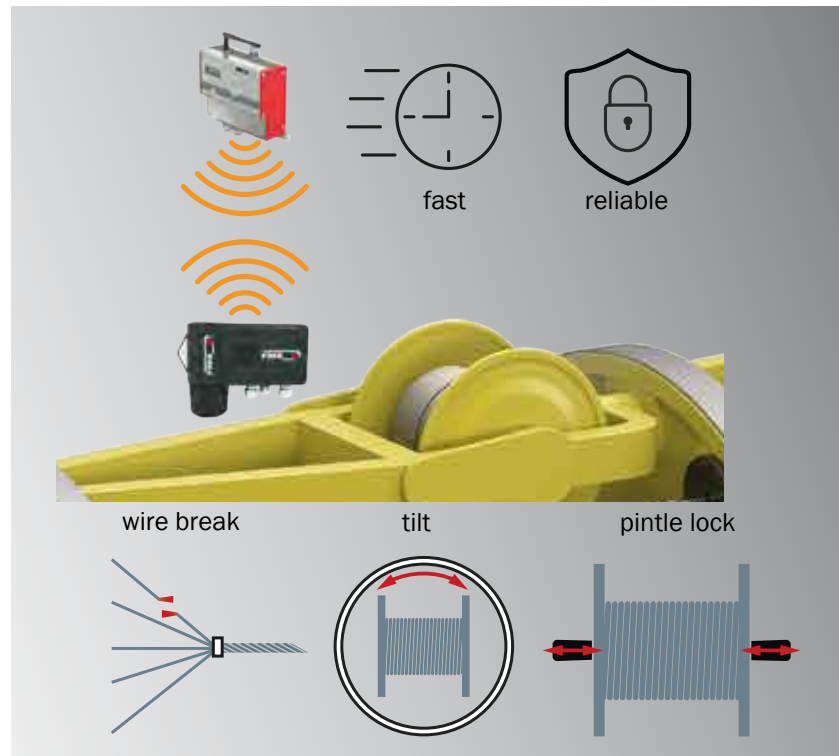


FMS Telemetry Systems

FMS-cradleGUARD™ Reliable wireless monitoring of all cradles

- 100% reliable and fast wire break detection**
 Instant response, completely independent of where the wire breaks
- Quick fault diagnosis, shorter downtime**
 Clear text display of the faulty cradle saves time and money
- Easy retrofit, without slip-rings**
 Compact dimensions, long battery life, optional 24 VDC power supply
- Universal use, up to 42 cradles**
 3 independent inputs, e.g. for: pintle locks, tilt switch, wire break detection, etc.

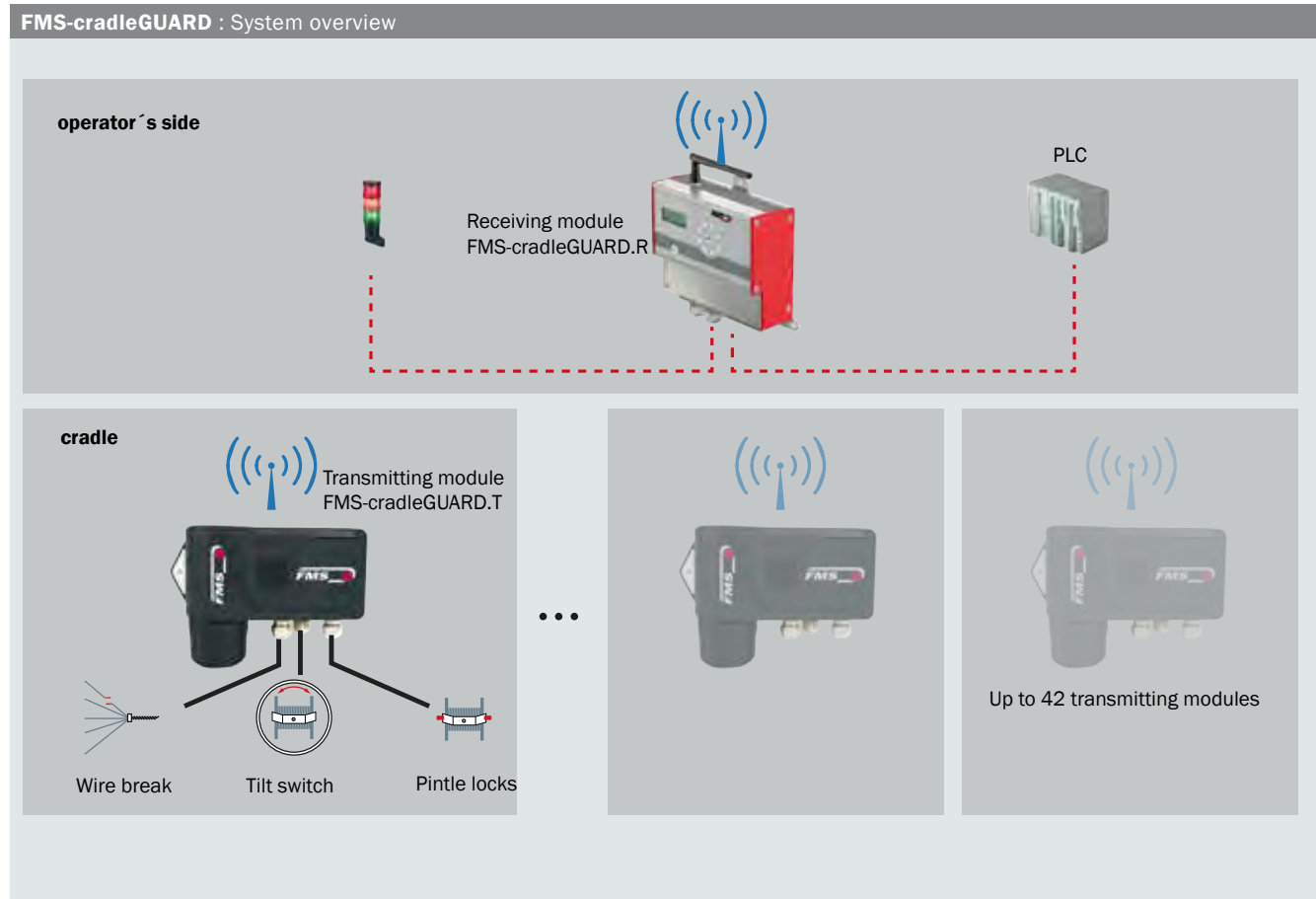


FMS-cradleGUARD

The FMS-cradleGUARD telemetry system was specifically designed to improve the operational safety of older stranding machines. In such plants, safety circuits often no longer function reliably enough to guarantee safe operation due to worn slip rings or brittle signal cables. Maintenance and repair of slip-rings are very costly. The number of signals in systems with slip-rings is often limited to save costs. Consequently, safety switches are grouped together and, for example, connected in series. With such an arrangement, troubleshooting is complex and very time-consuming. Quick fault rectification is therefore not possible, resulting in long downtimes. With the FMS-cradleGUARD, you get a system that reliably transmits information via radio from the machine to the control panel. The clear assignment of a fault to a specific cradle, with plain-text display on the screen, enables the operator to resolve the issue quickly. Shorter downtimes boost productivity whilst simultaneously enhancing machine safety. Industry-proven battery and charging technology ensures a wireless power supply to all components.

Functional description

The FMS-cradleGUARD consists of just two different system components. One transmitter module (FMS-cradleGUARD.T) per cradle contains terminal blocks for up to three switches and the radio module. Radio frequencies can be clearly separated, ensuring operational reliability. The receiver module (FMS-cradleGUARD.R), located outside the machine, receives the signals from the individual transmitter modules and displays their status in plain text on the screen. You can connect the integrated relay outputs directly to the PLC or a warning light. You can conveniently configure the system – such as naming the inputs, defining the switch logic and assigning the transmitter modules – via the integrated web interface. To do this, simply connect the FMS-cradleGUARD.R receiver module to a computer (PC or laptop) via an Ethernet cable.



FMS-cradleGUARD : Main components

Receiving module FMS-cradleGUARD.R

On the operators side, receives data from individual transmitters



- Clear text display of error type and ID
- Four configurable relay outputs
- Simple configuration via integrated web interface

Transmitting module FMS-cradleGUARD.T

On the cradle, radio module, terminal blocks for switches



- Connection for up to three switches, proximity switches, mechanical switches, keys
- Power supply via rechargeable battery, optionally 24 VDC (18 to 36 VDC)
- Reinforced mounting brackets on the housing

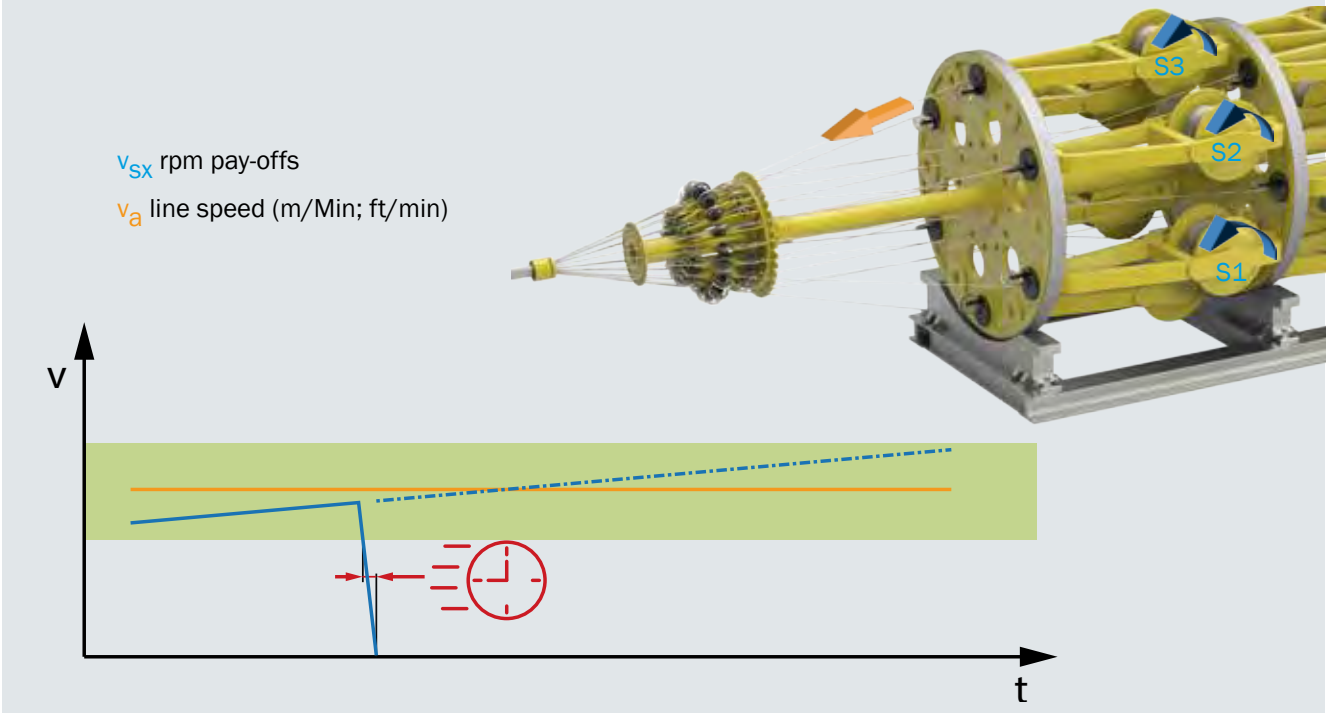
Batteries and charger

With quick-release fasteners, industrial grade



- 12 VDC battery, 3 Ah
- Depending on the operating mode, the number and type of connected sensors, the battery life can be several weeks.

Wire break detection (available as an accessory in a set)



Short response time

- Regardless of where the wire breaks, the response time is always the same
- On average, the response time is just a few seconds
- Fast enough to prevent major damage or extra work caused by the strands being pulled in.

100% reliable

- No slip-rings, no wear
- Measurement is based on the continuous comparison of the production speed and the rotational speed of each pay-off
- One-time configuration required

Easy retrofitting and integration

- For cage and tubular stranding machines
- No slip-rings, no power supply required on the machine, contactless measurement
- Robust, compact components for easy installation
- The speed of the individual pay-offs is measured using gear rings (included)
- The production speed is determined by the speed of the capstan (proximity switch included)

Minimum requirements for wire break detection

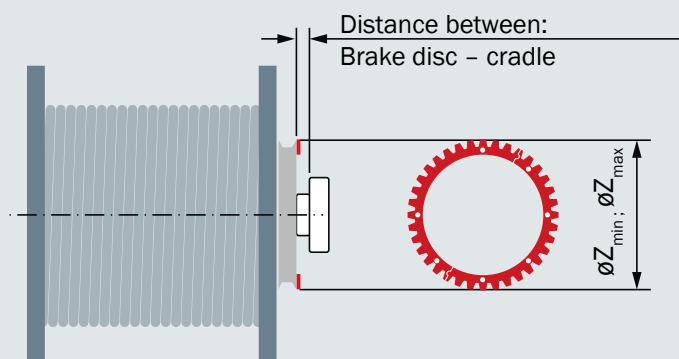
Measurement of production length

- At least 1 pulse per 0.25 m (10 in.) of produced length

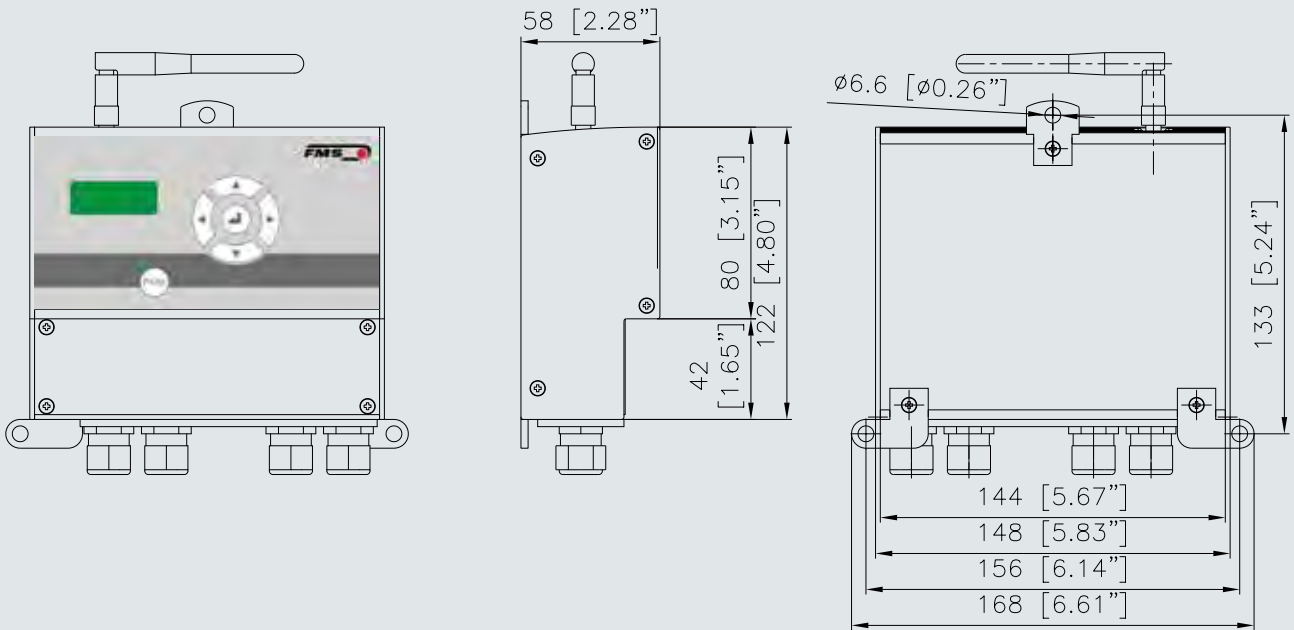
Speed measurement of pay-offs

- Material feed rate < 10 m/min. (30 ft/min.)
 36 pulses per spool revolution
- Material feed rate 10 to 40 m/min. (30 to 120 ft/min.)
 12 pulses per spool revolution
- Material feed rate > 40 m/min. (> 120 ft/min.)
 6 pulses per spool revolution
- Pulse: (DC: 24V / 50mA)

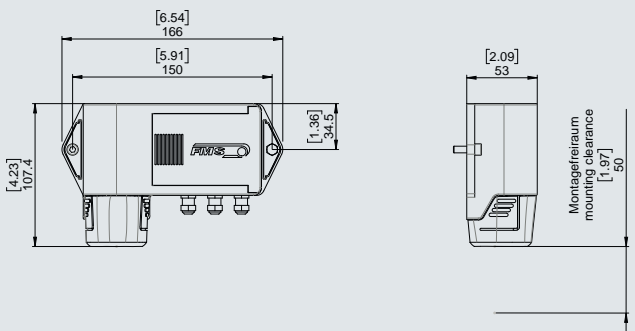
Installation room for ring gear



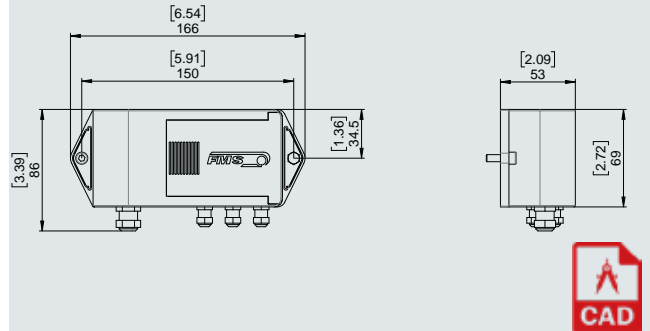
Receiving module FMS-cradleGUARD.R : Dimensions mm (in.)



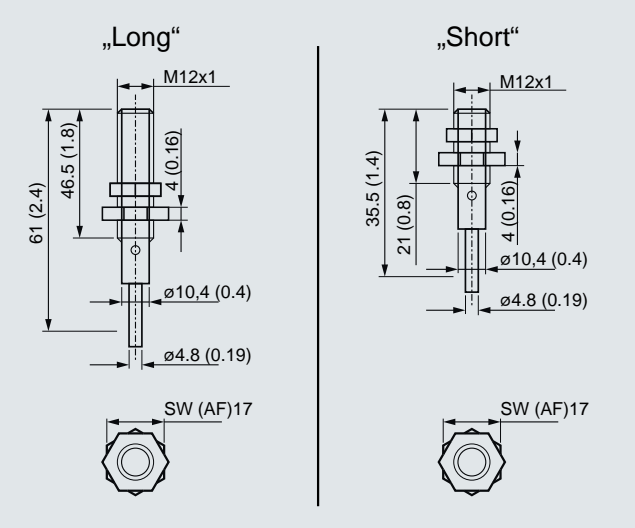
FMS-cradleGUARD.T : Dimensions mm (in.)



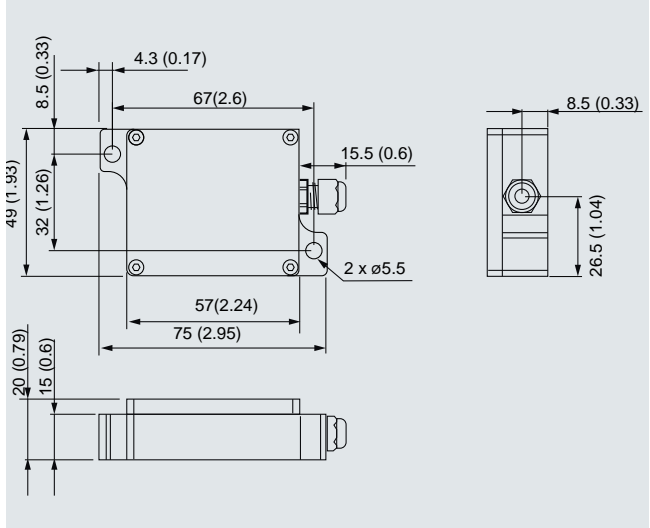
FMS-cradleGUARD.T.24VDC : Dimensions mm (in.)



Proximity switch (accessories) : Dimensions mm (in.)



Tilt switch (accessories) : Dimensions mm (in.)



FMS-cradleGUARD.R : Technical data

Delay time	0.84 to 8.4 seconds, adjustable; with wire break detection set to a fixed 400 ms
Number of transmitters that can be linked	max. 42 units; max. 20 units with wire break detection
Display	LCD 2 x 8 characters (5 mm)
Interface	Ethernet; configuration via web interface (Internet Explorer 7 or higher)
Wireless interface	2.4 GHz
Relay outputs	4 relay contacts; DC: 24 V / 0.5 A / 12 W; AC: 24 V / 0.5 A / 24 VA
Supply voltage	24 VDC (18 to 36 VDC) / 10 W (max. 0.5 A)
Temperature range	0 to 50 °C (32 to 122 °F)
Protection class	IP 52
Weight	0.65 kg (1.43 lbs.)

FMS-cradleGUARD.T : Technical data

Power supply	Industrial battery, 12 VDC, 3 Ah, operating time of several weeks (depending on operating mode and the number of connected sensors/switches) 24 VDC, provided that a power supply (18 to 36 VDC) is available on all coil carriers
Supply voltage for switches / sensors	10 VDC
Wireless interface	2.4 GHz
Protection class	IP 40
Weight	0.8 kg (1.8 lbs.)

FMS-cradleGUARD.R : ETSI radio certification

Magnitude of Test (Coverage)	Article 3.2 of Directive 1999/5/EC (R &TTE Directive)
Certification	ETSI EN 300 440-2 V1.5.1 (2009-03); ETSI EN 300 440-1 V1.3.1 (2009-03)

FMS-cradleGUARD.T : FCC certification USA, Canada

Magnitude of Test (Coverage)	Class A digital device, pursuant to Part 15 of the FCC Rules
Certification	FCC Registration #: 0020311882

FMS-cradleGUARD.T : CAB certification for Japan

Magnitude of Test (Coverage)	Low power data communi. FXD; Art. 38 -24, Paragraph 1 of radio law
Certification	Article 2, Clause 1 Item 19, Certification ID #: 202WWSM10126721

FMS-cradleGUARD : Scope of supply

- FMS-cradleGUARD.R receiver module
- FMS-cradleGUARD.T transmitter module(s)
- Industrial battery(ies)
- Industrial charger(s)

FMS-cradleGUARD : Not included in the scope of supply

- Sensors, switches (including cables)
- Installation materials

FMS-cradleGUARD : Additional accessories

- Wire break detection, with two-piece gear ring, inductive sensor and mounting material
- Inductive sensors (normally open / normally closed), please specify
- Tilt switch (please specify angle tolerance)
- Ethernet cable (please specify length)
- Installation and commissioning (our specialists will be happy to assist you on site)



Other Solutions : Wire & Cable Industry

<p>Telemetry System RTM X42 Strand tension monitoring</p>	<p>System extension to RTM X42 Strand tension monitoring and control</p>	<p>Telemetry System RTM MP Drop-in-replacement for slip-rings in buchers</p>
--	---	---

About us

FMS Force Measuring Systems AG is the market leader in the field of web tension measurement, control and specialist for web guiding solutions. For the wire industry we are the only manufacturer offering a complete range of technologies for force measurement, data processing and radio transmission of signals.

Our in house developed products are used in the manufacturing industry, converting, metals, paper, textiles, as well as in cable and wire rope production. Utilising the latest technology, high quality components and a firm understanding of customer applications, FMS supports customers worldwide in the effort to maximize the productivity of their machines. Since 1993, our highly qualified employees have been creating high-end solutions for machine builders and plant operators. As an owner-managed company, we pride ourselves on being personal and approachable with the ability to make decisive moves fast.

World Headquarters: FMS Force Measuring Systems AG
 Aspstrasse 6 • 8154 Oberglatt (Switzerland) • Phone + 41 44 852 80 80
 info@fms-technology.com • www.fms-technology.com

Alle Angaben wurden sorgfältig erstellt und überprüft. Für eventuelle Fehler oder Unvollständigkeiten können wir jedoch keine Haftung übernehmen. Änderungen, die dem Fortschritt dienen, behalten wir uns vor. /001