

FMS Tension Control / Measuring Amplifier

## **EMGZ492.EIP-Series** Dual-Channel Measuring Amplifier for EtherNet/IP

- **EtherNet/IP Device**  
Simple integration into EtherNet/IP networks
- **Precise material tension over the entire measuring roller**  
Independent data evaluation of two force sensors for left and right
- **Communication cycle time  $\geq 1$  ms**  
Fast and precise – well suited for time-critical applications
- **Various installation options**  
Narrow DIN rail version for cabinet or sealed IP 65 wall mount for harsh environment.  
RJ45/M12 plugs and detachable terminal blocks for easy installation



### **EMGZ492.EIP-Series**

The EMGZ492.EIP amplifier has been designed for use in modern EtherNet/IP networks where a typical application involves the measurement or control of web tension in coating, laminating, printing, extrusion, or other similar roll to roll processes.

On a measuring roller with two force sensors the signals can be processed and evaluated individually for left and right sides. This dual channel amplifier can process the signals from one or two measuring rollers with two force sensors each.

Making full use of the EtherNet/IP capabilities allows this amplifier to excel in high speed applications. An extensive range of parameters allows for quick and flexible configuration of the unit, and all functions are easily adjusted via web interface or EtherNet/IP with a scanner.

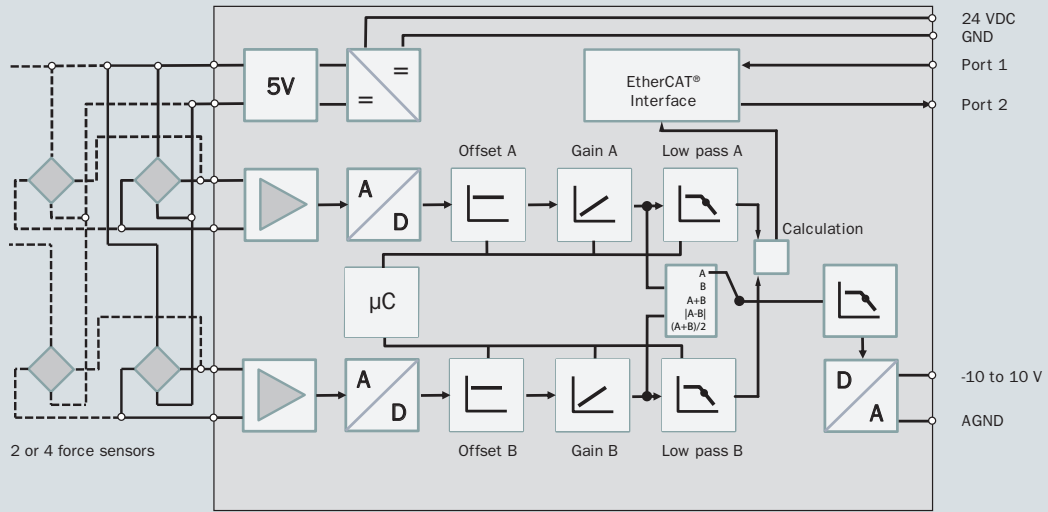
### **Functional Description**

The analog force sensor feedback signals are input directly to a high resolution A/D-converter. Functions such as signal filtering, automatic offset compensation, and gain calculation are all digitized on the EMGZ492.EIP series amplifier.

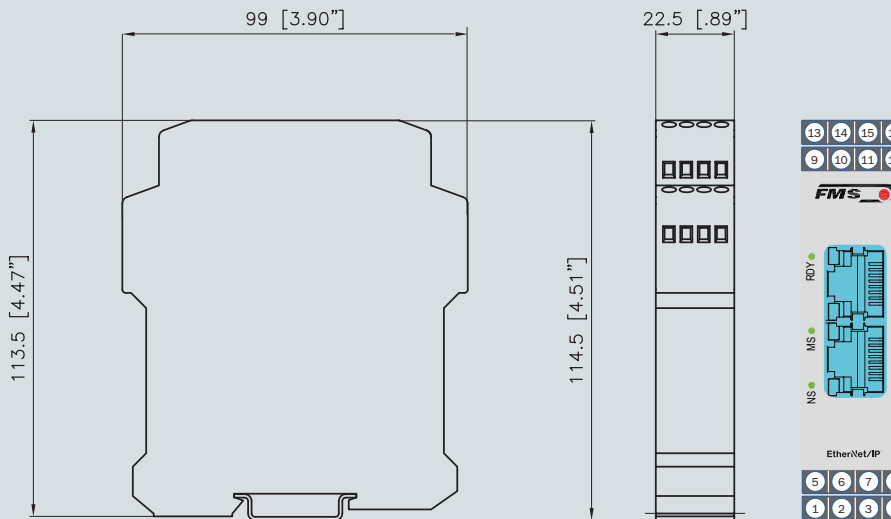
The measuring values of the connected force sensors A and B will be available as individual signals (A and B), as sum signal (A + B), as difference signal  $|A - B|$  and as mean value  $((A + B)/2)$ .

Additional processing of the feedback signal can then be carried out in a PLC under real time conditions. The EtherNet/IP interface provides enhanced connectivity in your production line.

**EMGZ492.EIP-Series** : Block diagram

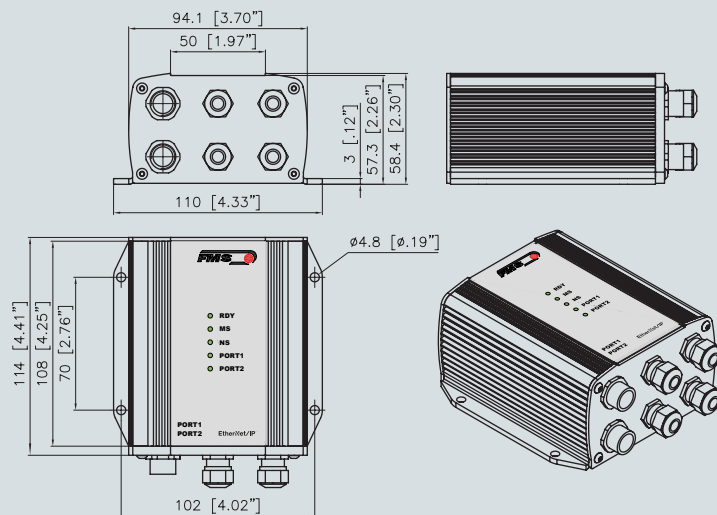


**EMGZ492.R.EIP-Series** housing for DIN rail : Dimensions mm (.in)



Electrical connection via RJ45 and detachable terminal blocks (IP 20).

**EMGZ492.W.EIP-Series** housing for wall mount : Dimensions mm (.in)



Electrical connection via pg gland (internal, detachable terminal blocks) and M12 plug, 4 pole, D-coded (IP 65).

**EMGZ492.EIP-Series : Technical Data**

<b>Number of channels</b>	2 channels for 2 or 4 force sensors
<b>Power supply for force sensor</b>	5 VDC, max. 80 mA, highly stable
<b>Sensor feedback signal</b>	± 9 mV (max. 11.25 mV); with option .V05 ± 2.5 mV (max. ± 3.125 mV)
<b>Resolution A/D converter</b>	± 32768 Digit (16 Bit)
<b>Resolution D/A converter</b>	0 to 4096 (12 Bit)
<b>Measuring error</b>	< 0.05 % FS
<b>Connector for Interface</b>	EMGZ 492.R: 2 x RJ-45 EMGZ 492.W: 2 x M 12 4-Pol, D-coded
<b>Configuration</b>	via EtherNet/IP or web interface
<b>Protection class</b>	IP 20 (.R Version), IP 65 (.W Version)
<b>Power supply</b>	24 VDC (18 to 36 VDC) / 5 W
<b>Temperature range</b>	-10 to +50 °C (14 to 122 °F)
<b>Weight</b>	370 g / 0.82 lbs (.R Version), 470 g / 1.04 lbs (.W Version)
<b>Analog output</b>	-10 to 10 VDC

**EMGZ492.EIP-Series : EtherNet/IP Features**

<b>Cycle time</b>	≥ 1 ms
<b>IO Connection Types (implicit)</b>	Exclusive Owner, Listen Only, Input only
<b>Number of Message Connections</b>	Explicit message connections (10), Implicit message connections (5)
<b>IO Connection Trigger Types</b>	Cyclic
<b>Baud Rate</b>	10 or 100 Mbit/s
<b>Cyclic Process Data</b>	For channels A and B individually: Actual value in digits (ADC), actual value in (N), actual value in (lbf), Actual value in configured unit, status Actual value sum (A + B), actual value difference (A - B), mean value (A + B)/2
<b>Acyclic Services</b>	Get_Attribute_Single, Set_Attribute_Single, according to CIP specification Volume 1 and Volume 2, ...
<b>Ring Topology</b>	DLR (Device Level Ring)
<b>Predefined Standard Objects</b>	Identity Object, Message Router Object, Assembly Object, Connection Manager, DLR Object, QoS Object, TCP/IP Interface Object, Ethernet Link Object
<b>Features</b>	DLR (Device Level Ring), beacon based ring node, ACD (Address Conflict Detection), DHCP, BOOTP, Integrated Switch
<b>Web interface</b>	Configuration, measuring data queries via http (alternative configuration via EtherNet/IP)
<b>Certification</b>	according CT16

**EMGZ492.EIP-Series : Order Code**

<b>EMGZ492</b>	<b>.V05</b>	<b>.W</b>	<b>.EIP</b>	
				EtherNET/IP
				.W Version for wall mount, .R Version for DIN rail
				.V05 sensor feedback signal ± 2.5 mV (max. ± 3.125 mV)
				Series

**EMGZ492.EIP-Series : Options**

<b>.R</b>	Version for DIN rail mount, IP 20
<b>.W</b>	Version for wall mount, IP 65
<b>.V05</b>	Sensor feedback signal ± 2.5 mV (max. ± 3.125 mV) for force sensors with a sensitivity of 0.5 mV/V

**EMGZ492.EIP-Series : Scope of supply**

- Measuring Amplifier ● Installation and operation manual

**EMGZ492.EIP-Series : Accessories**

- Patch cable with RJ45 connectors ● M12 connectors D-coded

**EMGZ492.EIP-Series** : Typical Application



**Other products** : Tension Control

Force Sensors	Tension Controllers	ATEX
		

**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.

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