RadarRanger® Anti Collision Devices

Radar Scanner CRAT20-11/11ST normal beam angle long range for moving and stationary targets











PETER-PAUL TITZE

Peter-Paul Titze **IDEEN IN SENSORIK** Arpker Weg 25a 31234 Edemissen · Germany Phone +49(0)5177 92117 Fax +49(0)5177 8485

peter-paul.titze@t-online.de · www.titze-fragen.de

Karl-Heinz Guenther Consult-IMPEX e.K. Haller Str. 189 74564 Crailsheim Germany

Consult-IMPEX Business Solutions

Mobile.: +49 157 8702 9999 Phone: +49 7951 4691 460

VAT: DE301350199 Steuer Nr.: 57258/03915 Amtsgericht Ulm, HRA 724763 EORI: DE899069944611164

Email: <u>kh@consult-impex.com</u> Homepage: <u>www.consult-impex.com</u>

Radar Scanner CRAT20-11/11ST

- normal beam angle
- long range
- for moving and stationary targets



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Description

The radar scanner is a FMCW-Radar and works in the frequency range from 24,000 - 24,250 GHz. The antenna characteristics is $11^{\circ} (\pm 5,5^{\circ})$ vertical and horizontal.

The device is able to detect moving and stationary objects up to a distance from 40m. The adjustable distance is in 1m steps from 4 - 40m. The close-up range from 0-1m will not evaluated. In the range from 1-4m it needs a minimum speed from less than 1cm/sec (0,6m/min).

Object detections will be reported by open-collector-outputs. The unit has 3 outputs which can be used for example as slow down or stop features. We can program them to the needed values of each application. The 3 outputs are allocated at a 5-pin RSF4 standard connector. Output 3 canbe programmed to a analog output from 4-20mA.

This device was especially developed for the anti-collison and start up protection in the field of fast moving marine port cranes, for example Straddle Carrier, RTGC, RMGC, STS and OHBC.

Vantages:

- high operating distance
- insensibility against environmental conditions
- wide temperatur range
- high class of protection
- heavy duty enclosure

Special brackets from the accessories program are helpful for easy mounting.

For the re-fitting of existing equipment we sell an interface box with different input voltages and galvanically isolated outputs.

Because of their physical properties, radar scanner devices must NOT be used for personal safety or EMERGENCY OFF functions.

Mechanical Design:

Weight Material Protection Class Housing Dimensions Mounting Drillings/Housing Back Side	approx. 650 g Lower Housing Section: ALg, black anodized Housing Cover: POM-Plastic black colored IP 67 100 x 100 x 42 mm 4 X M4-Tread, 10mm deep, quadratically arranged: 82 x 82 mm
Electrical Design:	
Supply Voltage Current Consumption Output Connection Sending Frequency Transmitting Power Antenna Charakteristics Distance Detection	24 VDC +/- 20% typ. 130 mA, plus current for the Open-Collector-Outputs 3 Open-Collector-Outputs with each 50mA or 2 Open-Collector-Outputs and 1 Analog-Output 4-20mA (4-20mA output with a resolution from 6 bit width (64 steps)) 5-pin Connector M12x1, RSF4 compatible 24.000 24.250 GHz < 20dBm (EIRP) max. 11° (+/-5,5°) vertical und horizontal up to 40m (in 1m steps from 4 - 40m adjustable) 0 - 1m will not be evaluated, 1 - 4m minimum speed less 1cm/sec (0,6m/min) required 4 -40m works also with stationary targets
Response Time Hold Time of the Outputs Readiness delay after power on Operating Temperature Storage Temperature	< 50 ms ca. 0,1 1 sec depending of Object Dimensions approx. 1 sec -40 +85 °C -40 +85 °C

Connection Diagramm:

	+ —== 1	brown	Power Supply 24 VDC	- Radio Standard ETSI EN 300440
	⊥ == 3	blue	Power Supply 0 V	- EMV-Testing ETSI EN301 489-3
		black	Output 1	EN/IEC 61000-4-3, EN/IEC 61000-4-6, EN/IEC 61000-4-4, EN/IEC 61000-4-2, EN/IEC 61000-4-5, EN/IEC 61000-4-11
		white	Output 2	- Safety Testing EN 60950-1
	-K 50 mA 5	grey	Output 3 (open collector o	or 4-20mA, depending on programming)

Standard Conformity:

Typical Antenna Characteristics/ Switching Loops:

Measurement Range Diameter by 11x11 horizontal and vertical equal (m) sensitivity middle 20dB, target metal plate 50x50cm



Standard Protection Dome and Support Bracket:







Material: 1.4301 Material press nuts: stainless steel Material thickness: 2mm Weight: approx 4,6Kg









4x flat head screw M4x6mm included in each delivery

Small-Sized Bracket:



80

<u>M5</u>





Material: 1.4301 Material press nuts: stainless steel Material thickness: 2mm Weight: approx 0,8Kg







4x flat head screw M4x6mm included in each delivery

Wheel Guard Bracket:

B-B

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260

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Material: 1.4301 Material press nuts: stainless steel Material thickness: 2mm Weight: approx 3,2Kg









4x flat head screw M4x 6mm 4x flat head screw M5x12mm included in each delivery

Cordsets for Scanner Type:

4/5-pin straight plug with LED different cable length avaiable, please inquire!



4/5-pin straight plug without LED different cable length avaiable, please inquire!



Commissioning Tool 1 (all plug connectors)



Configuration Box:

for programming the RadarRanger Scanner types, incl. Software, Limosa connector for Radar connection SUB-D 9-pin connector for connection to RS232 PC



Corner-Reflector:

for use in applications with small or not accurately defined targets and basic alignment of all systems



Laser Alignment System:

for easy and optimally alignment for all radar system !!Attention, please use only pointer with parallel laser beam <u>!!The Laserpointer is not in the scope of delivery</u>

