

Radar Sensoren  
 Radar sensors  
 Détecteurs à radar

# R600V.DAH5-11221283

Multiobjekt Radarsensor

Multi-object radar sensor

Détecteur radar de multi-objet



11221283



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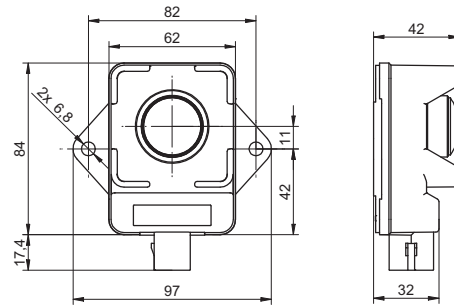
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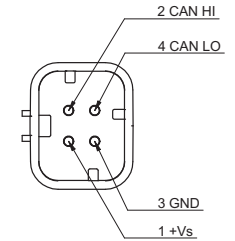
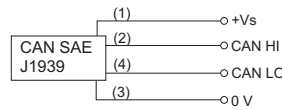
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## Abmessungen Dimensions Dimensions



- Alle Masse in mm
- All dimensions in mm
- Toutes les dimensions en mm

## Elektrischer Anschluss Connection diagram Schéma de raccordement



- Vor dem Anschliessen des Sensors die Anlage spannungsfrei schalten.
- Disconnect power before connecting the sensor.
- Mettre l'installation hors tension avant le raccordement du détecteur.

### Technische Daten

Erfassungsbereich Sd	0,3 ... 8,5 m
Öffnungswinkel	6° (3dB)
Betriebsspannungsbereich +Vs	9 ... 32 VDC
Stromaufnahme max. (ohne Last)	160 mA
Ausgangsschaltung	CAN (5V)
logische Schnittstelle	CAN SAE J1939
Baud Rate	250 kBaud (500 kBaud)
kurzschlussfest	ja
verpolungsfest	ja, Vs zu GND
Arbeitstemperatur	-40 ... +70 °C
Lagertemperatur	-40 ... +85 °C
Schutzart	IP 68/69K

### Technical data

sensing distance Sd	0,3 ... 8,5 m
aperture angle	6° (3dB)
voltage supply range +Vs	9 ... 32 VDC
current consumption max. (no load)	160 mA
output circuit	CAN (5V)
logical interface	CAN SAE J1939
baud rate	250 kBaud (500 kBaud)
short circuit protection	yes
reverse polarity protection	yes, Vs to GND
operating temperature	-40 ... +70 °C
storage temperature	-40 ... +85 °C
protection class	IP 68/69K

### Données techniques

Portée de détection Sd	0,3 ... 8,5 m
Angle d'ouverture	6° (3dB)
Plage de tension +Vs	9 ... 32 VDC
Consommation max. (sans charge)	160 mA
circuit de sortie	CAN (5V)
interface logique	CAN SAE J1939
vitesse de transmission	250 kBaud (500 kBaud)
Protégé contre courts-circuits	oui
Protégé contre inversion polarité	oui, Vs vers GND
Température de fonctionnement	-40 ... +70 °C
Température de stockage	-40 ... +85 °C
Classe de protection	IP 68/69K

Technische Änderungen vorbehalten

Tecnical specifications subject to change

Sous réserve de modifications techniques

### 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 transmitter.

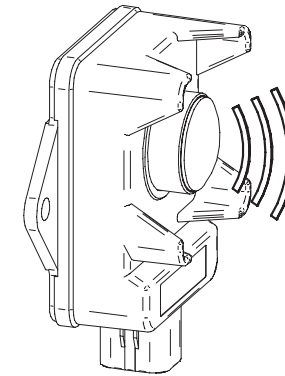
### Canada Compliance Statement

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 placé au même endroit ou utilisé simultanément avec un autre transmetteur ou antenne.

**Visuelle Diagnose****Visual diagnostic****Diagnostic visuel**

Status / Status / Condition	Code
Sensor voll funktionfähig (Objekt detektiert) Sensor fully operational (object detected) Capteur complètement opérationnel (objet détecté)	100 ms grüne LED an / green LED on / LED verte alluminée 900 ms LED aus / off / éteinte
Sensor voll funktionfähig (kein Objekt detektiert) Sensor fully operational (no object detected) Capteur complètement opérationnel (aucun objet détecté)	wie oben / as above / comme ci-dessus zusätzlich / with additional / avec supplémentaire 100 ms gelbe LED an / yellow LED on / LED jaune alluminée
Elektronikfehler Hardware fault Défaut de matériel	50 ms rote LED an / red LED on / LED rouge alluminée 50 ms LED aus / off / éteinte
CAN Abwurf (Fehlfunktion) CAN bus off (malfunction) Arrêt du bus CAN (dysfonctionnement)	50 ms magenta LED an / on / alluminée 150 ms LED aus / off / éteinte
Adresszuweisung fehlgeschlagen Address claim failed La demande d'adressage a échoué	50 ms magenta LED an / on / alluminée 50 ms LED aus / off / éteinte
Warten auf Adresszuweisung Waiting for Master ECU address claim En attente de la demande d'adressage du contrôleur	500 ms magenta LED an / on / alluminée 500 ms LED aus / off / éteinte
Andere / other / autre	blaue LED / blue LED / LED bleue

**CAN Kommunikation - CAN communication - communication CAN****Grundinformation CAN - basic information CAN - informations de base CAN**

ISO Name	Manufacturer code:	343 (Baumer Group)
ISO name	ECU instance:	0
Nom ISO	Function instance:	3
	Function:	255 (non specific)
	System:	127 (non specific)
	System instance:	0
	Industry group:	2
	Arbitration capable:	1
Geräteadresse	Unterstützt / supports „commanded address“ /	
Device address	Prend en charge „l'adresse commandée“	
Adresse de l'appareil	(PGN 0xFED8)	
	im Bereich / in range / dans l' interval:	
	0x80 ... 0xCF (Standard / default / défaut 0x80)	

**Objektdistanzen CAN Nachrichten - object distances CAN messages - Messages CAN des distances d' objet**

PGN CAN Nachrichten (für 8 Objekte) / CAN messages (for 8 objects) / Messages CAN (pour 8 objets) : 0xC000

Start bit	Bits	Abstand offset décalage	Skalierung scaling mise à l'échelle	Beschreibung / description / description
1	2	0	1	Multiplexer / multiplexor / multiplexor n = {0, 1, 2, 3}
3	2	0	1	Sensorstatus / Sensor status / état de capteur 0 = Kein Fehler / no error / Pas d' erreur 1 = Reversibler Fehler / reversible error / erreur reversible 2 = Irreversibler Fehler / irreversible error / erreur irréversible
5	1	0	1	Objektstatus 2n+1 / object status 2n+1 / statut d' objet 2n+1
6	1	0	1	Objektstatus 2n+2 / object status 2n+2 / statut d' objet 2n+2
7	14	0	1 mm	Objektdistanz 2n+1 / object distance 2n+1 / distance d' objet 2n+1
21	14	0	1 mm	Objektdistanz 2n+2 / object distance 2n+2 / distance d' objet 2n+2
35	7	0	1 %	Konfidenz Objektdistanz 2n+1 / object distance confidence 2n+1 / confiance dans la distance du objet 2n+1 [0 ... 100%]
42	7	0	1 %	Konfidenz Objektdistanz 2n+2 / object distance confidence 2n+2 / confiance dans la distance du objet 2n+2 [0 ... 100%]
49	8	128	0.03125 m/s	Objektgeschwindigkeit 2n+1 / object speed 2n+1 / vitesse d' objet 2n+1 [-4 ... 3.96875 m/s]
57	8	128	0.03125 m/s	Objektgeschwindigkeit 2n+2 / object speed 2n+2 / vitesse d' objet 2n+2 [-4 ... 3.96875 m/s]

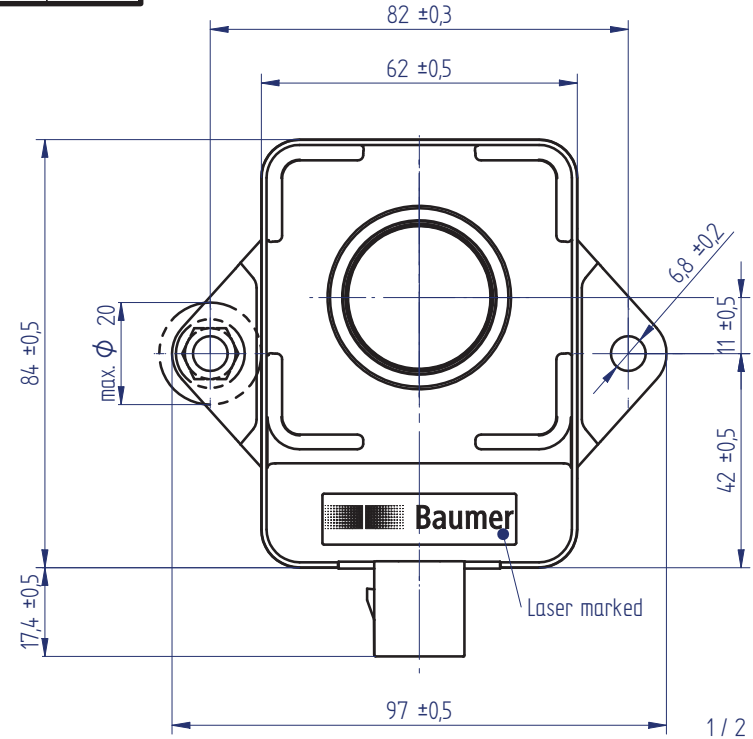
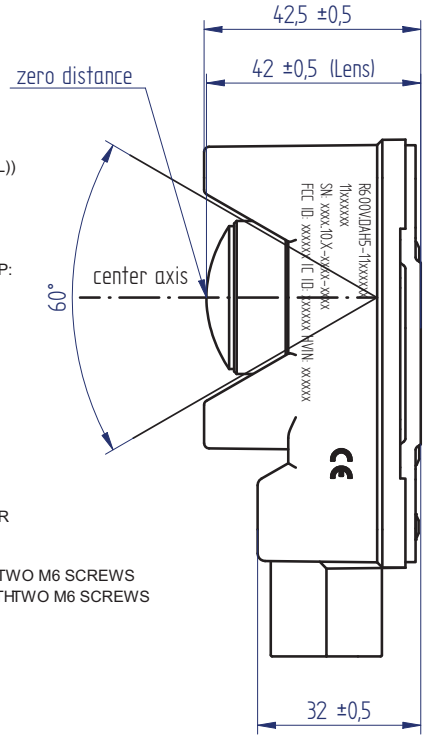
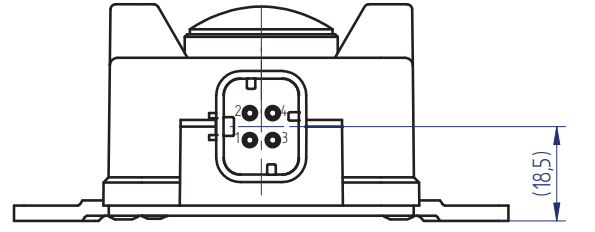
Für weitere Informationen lesen Sie bitte die Bedienungsanleitung - For further information please refer to the user manual - Pour plus d' informations, veuillez vous référer au manuel d' utilisation

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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: 250/500kbaud
  - c. OUTPUT CIRCUIT: CAN without internal 120Ω terminator (5V CAN-SYSTEM)
  - d. CAN UPDATE RATE: ≥ 0.2Hz ... ≤ 100 Hz
  - e. SENSING RANGE (FROM LENS FRONT): 300mm...8500mm
  - f. SENSING RANGE, STATIC TARGET: 390mm...8500mm (center axis)
  - g. BLIND RANGE: 300mm (object detection limited)
3. MECHANICAL DATA:
  - a. RECTANGULAR HOUSING: 97 x (84 ± 17.4) x 42.5mm
  - b. DIAMETER MOUNTING HOLES: 6.8mm ± 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 FIBRE REINFORCED)
  - f. MOUNTING PLATE: ALUMINIUM (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) EN 61000-6-2 / EN 61000-6-3
  - g. PROTECTION CLASS ISO 20653\_2013: IP68/IP69K
  - h. PARTICLE IMPACT EN ISO 20567-1 (GRAVEL 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 ≤ 0.2mm/100mm
  - 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:
    - I. For functional safety applications and in potentially explosive atmospheres.
    - II. 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. INTEGRATION REMARKS:
 

Objects within a rotational cone of ± 30° may be picked up by the sensor depending on position and/or surface properties. When mounting behind a cover material, properties and thickness must be taken into account to avoid excessive damping of the signal. Coatings containing metal must be avoided.

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



Qty	Item	Pos.	Material	Remarks		
Rev	Drawn	Approved	Rev	Drawn	Approved	<del>deleted</del> Project 10714028 Off Highway Radar Replaced by Replacement for
a	13.01.2021	cg	13.01.2021	rma		
Mod	b	18.02.2021	cg	18.02.2021	rma	
<b>R600V.DAH5-11221283</b> <b>Multi object radar sensor</b>				Scale	1:1	Drawn 09.03.2020 cg Checked 09.03.2020 rma Approved 31.08.2020 wemi
<b>Baumer</b> Baumer Electric AG Postfach · Hummelstrasse 17 · CH-8501 Frauenfeld Phone +41 (0)52 728 11 22 · Fax +41 (0)52 728 11 44				11221283	RZ.00019	B

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A  
B  
C  
D  
E  
F

11. 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 transmitter.

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 placé au même endroit ou utilisé simultanément avec un autre transmetteur ou antenne.

This drawing is OUR PROPERTY and may not be copied, recreated or made available to any third party without prior permission	Qty		Item		Pos.	Material		Remarks				
	Rev	Drawn	Approved		Mod	Rev	Drawn	Approved	<del>deleted</del> Project 10714028 Off Highway Radar Replaced by Replacement for			
	a	13.01.2021 cg	13.01.2021 rma									
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	R600V.DAH5-11221283								Scale	Drawn	09.03.2020	cg
	Multi object radar sensor								1:1	Checked	09.03.2020	rma
										Approved	31.08.2020	wemi
	<b>Baumer</b> Baumer Electric AG Postfach · Hummelstrasse 17 · CH-8501 Frauenfeld Phone +41 (0)52 728 11 22 · Fax +41 (0)52 728 11 44								11221283	RZ.00019	B	