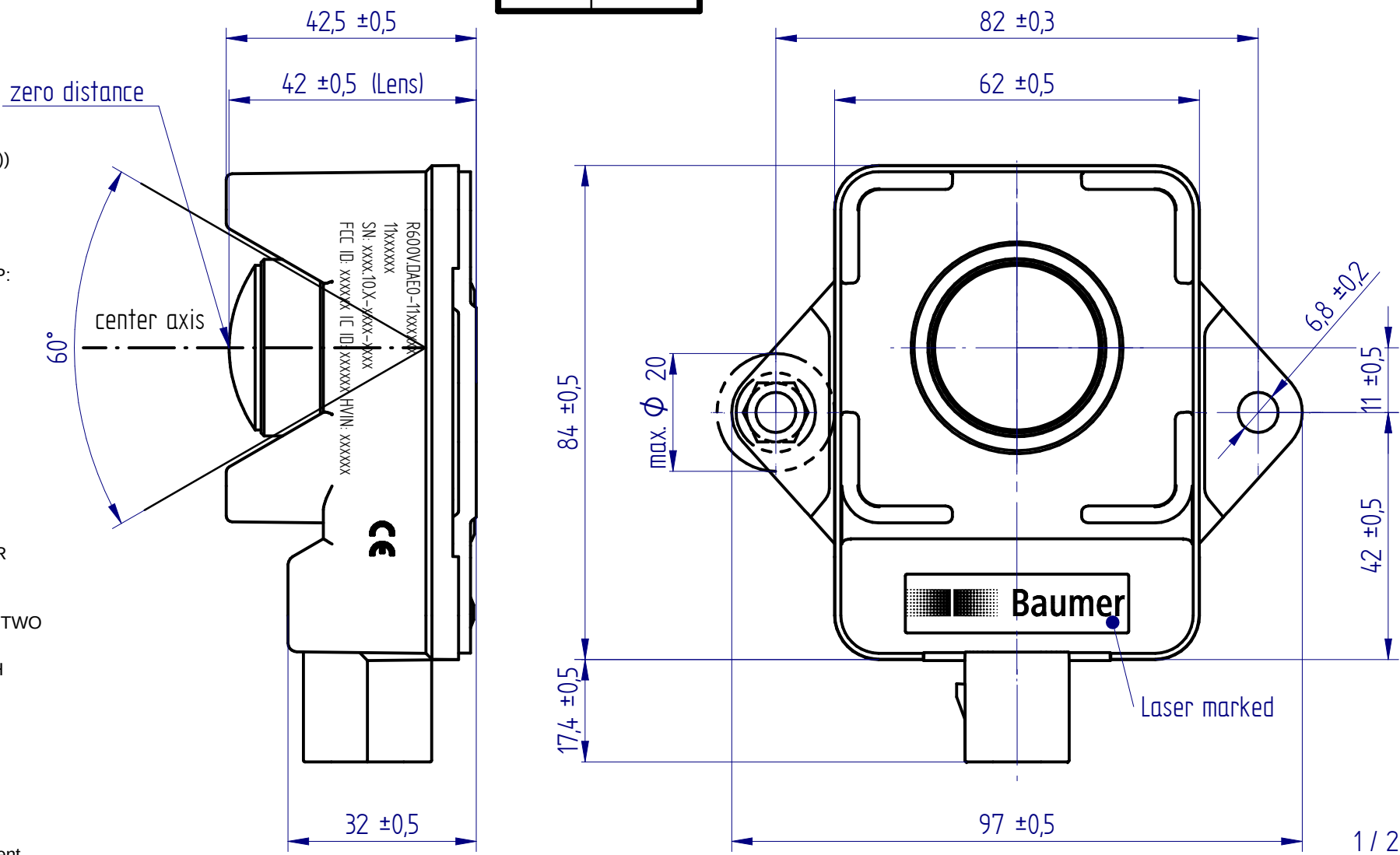
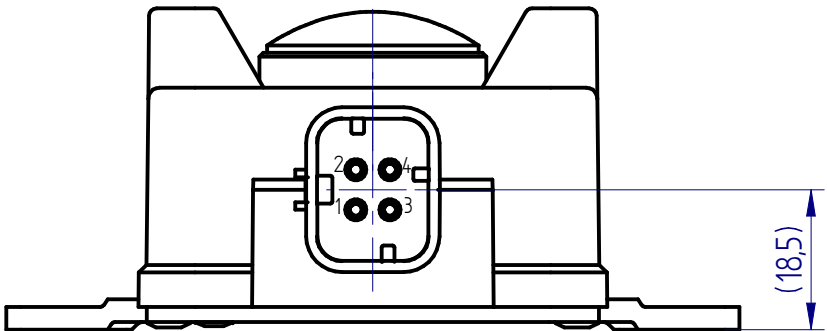


NOTES:

1. ELECTRICAL SPECIFICATION:
 - a. VOLTAGE SUPPLY RANGE: 9V...32V (12VDC/24VDC VEHICLE POWER)
 - b. CURRENT CONSUMPTION: <160mA (averaged)
 - c. RADAR FREQUENCY: 122GHz...123GHz
2. OUTPUT FUNCTION:
 - a. CAN SAE J1939
 - b. BAUD RATE: 250kbaud
 - c. OUTPUT CIRCUIT: CAN 5V without internal 120Ω terminator
 - d. CAN UPDATE RATE: $\geq 1 \dots \leq 100$ Hz
 - e. SENSING RANGE, DYNAMIC FIELD DATA: 300mm...5000mm (center axis)
 - f. SENSING RANGE, STATIC TARGET: 390mm...5000mm (center axis)
 - g. BLIND RANGE: 300mm (object detection limited)
3. MECHANICAL DATA:
 - a. RECTANGULAR HOUSING: 97 x 84 x 42.5mm (without connector)
 - b. DIAMETER MOUNTING HOLES: 6.8mm $\pm$ 0.2mm
 - c. RECOMMENDED SCREWS: M6 ACC. MBM 10105
 - d. INSTALLATION TORQUE: Screw with property class 10.9: max torque of screw 12Nm...15Nm, Screw with property class 8.8: max torque of screw 10Nm...12Nm
 - e. ENCLOSURE MATERIAL: POLYAMID (GLASS FIBER REINFORCED)
 - f. MOUNTING PLATE: ALUMINUM (COATED WITH CATAPHORETIC PAINTING (KTL))
 - g. LENS MATERIAL: Polyetherimid (PEI)
4. AMBIENT CONDITIONS:
 - a. STORAGE TEMPERATURE: -40°C...+85°C
 - b. OPERATING TEMPERATURE: -40°C...+70°C
5. SENSOR MEETS FOLLOWING REQUIREMENTS OF EMC AND ENVIRONMENT ACC. FSP:
 - a. EMC AGRICULTURAL MACHINERY EN ISO 14982 (12V/24V-SYSTEM)
 - b. EMC CONSTRUCTION MACHINERY EN 13309 (12V/24V-SYSTEM)
 - c. EMC EARTH MOVING MACHINERY ISO 13766 (12V/24V-SYSTEM)
 - d. EUROPE: RADIO EQUIPMENT AND REPEALING DIRECTIVE (RED) 2014/53/EU
 - e. USA / CDN: COMPLIANCE STATEMENTS SEE PAGE 2, CHAPTER 11 OF THIS DRAWING
 - f. EMC (Industrial) ACC. TO EN 61000-6-2 / EN 61000-6-3
 - g. PROTECTION CLASS ISO 20653: IP69K
 - h. PARTICLE IMPACT EN ISO 20567-1 (GRAVEL ACC. TO EN11124-2)
 - i. RANDOM VIBRATION IEC 60068-2-64 (5Hz...2000Hz, 11.55 Grms)
 - j. OPERATING MECHANICAL SHOCK IEC 60068-2-27 (50g)
6. PART IS MARKED WITH BAUMER LOGO; PART NUMBER; DATE CODE, SERIAL NUMBER
7. MOUNTING RECOMMENDATION:
 - a. REQUIRED FLATNESS OF THE SENSOR MOUNTING SURFACE $\leq 0.2\text{mm}/100\text{mm}$
 - b. DIRECT MOUNTING ONTO A STEEL PLATE WITH A THICKNESS OF 6mm WITH TWO M6 SCREWS
 - c. INDIRECT MOUNTING ONTO A STEEL PLATE WITH A THICKNESS OF 3mm WITH TWO M6 SCREWS AND TWO FLANGE NUTS
8. LED FUNCTIONS (LED INSIDE LENS)
 - a. SENSOR FULLY OPERATIONAL: GREEN LED blinking
 - b. NO OBJECT DETECTED: GREEN / YELLOW blinking
 - c. CAN BUS WAITING ON MASTER OR ERRORS: MAGENTA LED blinking
 - d. HW FAULT: RED LED blinking
9. Intended use / application policy:
 - a. The suitability and functionality of a Baumer product and its performance under different applications and / or end-use cases can only be verified by testing, and shall ultimately be the responsibility of the customer.
 - b. The product shall not be used:
 - For functional safety applications and in potentially explosive atmospheres.
 - In the direct control and modification of the state of function of the machine.
 - c. Possible malfunctions and failed measurements of the sensor must be intercepted at the system level and shall not lead to unsafe situations in the system.
 - d. The customer shall perform its own safety assessment to account for sensor behavior in particular situations (e.g. distance fluctuations in static situations, operator caused distance manipulation by hand or other objects).
 - e. Safety relevant information must be communicated to the end-user.
10. Recommended free space around radar lens
Rotational cone with an angle of $\pm 30^\circ$ around sensor center axis
Sensitivity and detection of objects near the blind range can be influenced by disturbing objects (e.g. metal boom structures or water hose) within this free space. Moving objects up to 60° outside of free space should be avoided. Further testing is recommended to define a smaller free space.

Mating Connector AMPSEAL 16	
776524-1	
PIN 1	+Vs
PIN 2	CAN HI
PIN 3	GND
PIN 4	CAN LO



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Qty	Item					Pos.	Material					Remarks			
Mod	Rev	Drawn	Approved		Mod	Rev	Drawn	Approved		deleted	Project		10714028 Off Highway Radar		
											Replaced by				
											Replacement for				
R600V.DAE0-11724913										Scale 1:1	Drawn	12.01.2022	cg		
Advanced HHC Radar sensor											Checked				
											Approved				
</															

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22. Feb. 2024

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11. ADDITIONAL ENVIRONMENT AND EMC SPECIFICATIONS FOR AHHC RADAR SENSOR

a. TEMPERATURE SHOCK (ENS0310M-Section: 10.1.4.4): -40°C...85°C 100 CYCLES

b. VIBRATION – WHEELED VEHICLES (ENS0310M-Section: 10.2.2.7) – Location 4B

c. SALT SPRAY CORROSION (ENS0310M-Section: 10.4.4.4)

d. EMC BULK CURRENT INJECTION (ENS0310M-Section: 14.7.4.3): Class A (L1 profile, 100mA max. current, 10W); Class A (L3 profile, 300mA max. current, 25W)

e. EMC ALSE (ENS0310M-Section: 14.7.4.2): Sensor fulfills EN ISO 14982:2009 requirements, EMC -ALSE limitations (ISO 11452-2:2004):

i. 200MHz – 1GHz: AM: 200V/m; PM: 200V/m with gain setting 3

ii. 1GHz – 2GHz: AM: 30V/m; PM: 30V/m with gain setting 3

iii. 1GHz – 2 GHz: AM: 200V/m; PM: 200V/m with gain setting 2

12. Compliance Statements:

a. FCC Compliance Statement

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

NOTICE: Changes or modifications made to this equipment not expressly approved by Baumer may void the FCC authorization to operate this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Radiofrequency radiation exposure Information:

This equipment complies with FCC exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or trans mitter.

b. Canada Compliance Statement

This device complies with Industry Canada licence-exempt RSS standard(s).

Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

Ce transmetteur ne doit pas être place au même endroit ou utilise simultanément avec un autre transmetteur ou antenne.

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Qty	Item				Pos.	Material				Remarks			
Mod	Rev	Drawn	Approved	Mod	Rev	Drawn	Approved		Project	10714028 Off Highway Radar			
									Replaced by				
									Replacement for				
R600V.DAE0-11724913								Scale	Drawn	12.01.2022	cg		
Advanced HHC Radar sensor								1:1	Checked				
								Approved					
Baumer Baumer Electric AG Postfach · Hummelstrasse 17 · CH-8501 Frauenfeld Phone +41 (0)52 728 11 22 · Fax +41 (0)52 728 11 44								11724913		RZ.00021			