

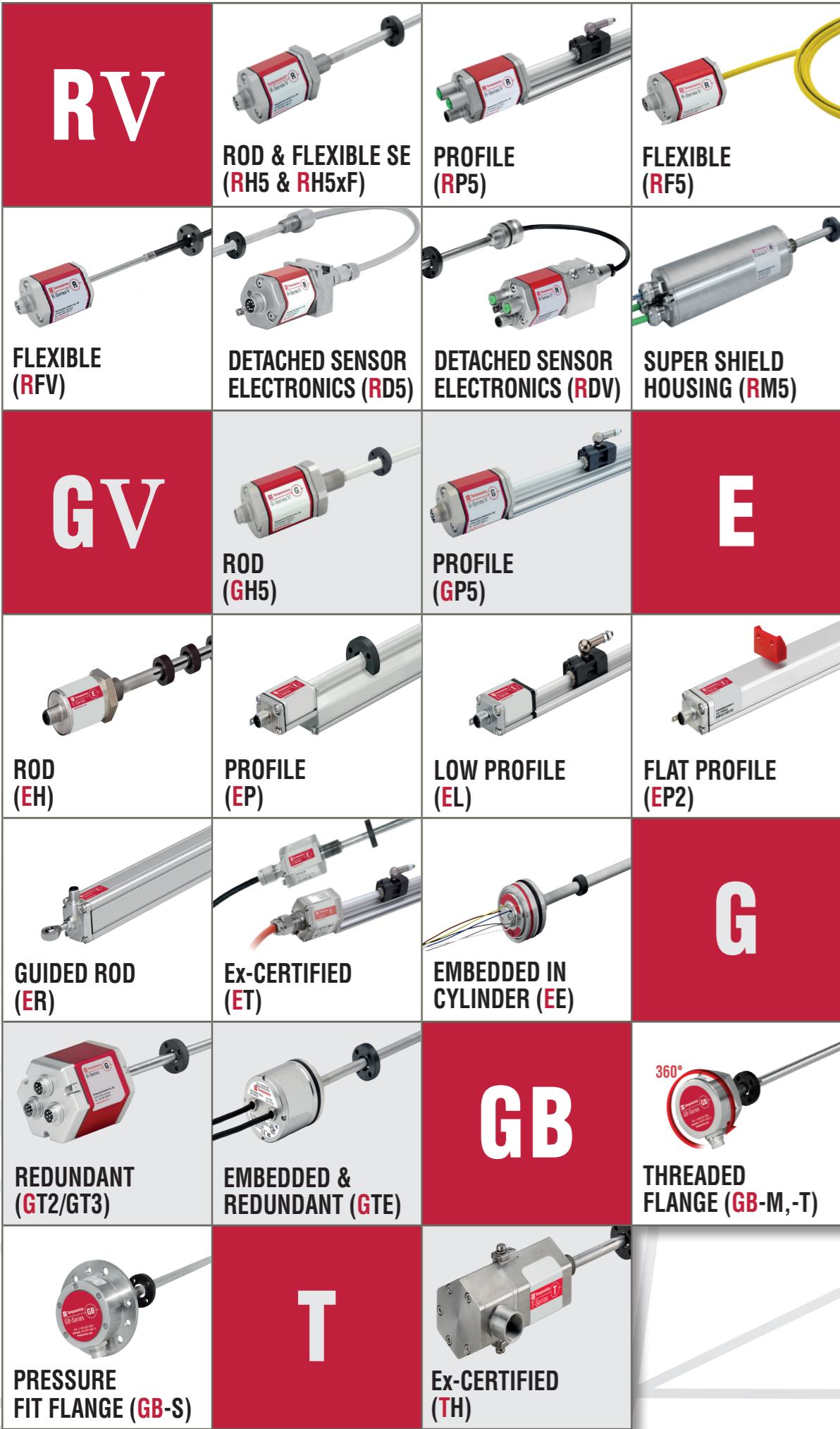
Series Selector Guide

Magnetostrictive Linear Position Sensors



INDUSTRIAL

– TRUST THE EXPERTS –



SERIES QUICK GUIDE

R-Series V	G-Series V	E-Series	G-Series	GB-Series	T-Series
MAXIMUM PERFORMANCE with innovative diagnostics	BALANCED PERFORMANCE with backward compatibility	EFFICIENT PERFORMANCE with compact designs	REDUNDANT SENSOR SOLUTIONS for safety-relevant application	COMPACT DESIGN for high temperatures & tight space	CERTIFIED for use in hazardous areas
Metalworking	Lumber processing	Renewable energy	Watergates	Valves	Offshore

TYPICAL APPLICATIONS

FEATURES	R-Series V	G-Series V	E-Series	G-Series	GB-Series	T-Series
Velocity measurement	•					
Multi-position measurement	•	•				•
Program. sensor parameters	•	•			•	•
Diagnostic LEDs	•	•				
Redundant				•		
Ex-certified			ET	GTE		•
◀ Sensor assistant	TempoLink®, TempoGate®	TempoLink®				

OUTPUTS	R-Series V	G-Series V	E-Series	G-Series	GB-Series	T-Series
PROFINET	•					
EtherCAT®	•					
EtherNet/IP™	•					
POWERLINK	•					
SSI	•		EH, EP, EL, EP2, ER, ET		•	•
IO-Link			EH, EP, EL, EP2, ER			
CANBus/CANopen			EH, EP, EL, EP2, ER			•
Analog – Current	•	•	•	•	•	•
Analog – Voltage	•	•	EH, EP, EL, EP2, ER, ET	•	•	
Start/Stop		•	EH, EP, EL, EP2, ER, ET	•		
PWM		•		•		

MAX. OPERATING TEMPERATURE	R-Series V	G-Series V	E-Series	G-Series	GB-Series	T-Series
Celsius	+85 °C RD5: +120 °C	+80 °C	+75 °C EE: +85 °C / ET: +105 °C	+75 °C	+100 °C	+75 °C
Fahrenheit	+185 °F RD5: +248 °F	+176 °F	+167 °F EE: +185 °F / ET: +221 °F	+167 °F	+212 °F	+167 °F

MAXIMUM STROKE LENGTH	R-Series V	G-Series V	E-Series	G-Series	GB-Series	T-Series
1500 mm (60 in.)					ER	
2540 mm (100 in.)					EH, EP, EL, EP2, ET, EE	GTE
3000 mm (118 in.)					* EP, EL, EP2, ET	
3250 mm (128 in.)						
3500 mm (137.7 in.)						GT2/GT3
5080 mm (200 in.)		RDV, RD5				
6350 mm (250 in.)		RP5	GP5			
7615 mm (299.8 in.)		RM5				
7620 mm (300 in.)		RH5	GH5			•
20000 mm (787 in.)		RFV, RF5				

*Start/Stop



R-SERIES V	CE	UKCA	UL/cUL	ATEX	UK Ex	NEC/CEC	NEC/CEC	IECEx	KCs	Japanese approval	CCC	ClassNK
RH5	•	•	•									
RP5	•	•	•									
RF5	•	•	•									
RFV	•	•	•									
RD5	•	•	•									
RDV	•	•	•									
RM5	•	•	•									

G-SERIES V	CE	UKCA	UL/cUL	ATEX	UK Ex	NEC/CEC	NEC/CEC	IECEx	KCs	Japanese approval	CCC	ClassNK
GH5	•	•	•									
GP5	•	•	•									

E-SERIES	CE	UKCA	UL/cUL	ATEX	UK Ex	NEC/CEC	NEC/CEC	IECEx	KCs	Japanese approval	CCC	ClassNK
EH	•	•	•									
EP	•	•	•									
EL	•	•	•									
EP2	•	•	•									
ER	•	•	•									
ET	•	•	•	•	•			•	•			•
EE	•	•	•									

G-SERIES	CE	UKCA	UL/cUL	ATEX	UK Ex	NEC/CEC	NEC/CEC	IECEx	KCs	Japanese approval	CCC	ClassNK
GT2/GT3	•	•										
GTE	•	•		•	•			•	•			•

GB-SERIES	CE	UKCA	UL/cUL	ATEX	UK Ex	NEC/CEC	NEC/CEC	IECEx	KCs	Japanese approval	CCC	ClassNK
GB	•	•										

T-SERIES	CE	UKCA	UL/cUL	ATEX	UK Ex	NEC/CEC	NEC/CEC	IECEx	KCs	Japanese approval	CCC	ClassNK
TH (Analog)	•	•		•	•			•	•	•	•	•
TH (SSI, CANBus)	•	•		•	•			•	•	•	•	•

HPH FOR R-/G-SERIES V	CE	UKCA	UL/cUL	ATEX	UK Ex	NEC/CEC	NEC/CEC	IECEx	KCs	Japanese approval	CCC	ClassNK
RH5	•	•		•	•			•	•	•	•	•
GH5	•	•		•	•			•	•	•	•	•

* SAVE YOUR TIME FOR THE THINGS YOU LOVE!

MAGNETOSTRICTION AND ITS ADVANTAGES

Our absolute, linear position sensors are based on the proprietary **Temposonics® magnetostrictive technology** and capture position by measuring the time of flight of an acoustic wave. We measure time in picoseconds within a waveguide that we design, manufacture, and control – this makes our measurement more precise, reliable, and durable.

The speed of sound – **tempo** – is embedded in our name.



Absolute, non-contact measurement



No mechanical wear



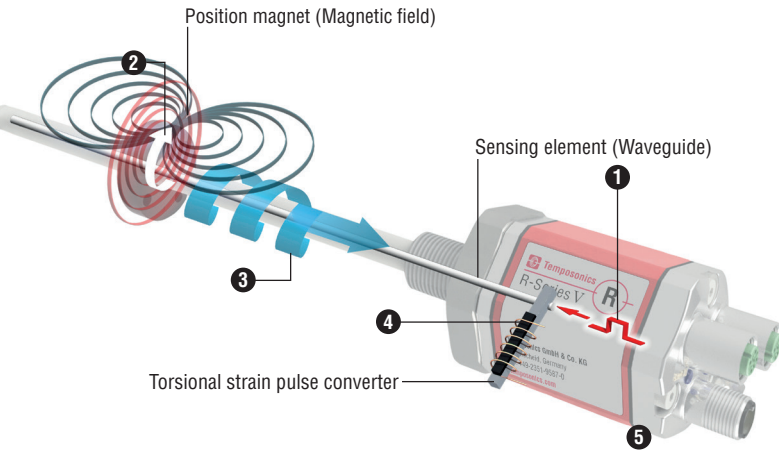
No recalibration required



Robust and durable



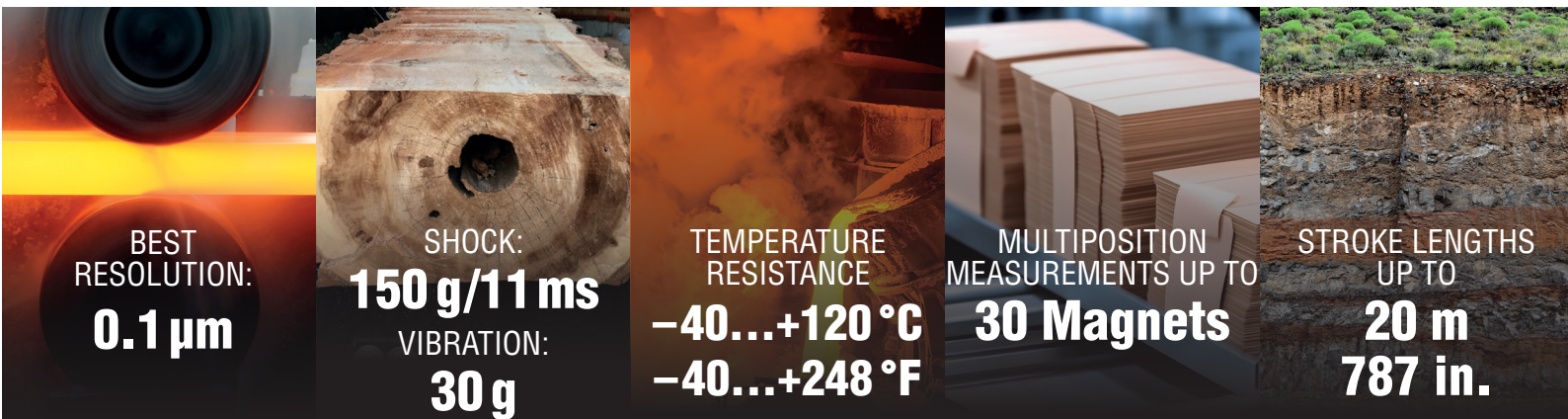
Highest sensor reliability



Measurement Cycle

- 1 Current pulse generates magnetic field
- 2 Interaction with position magnet field generates torsional strain pulse
- 3 Torsional strain pulse propagates
- 4 Strain pulse detected by converter
- 5 Time-of-flight converted into position

IN PRACTICE ...



BEST RESOLUTION:
0.1 µm

SHOCK:
150 g/11 ms
VIBRATION:
30 g

TEMPERATURE RESISTANCE
-40...+120 °C
-40...+248 °F

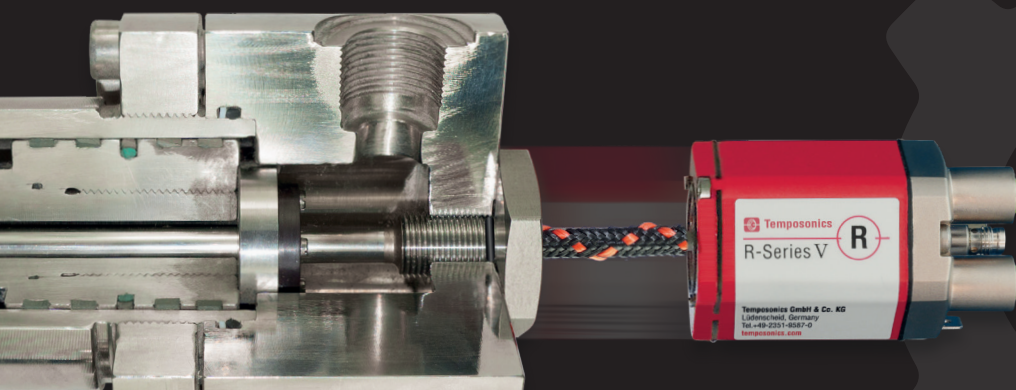
MULTIPOSITION MEASUREMENTS UP TO
30 Magnets

STROKE LENGTHS UP TO
20 m
787 in.

MODULAR, ENVIRONMENTALLY FRIENDLY DESIGN

The modular sensor design of the R-Series V, G-Series V and GB-Series allows easy replacement of the sensing element and electronics without interrupting the hydraulic circuit. This not only prevents leaks from the cylinder port, but also significantly reduces maintenance costs and downtime.

Temposonics® technology is used in cylinders in almost all industries – from steel and wood to energy production.



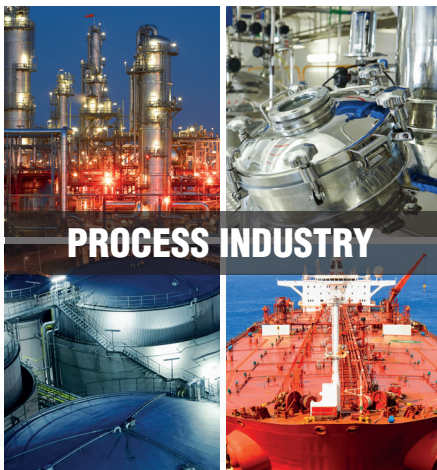
INDUSTRY DIVERSITY WITH A CLEAR FOCUS



The magnetostrictive position sensors of the **Temposonics® MH- and C-Series** enable highly precise measurements and thus controlled, fast, and smooth movements in mobile working machines, vehicles for logistics and transportation, as well as in the automotive sector.

Key benefits:

- ✓ **Versatile designs:** Tailored to a wide range of application requirements.
- ✓ **Flexible installation:** Can be directly integrated into the hydraulic cylinder or mounted externally.
- ✓ **Large measuring range:** From 50 mm up to 10.5 m.
- ✓ **Extremely robust:** Resistant to shock and vibration for maximum safety and comfort for the operator, as well as high machine availability.



The magnetostrictive level transmitters of the **Level Plus® LP- and LL-Series** are designed for automatic level measurement in above-ground storage tanks and processvessels – ideal for the oil, gas, chemical and pharmaceutical industries.

Key benefits:

- ✓ **5-in-1 measurement:** A single sensor captures level, interface, temperature, volume, and high-level alarm - space-saving and efficient.
- ✓ **Versatile designs:** Tailored to diverse application requirements.



Temposonics – Pioneer and innovator in magnetostrictive sensing technology

For more than 50 years, Temposonics has been setting standards in performance and reliability. With decades of expertise in this field, the broadest portfolio of sensor solutions, and a consistent focus on our core technology, we deliver unmatched application know-how and first-class service. We operate production facilities in Lüdenscheid and Dortmund (Germany) and Cary, NC (USA), along with direct sales offices and authorized distributors worldwide.



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