

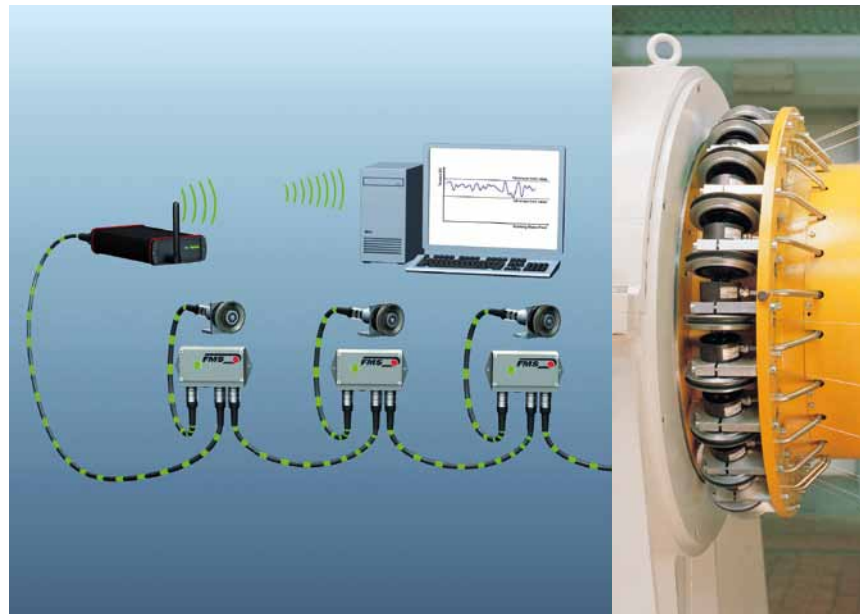
## RTM 01 / RTM 02 Wireless Tension Monitoring System

**Monitors tension in individual strands.**  
**Force limits and wire break detection capability**  
**Increases production yield and machine efficiency**

**Wireless transmission over Bluetooth®**  
**Secure data link with ranges over 30 m**

**Powerful Control and Processing Unit**  
**Generates tension data logs and quality reports**

**Fully consistent system from its electronics components to the dedicated load cells**  
**Easy retrofit of existing stranding machines**



### ● RTM 01 / RTM 02 System

FMS' **R**adio Transmitted **T**ension **M**onitoring (RTM) system is designed with fully compatible components to improve production rates and product quality on rotating strand-handling machinery.

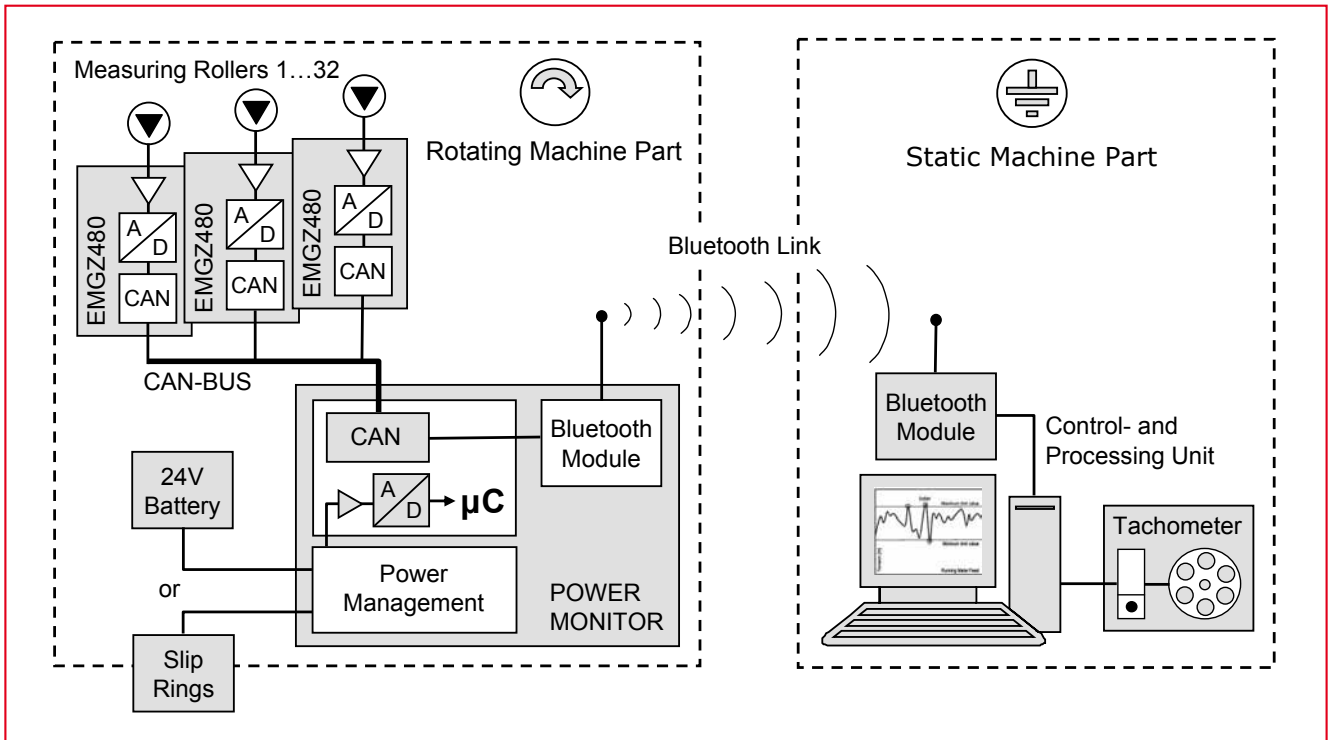
The system utilizes load cells to obtain a force measurement signal from individual material strands. Thanks to the powerful Control and Processing Unit the tension data is collected, processed, analyzed, and stored. It can be printed in the form of a record file, histogram, or raw data log. The records enable you to analyze and optimize the production process. The RTM01 and RTM02 systems are suitable for use by OEMs on new machinery or by integrators/end users for use in upgrading existing machinery.

### ● Functional Description

Main tasks of the RTM system:

- Tension data is captured, conditioned and sent wirelessly to the Control and Processing Unit.
- The RTM.PowerMonitor establishes the radio link between sensor amplifiers EMGZ 480.M16 (Slaves) and control unit (Master). It handles all power supply management tasks.
- The Control and Processing Unit (with RTM software) controls the data link and undertakes data logging, printing, and display.
- The Control Unit is the man/machine interface for parameter setting and operation of the RTM system.
- Violations of min./max. force limits, as set for each individual strand, can be detected and be used to improve production operations.

RTM 01 / RTM 02 • Block Diagram



**PowerMonitor**  
Monitoring / Radio Link



- Bluetooth link between rotating and static machine parts
- Display of Operating Status
- Power Supply Management

**EMGZ 480**  
Measuring Amplifier



- Amplification and Conditioning of Force Sensor Signals
- CAN-Bus-Device

**RMGZ Series**  
Force Sensors



- Dedicated series of measuring rollers covering a tension range of 6...8000 N
- Engineered to work in rotating applications

**Battery and Charger**  
Power Supply RTM 01



- 24 V Batteries available as 4, 8, 12, 16 Ah Packs
- Battery Charger

**Control and Processing Unit**  
Tension Data Management



- Parameter Setting
- Data Memory
- Data Logging and Printing
- Display of Tension Data

**Bluetooth-Dongle**  
Bluetooth USB Module



- Bluetooth Radio Link
- Connects to USB Port of the Control and Processing Unit

**RTM-Systems**

<b>RTM 01</b>	Battery based 24 VDC system, sized to suit application
<b>RTM 02</b>	External 24 VDC power supply over slip rings

**PowerMonitor • Technical Specification**

<b>Number of Measuring Points</b>	1...32
<b>Display</b>	Operating status over 4 LEDs
<b>Power Supply</b>	24 VDC (18...36 VDC); max. 120 mA
<b>Wireless Interface</b>	Bluetooth V2.0, Class 1 / +16.9 dBm
<b>Carrier Frequency</b>	2.44 GHz
<b>Baud Rate/ Radio Interval</b>	250 kBit/s; 50 ms
<b>Temperature Range</b>	-10...60 °C [14...140 °F]
<b>Protection Class</b>	IP 50
<b>Weight</b>	0.38 kg [0.84 lbs]

**EMGZ 480 • Technical Specification**

<b>Supply of Force Sensors</b>	5 VDC
<b>Analogue Input</b>	0...9 mV (12.5 mV max.)
<b>Max. Measuring Error</b>	< 0.05 % FS max.
<b>Cycle Time of Measurement</b>	2 ms
<b>System Interface</b>	CAN CiA-DS 301 Slave
<b>Power Supply (amplifier)</b>	24 VDC (18...36 VDC), 50 mA max.
<b>Temperature Range</b>	-10...60 °C [14...140 °F]
<b>Protection Class</b>	IP 67
<b>Weight</b>	0.30 kg [0.66 lbs]

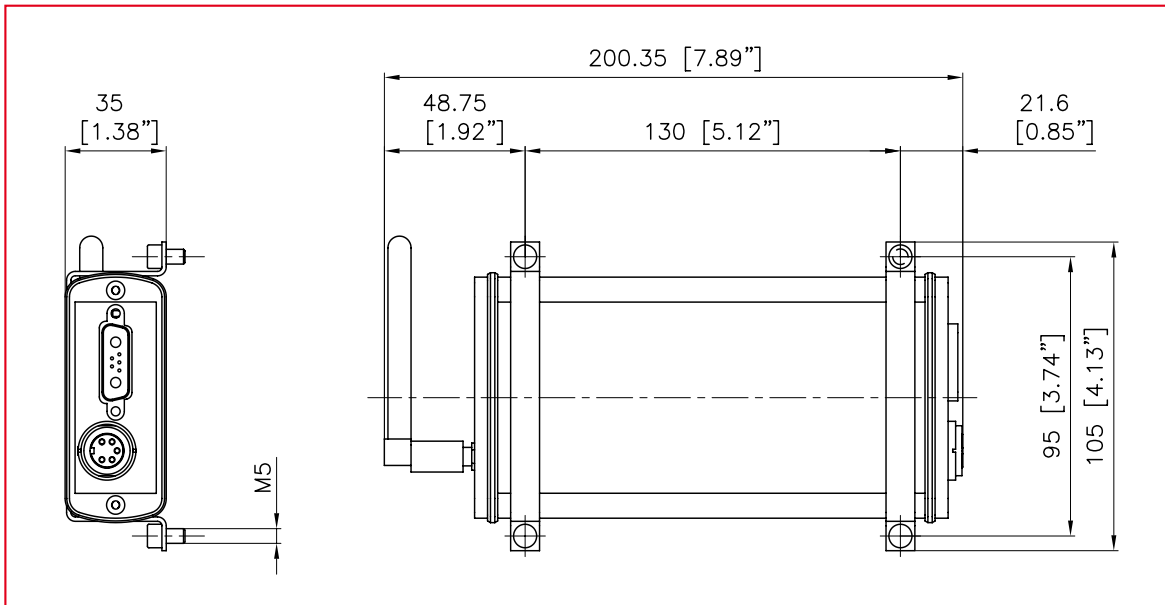
**RTM Control and Processing Unit • Technical Specification**

<b>Control and Processing Unit</b>	Twister – CV763 A-4R10C fanless; 1 GHz CPU or equivalent unit
<b>Ports (min. requirements)</b>	VGA, 4 x LAN, 10/100 Mbit, 2 x PCMCIA, 2 x USB, 1 x PCI
<b>Memory (min. requirements)</b>	DDR2 RAM PC 533 1024 MB
<b>Operating System/ Software</b>	Windows XP Professional / Excel 2007
<b>Bluetooth Dongle</b>	BlueFRITZ USB, BT Class 1 range or equivalent
<b>Dig. I/O-card (optional)</b>	PCI-7250 (G)
<b>Monitor</b>	19" screen
<b>Keyboard/ Mouse</b>	USA PS/2.USB / mouse PS/2.USB
<b>Weight</b>	7.70 kg [17 lbs]

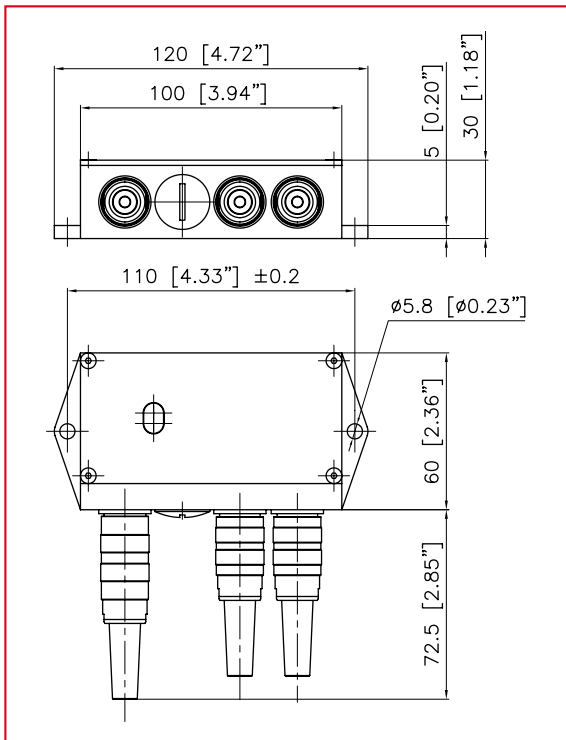
**RTM 01 Battery Packs • Technical Specification**

<b>RTM-Powerpack 04</b>	Capacity: 4 Ah, Weight: 2.8 kg [6.2 lbs]
<b>RTM-Powerpack 08</b>	Capacity: 8 Ah, Weight: 4.2 kg [9.25 lbs]
<b>RTM-Powerpack 12</b>	Capacity: 12 Ah, Weight: 6.3 kg [13.9 lbs]
<b>RTM-Powerpack 16</b>	Capacity: 16 Ah, Weight: 8.6 kg [18.9 lbs]
<b>Battery Charger</b>	Weight: 5.6 kg [12.3 lbs]

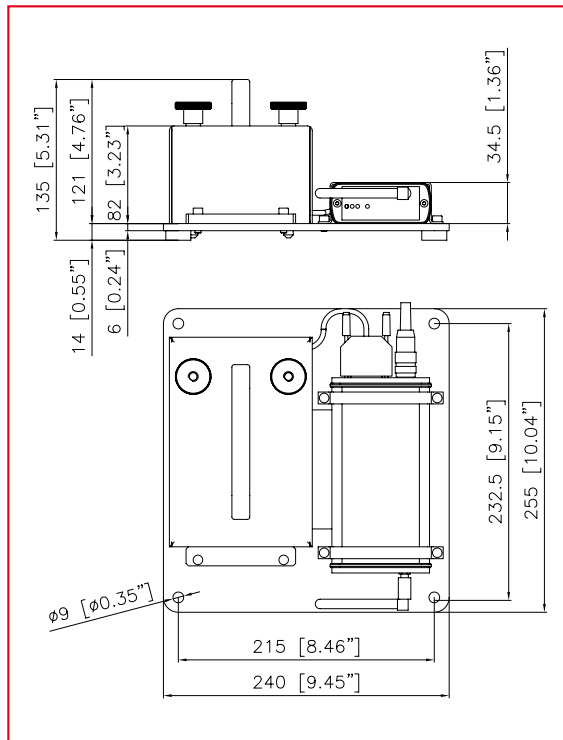
**Power Monitor • Dimensions in mm [in]**



**EMGZ 480 Amplifier • Dimensions in mm [in]**



**RTM01 Base plate (8 Ah) • Dimensions in mm [in]**



**World Headquarters:**

**FMS Force Measuring Systems AG**  
 Aspstrasse 6  
 8154 Oberglatt (Switzerland)  
 Phone + 41 44 852 80 80  
 Fax + 41 44 850 60 06  
 info@fms-technology.com

**FMS USA, Inc.**  
 2155 Stonington Avenue  
 Suite 119  
 Hoffman Estates, IL 60169  
 Phone + 1 847 519 4400  
 Fax + 1 847 519 4401  
 fmsusa@fms-technology.com

**FMS UK**  
 Highfield, Atch Lench Road  
 Church Lench  
 Evesham WR 11 4UG  
 Phone + 44 1386 871023  
 Fax + 44 1386 871021  
 fmsuk@fms-technology.com

**FMS Italy**  
 Via Baranzate 67  
 20026 Novate Milanese  
 Phone + 39 02 39487035  
 Fax + 39 02 39487035  
 fmsit@fms-technology.com