

Distance measurement unaffected
by environmental factors

Fail-safe operation

Digital setting of the distance in metres

Easy to install

No preventive maintenance



RDM

ANTICOLLISION TELEMETER



CEIA RDM - Anticollision Telemeter

CEIA anticollision telemeters are operator-support protective devices for bridge cranes travelling along the same running plane, in compliance with the safety regulations foreseen under D.P.R. N° 547, D.Lgs. N° 626 and Machinery Directive 98/37/CE (D.P.R. N° 459).

Operation of RDM telemeters is based on the emission of a highly-directional electromagnetic field, provided by a transmitter, so as to obtain the distance from the adjacent bridge crane via the signal reflected from the latter, and thus trigger intervention by the slowing and stopping relays. The intervention thresholds, expressed in metres, can be pre-set digitally. Two additional thresholds can be provided on request.

A cabin repeater equipped with a luminous display and acoustic signalling device **tells the operator the distance in metres** from the adjacent bridge crane and gives information on slowing and stopping operations, allowing real-time assessment of the approach speed.

The CEIA RDM telemeter is a variant of the altimetric radar system (Pat. CEIA N° 1244/B/83): **the accuracy of the measurement obtained is independent of both environmental and electrical operating conditions**. This measurement, being based on the calculation of the return time of the electromagnetic

wave, is insensitive to attenuations due to airborne dust, meteorological phenomena, vibrations and electromagnetic and other interference, thus guaranteeing full response. **The device incorporates an autodiagnostic system that checks the parts that are essential for operation and manages the safety intervention relays** (normally excited). The completely passive nature of the reflector guarantees that the CEIA RDM anticollision telemeter operates in fail-safe mode.

The use of high-integration technology and the implementation of suitable mathematical algorithms in the microprocessor allow high performance to be achieved in terms of reliability and accuracy of measurement.

Thanks to application of the **FM-CW Radar principle**, the CEIA anticollision telemeter provides **precise, repetitive measurements**, even under the most difficult environmental conditions, and operates in Fail-safe mode, thus affording **maximum protection for the operators and structures**

Advantages of the CEIA RDM Anticollision system

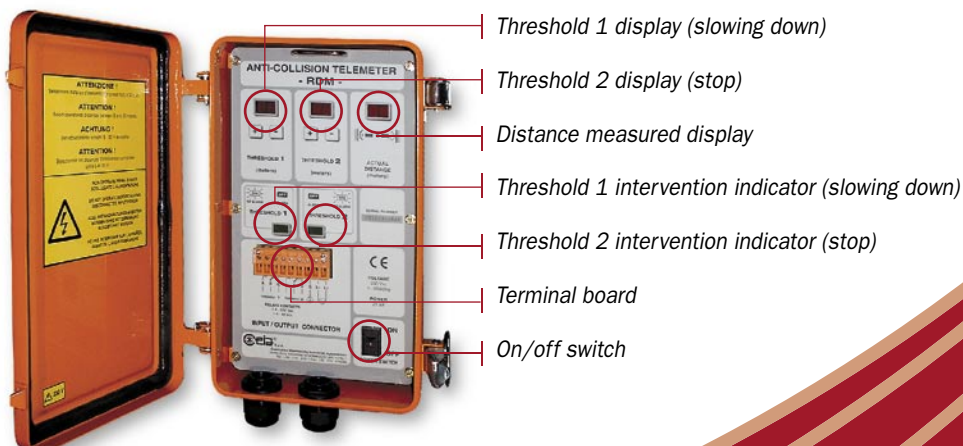
OPERATING PRINCIPLE	CEIA ALTIMETRIC RADAR MICROWAVES	DOPPLER MICROWAVES	INDUCTION FIELD	OPTICAL	ULTRASONIC	ELECTROMECHANICAL
MAX. DISTANCE MEASUREMENT	99 m	20 ÷ 25 m	20 m	10 ÷ 15 m	28 m	2 ÷ 3 m
DIGITAL SETTING OF INTERVENTION DISTANCES	YES*	NO	NO	NO	NO	NO
UNAFFECTED BY ENVIRONMENTAL FACTORS	YES	NO	NO	NO	NO	YES
FAILSAFE OPERATION	YES	NO**	NO	YES	YES	-
RELATIVE VELOCITY INFORMATION	YES	YES	NO	NO	NO	NO
ACCURACY OF MEASUREMENT INDEPENDENT OF VELOCITY OF THE CRANES	YES	NO	YES	YES	NO	YES
AUTOMATIC CHANNELLING (SYNCHRONISATION BETWEEN TWO OR MORE TELEMETERS)	YES	YES	NO	YES	NO	-
EASY TO INSTALL	YES	YES	NO	NO	NO	YES

* Also programmable as a function of the speed approaching; ** Reflector with active transponder

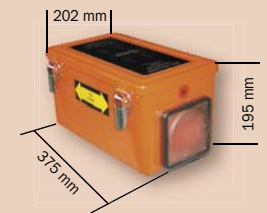
Product models and Configurations

Models	Slowing distance	Stop distance
RDM/1S-20 RDM/2S-20	– 4 ÷ 20 m	4 ÷ 20 m 4 ÷ 20 m
RDM/1S-30 RDM/1S-60	– –	5 ÷ 30 m 5 ÷ 60 m
RDM/2S-30 RDM/2S-60	5 ÷ 30 m 5 ÷ 60 m	5 ÷ 30 m 5 ÷ 60 m
RDM/2S-99	5 ÷ 99 m	5 ÷ 99 m

Options	Description
RDM-RC	Remote display unit showing distance and intervention status. Fitted with digital display, LED signalling and acoustic alarm
RDM-ARU	Expansion unit, connected to the RDM basic unit via serial cable, enabling implementation of two additional digitally-set intervention thresholds



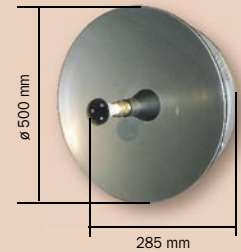
Control unit, models RDM/1S-20, RDM/2S-20



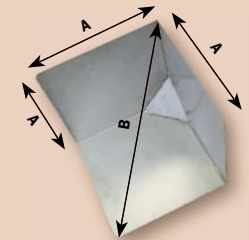
Control unit RDM



Parabola RDM



Reflector RDM



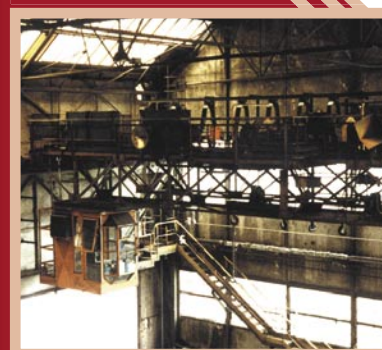
model	A (mm)	B (mm)
450	450	720
600	600	970

Cab repeater RDM



Technical Characteristics

- Intervention distances adjustable:
from 4 m to 20 m (RDM/20);
from 5 m to 30 m (RDM/30);
from 5 m to 60 m (RDM/60);
from 5 m to 99 m (RDM/99)
- Digital setting of distance in metres. Measurement resolution: 1 metre, with indication independent of environmental and ageing-related factors.
- Digital indication of the distance in metres via luminous display in cabin.
- Acoustic signalling of slowing and stopping (optional, via Mod. RDM-RC repeater).
- Directivity superior to any other system currently on the market (-3 dB at 3°).
- Minimal power density of emitted signal: $3,5\mu\text{W}/\text{cm}^2$ in contact with the parabola.
- No danger to people or objects (limit of Osha=1 mW/cm²).
- Easy alignment of the reflector with the transmitter, guided by LED indicators located both on the display unit and on the parabola.
- Unaffected by normal bridge-crane skew.
- Unaffected by variations in power supply voltage of +15/-20% at constant rate.
- Unaffected by sudden variations in power supply voltage due to spikes up to - 40%.
- Measurement unaffected by rising hot air currents, vibrations, humidity, rain or dust.
- Autodiagnosis of transmitter group, receiver, frequency modulator, quartz time base and power supply; any failure is signalled by dropout of the stop relay.
- No preventive maintenance.
- All operations controlled by a microcomputer.
- Anti-interference filter between conductors and earth for voltages up to 3 kV for 500 μs or 1500 V 50 Hz for 3 s.
- Electronics unit in IP55 container.
- Operating voltage: 220 V 50/60 Hz;
110 V 50/60 Hz on request.
- Operating temperature: $-15 \div +70^\circ\text{C}$.
- Absorbed power: 25 VA.
- Relay current-carrying capacity: 10 A 250 Vca.
- Complies with CE and international regulations regarding electrical safety and electromagnetic compatibility (EMC).
- Unrestricted-use transceiver equipment (ERC/REC 70-03E).



COSTRUZIONI ELETTRONICHE INDUSTRIALI AUTOMATISMI

Zona Ind.le 54/G, 52040 Vicomaggo - AREZZO (ITALY)

Tel.: +39 0575 4181 Fax: +39 0575 418296 E-mail: qa-detectors@ceia-spa.com

www.ceia.net