 2484 MHz 5725 - 5875 MHz Gain typ. 2.5 dBi@2.4 GHz typ. 3 dBi@5.8 GHz</p>	N/A	Hirschmann Car Communication GmbH
Antenna LGMM-7-27-24-58	<p>2G/3G/4G Frequencies 698-960/1710-2700MHz</p> <p>Wifi Frequencies MiMo 2.4/5.0GHz - (Optional)</p>	20W	Panorama Antennas Ltd
Antenna LGMM-7-27	<p>2G/3G/4G Frequencies 698-960/1710-2700MHz</p>	20W	Panorama Antennas Ltd
Antenna Shark 2 track (GSM/GPS/WIFI)	<p>890-2485 MHz 5180-5805 MHz</p>	Max output: GSM & UMTS: 4 W, WIFI: 8W	Calearo
Antenna 7677900 (FM/AM)	<p>0,15-1,71 MHz 87,5-108 MHz</p>		Calearo
Antenna 7677932 (AM7FM7DAB)	<p>0,15-1,71 MHz 87,5-108 MHz 174-240 MHz 1452-1492 MHz</p>		Calearo
Antenna	<p>GSM: 850/900/1800/1900 /2100MHz</p> <p>GPS: 1575.42MHz</p>	Max. power 10W	Consat
Antenna 774380	<p>GSM: 850, 900, 1800, 1900MHz</p>	<p>Power for 850/900MHz: 2W Power for 1800/1900MHz: 1W</p>	Malux



Antenna	GSM: 850, 900, 1800, 1900MHz	Power for 850/900MHz: 2W Power for 1800/1900MHz: 1W	Malux
Navilock NL-602U USB 2.0 GPS Receiver u-blox 6	GPS: L1 frequency (1575.42 MHz)	N/A	Mekasign
Antenna Smart Disc Combi GPS/GPRS	FM: 87.5-108.0 MHz  AM(MW): 522-1620 KHz  LW: 144-108.0 MHz  DAB Band III: 174.928MHz ~239.2 MHz  DAB Band L: 1452.960 ~1490.624 MHz	Max. power output 15W x 4 channels	Smarteq Wireless AB
PX-RM6 (WP23704)	-	-	Pixel Sp. z.o.o.
AllDisc Combi Antenna	Cellular: 698-790MHz 1710-2960MHz  WiFi: 2400-2485MHz 4915-5825MHz  GNSS: 1575.42 1598-1610MHz	Cellular: 10 W	Smarteq Wireless AB
Antenna 1399.99.0039	Port 1: 698 – 960 MHz 1710 – 2690 MHz Port 2: 1710-2690 MHz 4900-5935 MHz Port 3 (Glonass): 1574-1610 MHz	10W	Huber& Suhner



MIIPS Committo LG	GPS : 1575.42 MHz WCDMA : 1920-1980 MHz 2110-2170 MHz LTE : 1710-1785 MHz 1805-1880 MHz 2500-2570 MHz 2620-2690 MHz 832-862 MHz 791-821 MHz	WCDMA: 251 mW LTE: 200 mW	Fält Communications AB
Multi-band Combo Antenna	GPS/GLONASS: 1575.15-1602 MHz LTE: 704-960 MHz 1710-2690 MHz	N.A.	FARA
Multi-band Combo Antenna	GPS/GLONASS: 1575.15-1602 MHz LTE: 704-960 MHz 1710-2690 MHz	N.A.	Consat antenna
ADSC470	VHF: 174-230 MHz UHF: 470-862 MHz	Antenna gain: VHF 3 dBi UHF 13 dBi Amplifier gain: VHF 13 dB UHF 18 dB Amplifier noise: VHF/UHF 1.8 dB Voltage VHF/UHF 5 ± 0.5 Vdc	DAS / Funke
MU 7-LX/s MU 7-LX/l MU 7-LX/h	370-410 MHz 406-440 MHz 430-470 MHz	Antenna gain: 0 dB Impedance: 50 ohm Nom. Max power: 100 W	Procom
<b>AUDIO SYSTEM</b>			
RADIO Blaupunkt Cuppertino 200	FM: 87.5 – 108 MHz  AM (MW): 531 – 1,602 kHz  LW (Europe only): 153 – 279 kHz	4 x 22 watts sine at 14.4 V at 4 ohms. 4 x 50 watts max. power	Blaupunkt



RADIO DAB WITH BLUETOOTH Stockholm 230 DAB	FM: 87.5 – 108 MHz  AM: 531 – 1,602 kHz  Frequency ranges: Band III: 174.928 – 239.200 MHz (Channel 5A – Channel 13F)  L-Band: 1452.960 – 1490.624 MHz (Channel LA – Channel LW)	4 x 22 watts sine at 14.4 V at 4 ohms. 4 x 50 watts max. power	Blaupunkt
Radio Classic Line, CRD47	FM: 87.5 to 108.0 MHz  AM/MW: 530.0 to 1,710.0 kHz  LW: 153.0 to 279,0 kHz	N/A	Robert Bosch Car Multimedia
Aus 2 ( with Bluetooth)	2400 MHz – 2480 MHz	Bluetooth < 10 mW	Robert Bosch Car Multimedia



Radio Calais USB40	<p>Tuner Wavebands in Europe:</p> <p>VHF (FM): 87.5 – 108 MHz</p> <p>MW: 531 – 1602 kHz</p> <p>LW: 153 – 279 kHz</p> <p>SW: 5800 – 6300 kHz</p> <p>NAFTA wavebands: FM: 87.7 – 107.9 MHz</p> <p>AM: 530 – 1710 kHz</p> <p>WTH: 162.4 – 162.55 MHz</p> <p>FM frequency response: 30 – 15 000 Hz</p>	Amplifier 2 x 20 Watt sine wave	Robert Bosch Car Multimedia
Radio Proline 3, CCD	<p>FM: 87.5 to 108.0 MHz</p> <p>SW: 5,800 to 6,300 kHz</p> <p>AM/MW: 530.0 to 1,710.0 kHz</p> <p>WB: 162.40 to 162.55 MHz</p>		Robert Bosch Car Multimedia
Radio CDD7428UB-OR	<p>87.5 - 108.0 MHz</p> <p>AM(MW): 522-1620 KHz</p> <p>LW: 144-108.0 MHz</p> <p>DAB Band III: 174.928MHz ~239.2 MHz</p> <p>DAB Band L: 1452.960 ~1490.624 MHz</p>	Max. power output 15W x 4 channels	Continental Automotive GmbH
Radio	88-108 MHz	2x 10W	Clemessy/ Elhurt SP. Z O.O



Hearing loop amplifier Transnett 32	100-9000 Hz, - 3dB rel. 1000 Hz. Roll off > 6dB/octave above 9000 H	Loop output 30 VA with 1.5 $\Omega$ loop resistance. 24 V DC, 300 mA for accessories. Line out 600 mV. Power supply for door chime and buzz indicator on loop. Distortion: 1% at 30 VA. 70W	AB Transistor Sweden
Car Stereo with AM/FM, Bluetooth, USB, DAB/DAB+: DEH-S100UBG	DAB/DAB+: Band III: 174-240 MHz FM: 87.9 – 107.9 MHz AM: 530 – 1710 KHz Bluetooth: 2.4 GHz	4 dBm	Pioneer
Car Stereo with AM/FM, Bluetooth, USB, DAB/DAB+: DEH-S100UBG	DAB/DAB+: Band III: 174-240 MHz FM: 87.9 – 107.9 MHz AM: 530 – 1710 KHz Bluetooth: 2.4 GHz	4 dBm	Pioneer
Car Stereo with AM/FM, Bluetooth, USB, DAB/DAB+ and Spotify: DEH-S2000UI	DAB/DAB+: Band III: 174-240 MHz FM: 87.9 – 107.9 MHz AM: 530 – 1710 KHz Bluetooth: 2.4 GHz	4 dBm	Pioneer
Car Stereo with AM/FM, Bluetooth, USB, DAB/DAB+ and Spotify: DEH-S3000BT	DAB/DAB+: Band III: 174-240 MHz FM: 87.9 – 107.9 MHz AM: 530 – 1710 KHz Bluetooth: 2.4 GHz	4 dBm	Pioneer
Car Stereo with AM/FM, Bluetooth, USB, DAB/DAB+ and Spotify: DEH-S4000BT	DAB/DAB+: Band III: 174-240 MHz FM: 87.9 – 107.9 MHz AM: 530 – 1710 KHz Bluetooth: 2.4 GHz	4 dBm	Pioneer
Car Stereo with AM/FM, Bluetooth, USB, DAB/DAB+ and Spotify: DEH-S400DAB	DAB/DAB+: Band III: 174-240 MHz FM: 87.9 – 107.9 MHz AM: 530 – 1710 KHz Bluetooth: 2.4 GHz	4 dBm	Pioneer



Car Stereo with AM/FM, Bluetooth, USB, DAB/DAB+ and Spotify: DEH-X8700DAB	DAB/DAB+: Band III: 174-240 MHz FM: 87.9 – 107.9 MHz AM: 530 – 1710 KHz Bluetooth: 2.4 GHz	4 dBm	Pioneer
<b>ENTERTAINMENT SYSTEM</b>			
DVB-T receiver DTX509E			
HARDWARE HARDDISK RECORDER	Maximum update rate 10 Hz GPS Antenna: Center frequency 1575.42 +/- 3MHz (PCB Ass'y) Band width 15MHz min(-10dB)		Camos
CONTROL UNIT LUMATIC			Lumatic
MKi9200	2.4 GHz 433.92 MHz	Bluetooth <20mW	Parrot





## FLEET MANAGEMENT SYSTEM – ROAD TRAFFIC COMMUNICATION

CalAmp FleetTracking Vehicle computer LMU-2720	GSM/GPRS: 850/900/1800/1900 MHz  CDMA/1xRTT: 850/1900 MHz  HSPA/UMTS: 800(VI)/850(V)/900(VIII) MHz 1700(IV)/1900(II)/2100(I) MHz	GSM/GPRS: 850/900 32.5 dBm 1800/1900 29.3 dBm  CDMA/1xRTT 850 24 dBm 1900 23 dBm  HSPA/UMTS (all bands) 23 dBm  HSPA data rates: 5.6Mbps upload/7.2 Mbps download HSPA Fallback EDGE/GPRS/GSM quad band EDGE MCS1-MCS9 3GPP Release 6	CalAmp
Road Traffic Communicator (RTC) for GSM/GPRS Operation	850/900/1800/1900 MHz	2W for 850/900 MHz (33dBm)  1W for 1800/1900 MHz (30dBm)  0.5W for 850 8-PSK/900 8-PSK (27dBm)  0.398W for 1800 8-PSK/1900 8-PSK (26dBm)	Actia
Road Traffic Communicator (RTC) for UMTS/HSPA Operation	800/850/900/2100 MHz	0.25W (24dBm)	Actia
Road Traffic Communicator (RTC) WIFI	2.4-5 GHz	13-50 mW (11-17 dBm)	Actia
Road Traffic Communicator (RTC) Bluetooth		5 mW (7dBm)	Actia
LOCKING AND ALARM SYSTEM			
Cobra 4604, 4625, 4627, 4670, 4675, 4676, 4686 – Electronic control unit	433,92 MHz	16 mW	Vodafone
Cobra 4605, 4615, 4635, 4665, 4666, 4685, 4693, 4695, 4696, 4698	433,92 MHz	16 mW	Vodafone
Alarm Cobra 5462 - Motion detector	2,45 GHz	8 mW	Vodafone



Door remote controller, with SRD	434.02 MHz	3.67 dBm ERP	Qidong Aipu Electrical Co., Ltd.
Luggage hatch remote controller, with SRD			
<b>WIRELESS BELL PUSH SYSTEM</b>			
Stop request button TSF0285	868,3 MHz	2 mW (3dBm)	Teknoware
Wheelchair button TSF0301	868,3 MHz	2 mW (3dBm)	Teknoware
Control unit passenger signal TSF0303	868,3 MHz	2 mW (3dBm)	Teknoware
<b>TRAFFIC INFORMATION SYSTEM</b>			
Phone PT Carphone 530G 3G	UMTS: 800/850, 900, 2100MHz	Power for UMTS: max. 0.25W	Malux
Line sign control unit ICU602	AMPS /GSM 900/1800/1900/210 0MHz VSWR Bluetooth-Wifi 2400 MHz/GPS 1575.42MHz	25W	Mobitec
7FI76, TomTom Bridge	Wifi, Bluetooth, 3G	-	TomTom International BV
7FI722, TomTom Bridge	Wifi, Bluetooth, 3G	-	TomTom international BV
<b>INTERNET CONNECTION</b>			
Infotainment Set - Moovbox M310	Wi-Fi Frequency 2.400 ~ 2.483 GHz  GPS: L1 frequency (1575.42 MHz)	Max 12W including 1x WAN modem	Icomera
Infotainment Set - Moovbox M320	Wi-Fi Frequency: 2.400 ~ 2.483 GHz, 5.15~5.35 GHz, 5.47~5.725 GHz  GPS: L1 frequency (1575.42 MHz)	Max 28W including 2x WAN modem	Icomera



Infotainment Set - Moovbox M340	<p>Wi-Fi Frequency: 2.400 ~ 2.483 GHz, 5.15~5.35 GHz, 5.47~5.725 GHz</p> <p>GPS: L1 frequency (1575.42 MHz)</p>	Max 35W including 4x WAN modem	Icomera
WPEA-252NI 802.11abgn Mini PCIe module	IEEE 802.11 abgn ISM Band, 2.400GHz ~ 2.4835GHz, 5.1500MHz ~ 5.825MHz	N/A	LAWO Luminator Europe
MC7304 Module	<p>4G LTE Category Cat-3 Frequency Bands B1, B3, B7, B8, B20</p> <p>3G WCDMA B1, B2, B5, B8</p> <p>2G EDGE, GSM, GPRS 850, 900, 1800, 1900</p>	N/A	LAWO Luminator Europe
K60ZVD_0600_29_28_X X	GSM: 850/900/1800/1900 /2100 MHz	10W	Reinheimer Elektronik GmbH
K70ZVD_0600_29_28_X X	GSM: 850/900/1800/1900 /2100 MHz	10W	Reinheimer Elektronik GmbH
<b>FARE COLLECTORS</b>			
TZ00091	-	-	Pixel Sp. z.o.o.
<b>ON BOARD COMPUTER</b>			
MX-4	WiFi: 5 GHz, 2,4 GHz	20W	Host Mobility