

FMS Systems / RTM

RTM X42.IO Multi-Channel Wireless Tension Control System with Analogue Outputs

- **Fully consistent system from its electronics components to the dedicated load cells:**
Easy retrofit in existing planetary and tubular stranding machinery with up to 42 pay-off stations
- **Connectivity with PLC or equivalent devices:**
Provides tension control capability via a PLC
- **Force limits and wire break detection capability:**
Increases production yield and machine efficiency
- **Wireless transmission in the 2.4 GHz band:**
Secure data link up to 30 m, no slip rings necessary



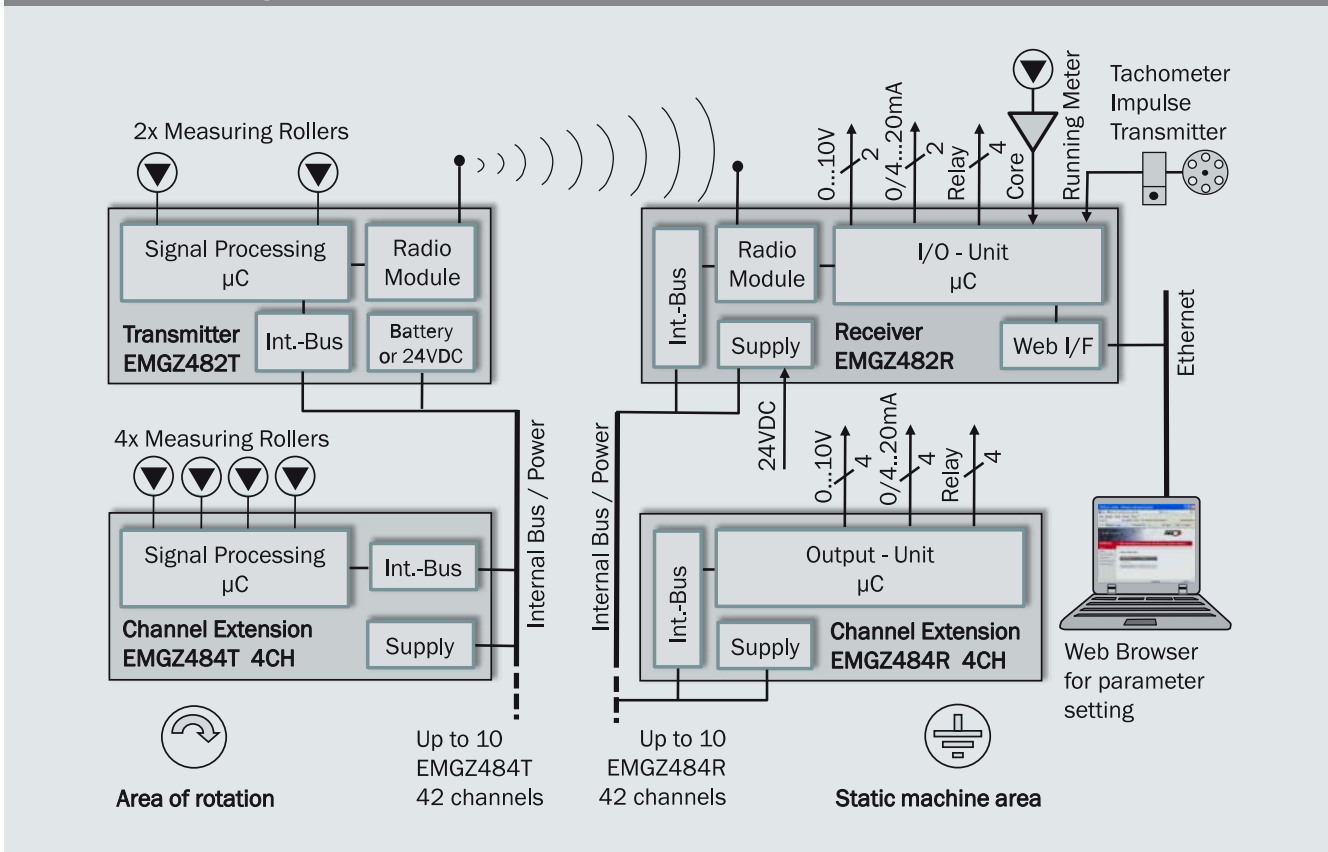
RTM X42.IO System

FMS' „Radio Transmitted Tension Monitoring“ System RTM X42 has been developed to provide for the efficient and accurate measurement, processing, transmission, and evaluation of material tension values on rotating Wire Processing Machinery. The System can be utilized in either a standalone configuration or integrated with an existing PLC. Its expandable features make the system ideal for applications in planetary cage, tubular and rigid frame stranding machines with up to 42 pay-off stations. RTM X42 is a compelling solution for use by OEMs on New Machinery or by Integrators/End Users when upgrading Existing Machinery.

Functional Description

The RTM X42.IO System consists of transmitter, receiver, channel extension modules and the force measuring rollers. From the rollers captured tension data is amplified, digitised and fed to the transmitter EMGZ 482T. This unit is responsible for processing and transmitting the feedback values wirelessly and in real-time to the Receiver/Processing device EMGZ 482R. This unit displays the tension data numerically on a LCD in [N], [lbs] or another chosen unit. The wire tension can also be monitored visually by means of LED-displays. Analogue outputs can interface a PLC or equivalent devices for controlling purposes. Force limits or wire breaks are detected and can trigger alarms or emergency stops via two relays outputs.

RTM X42.10 | Block Diagram



EMGZ 482T Transmitter

Signal conditioning and wireless transmission

EMGZ 484T Channel Extension

Expansion by 4 channels per module

EMGZ 482R Receiver + EMGZ 484R Channel Extension

Parameter setting
 Wireless reception, monitoring



- Reliable 2-channel amplifier for 2 force sensors
- Highly stable force sensor power supply
- Wireless transmission in the 2.4 GHz band
- Power supply via battery or slip rings (24 VDC)
- Lowest power consumption, long battery autonomy



- 4 additional force measuring rollers per extension module
- Further expansion are easily realized over bus connector cables
- Robust, compact design



- User friendly operation panel with 2-line LCD
- LED Bar graph indicates real time force for each channel
- Battery charge level indication
- Connectivity with PLC (0...10 V and 0/4...20 mA)
- Monitoring limit violations, alarms
- Parameter setting via front panel or web browser

EMGZ 482T Series | Technical Data

Number of Channel	2 channels for 2 sensors
Measuring error	<0.05% FS
Sensor Supply	3.0VDC, max. 20mA, high stability
Power supply	3.7V battery Li Ion (6.7 Ah) or 24VDC via slip rings (18...36VDC/10W max. 0.5A)
Options	EMGZ482T.24V for 24V supply via slip rings
Wireless Interface	2.44 GHz
Resolution A/D-Converter	±8192 Digit (14 Bit)
Analogue inputs 1 – 2	Each for 1 sensor with strain gauges @ 350 Ω (0...5.4 mV, max. 7.4 mV)
Temperature range	0...50 °C [32...122 °F]
Protection class	IP 52
Weight (without accumulator)	0.52 kg [1.15 lbs]

EMGZ 482R Series | Technical Data

Number of Channel	2 channels
Displays	LCD 2 x 8 characters (5 mm) 2 LED rows for tension indication Battery load / power indicator
Propagation delay	≤20 ms
Control interface	Ethernet via web browser (Internet Explorer 7 or higher)
Wireless interface	2.44 GHz
Resolution D/A-Converter	0...4096 (12 Bit)
Digital input	24 VDC galvanically isolated (tachometer impulse for running meter)
Analogue input	0...10 VDC; min. 1.2 kΩ (for core channel)
Analogue outputs 1 – 2	0...10 VDC; min. 1.2 kΩ or 0/4...20 mA, max. 500 Ω
Relay outputs (limit violations, alarms)	4 Relay contacts; DC: 24V/0.5A/12W; AC: 24V/0.5A/62.12VA
Power supply	24VDC (18...36VDC) / 10W (max. 0.5A)
Temperature range	0...50 °C [32...122 °F]
Protection class	IP 52
Weight	0.65 kg [1.43 lbs]

EMGZ 484T Series | Technical Data

Number of Channel	4 channels for 4 sensors
Measuring error	<0.05% FS
Sensor Supply	3.0 VDC, max. 20 mA, high stability
Power supply	24 VDC over Bus & Power cable from EMGZ482 T
Resolution A/D-Converter	±8192 Digit (14 Bit)
Analogue inputs 1 – 4	Each for 1 sensor @ 350 Ω (like EMGZ482 T)
Temperature range	0...50 °C [32...122 °F]
Protection class	IP 52
Weight	0.45 kg [1.0 lb]

RTM X42 System | Radio Certification ETSI

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)

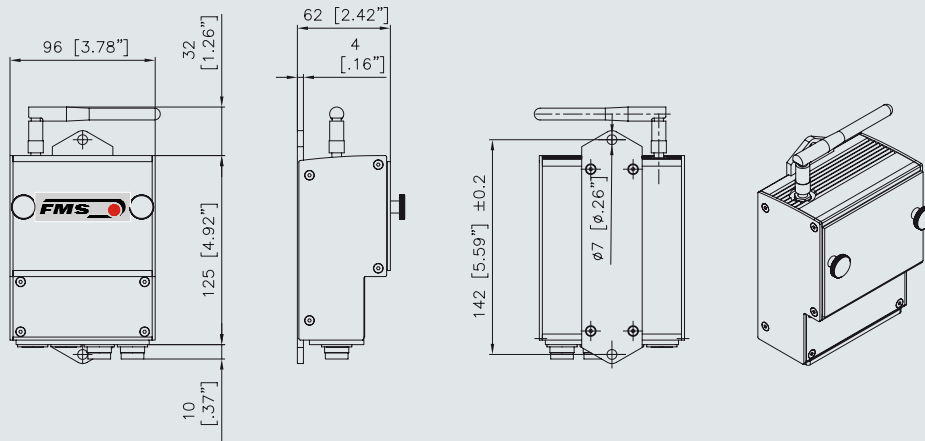
RTM X42 System | FCC Certification USA, Canada

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

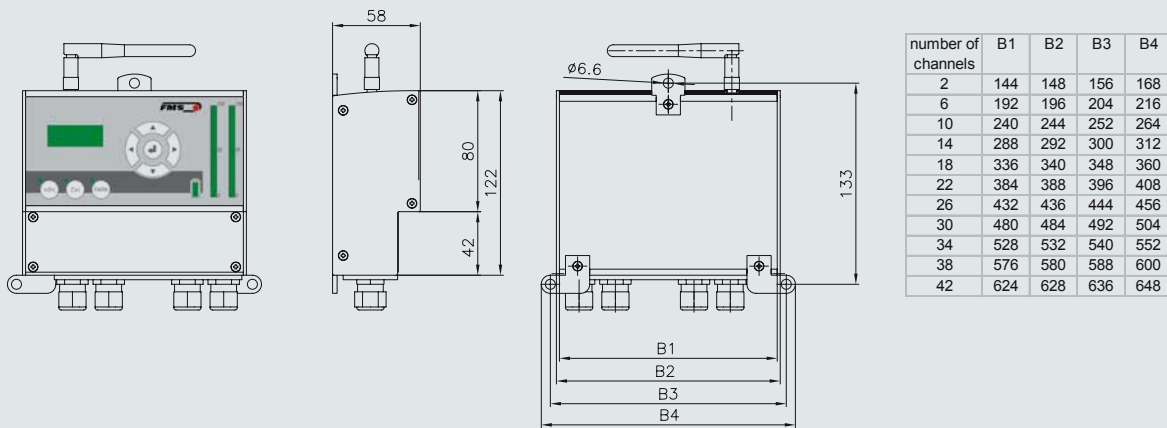
RTM X42 System | CAB Radio Certification for Japan

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

EMGZ 482T RTM X42 Transmitter, Outline Drawing | Dimensions in mm or [in]



EMGZ 482R RTM X42 Receiver, Outline Drawing | Dimensions in mm



EMGZ 484T RTM X42 Channel Extension, Outline Drawing | Dimensions in mm or [in]

