

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



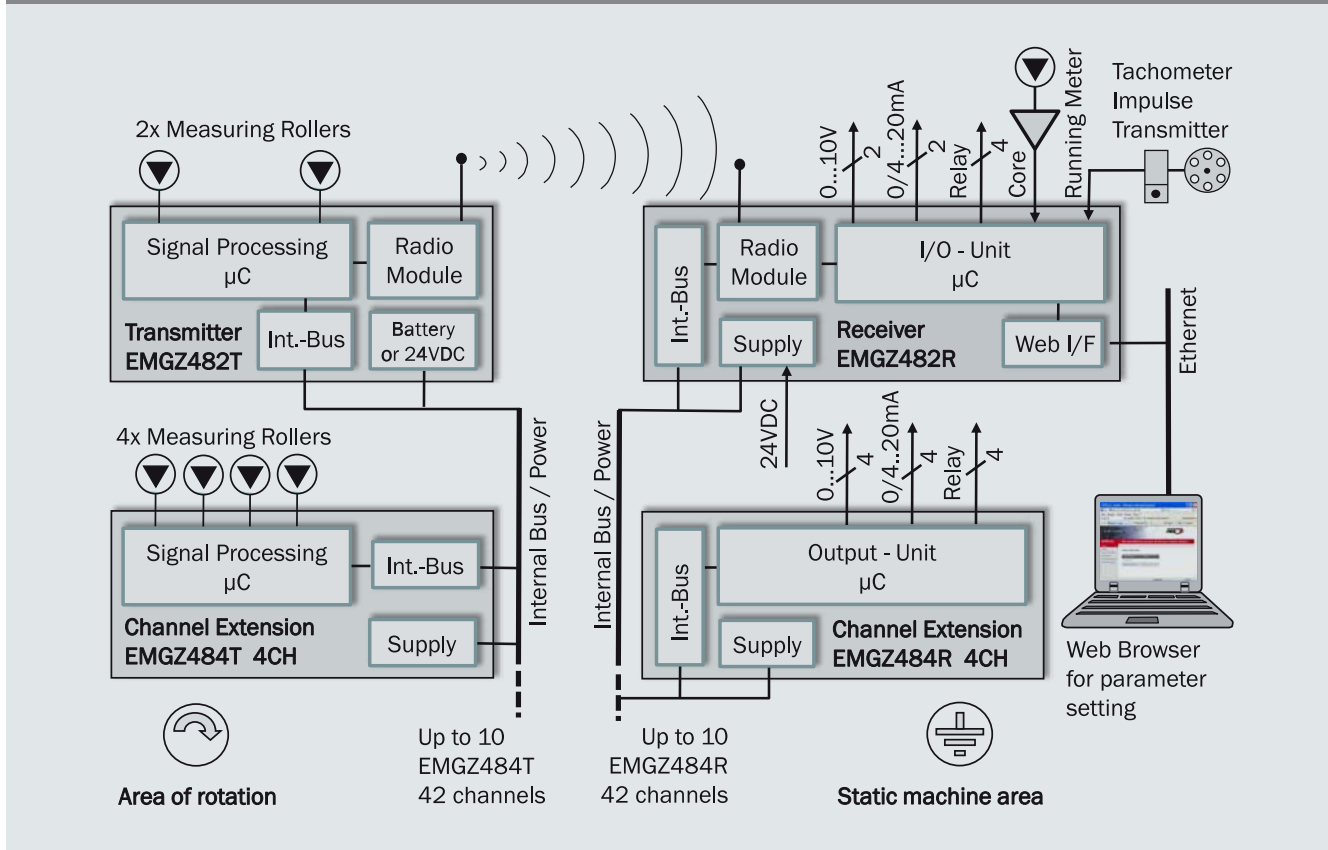
### RTM X42.IO System

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**

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

**EMGZ 482R Series | Technical Data**

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

**EMGZ 484T Series | Technical Data**

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

**RTM X42 System | Radio Certification ETSI**

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

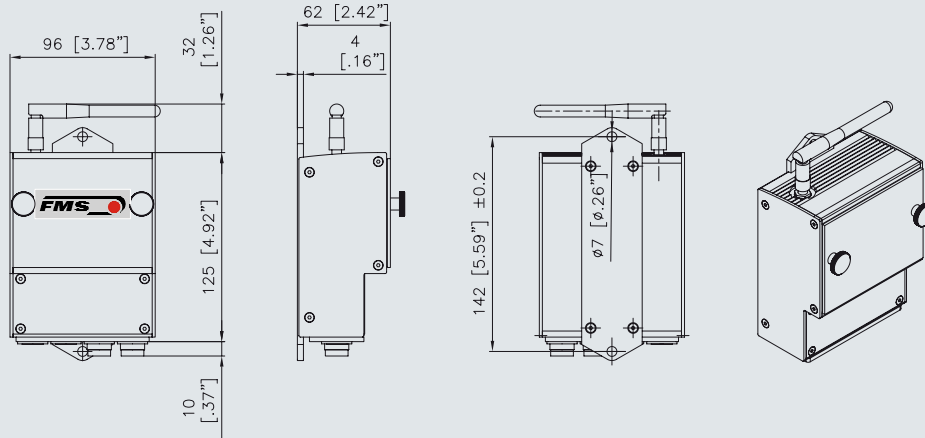
**RTM X42 System | FCC Certification USA, Canada**

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

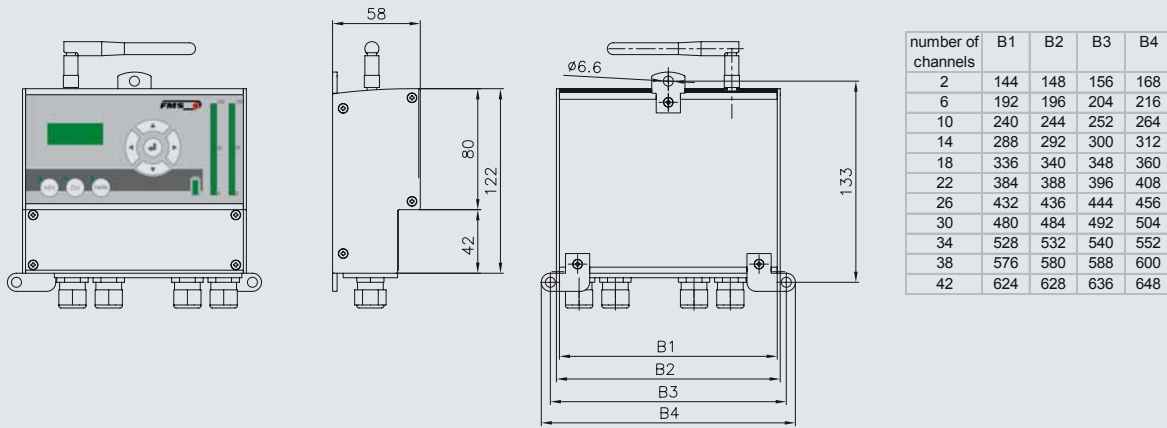
**RTM X42 System | CAB Radio Certification for Japan**

<b>Magnitude of Test (Coverage)</b>	Low power data communi. FXD; Art. 38-24, Paragraph 1 of radio law
<b>Certification</b>	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]

