



# RedCrown2



## *...the new generation of pencil probes*

Evolving from our customer's latest quality requirements RedCrown2 is the new line of pencil probes developed to meet industry's global performance specifications. As a result of experience in the metrology market place & with input from measurement integrators throughout the world RedCrown2 sets the new metrological standard.

### PRODUCT FEATURES

The new precision engineered design incorporates ball cage movements, improved protection from electrical interference, by the introduction of Mu-metal shielding and added robustness throughout, all produced from a refined manufacturing process. Performance of RedCrown2 is guaranteed to give excellent accuracy under the harshest conditions where high reliability is constantly required in the manufacturing field.

The RedCrown2 line and its digitalized versions Digi Crown 2 and Red Crown 2 USB, offers a variety of measuring solutions..

The two main families, Standard (with Gaiter-IP 65) and Soft Touch (without Gaiter-IP 54), are available with the following options:

- With **HBT** and **LVDT** type transducers
- **Five standard measuring ranges:** 1mm, 2mm, 5mm, 10mm & 20mm
- **Actuation / retraction** by Spring, Pneumatic, or Vacuum methods.
- **Analogue connection:** Marposs standard connector or compatible connectors for interfacing with competitor electronics world wide.
- **Digital connection** for Marposs DigiCrown networks
- **Direct USB connector** for simple interfacing to computers
- **Cable only** allows customer to connect using their preferred type of connector
- **OEM "private label"** versions with customized body Logos, your part numbers and dedicated packaging for your product.

### QUALITY ASSURANCE

Marposs manufactures each pencil probe to strict quality standards, is certified for its integrated system of quality, environment & safety, according to international standards.

- ISO 9001(Quality Management)
- ISO 14001(Environmental Management )
- OHSAS 18001(Safety Management )

A dedicated design & production team using the latest manufacturing procedures and equipment guarantees the product meets the all the expectation of the customer for quality measuring solutions.

Red Crown2 is designed to be in compliance with the latest world standards for RoHS/WEEE.

## THE PRODUCT LINE

### RedCrown<sup>2</sup>

A line of analogue pencil probes, available with  
**LVDT** and **HBT** circuitry.

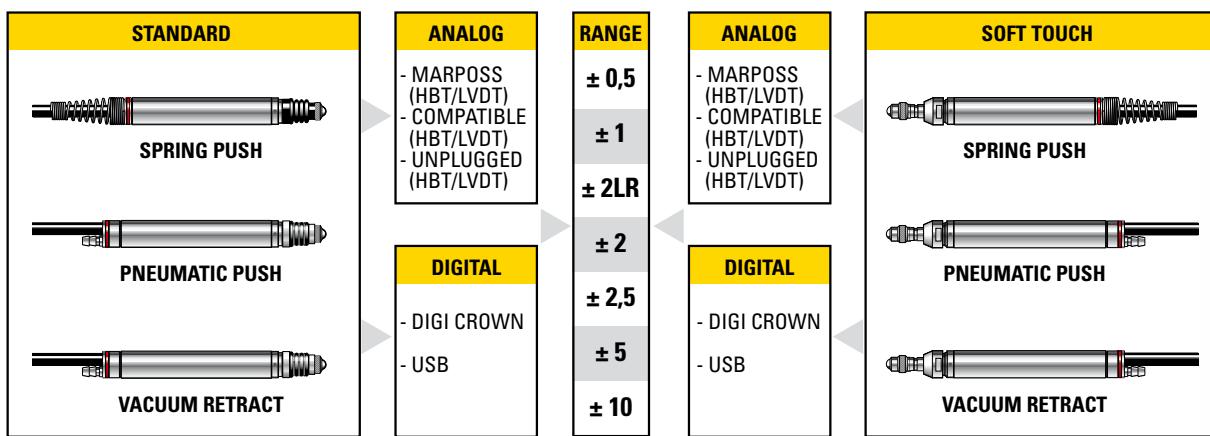
### DigiCrown<sup>2</sup>

Digitized version, with high levels of accuracy and versatility used in combination with **Digi Net**.

### RedCrown<sup>2</sup> USB

A probe version linearized with the USB interface integrated in the (standard USB) connector ready to be used via direct connection to any **USB** host device.





**Red Crown2** is a line of pencil probes available in STANDARD (with gaiter –IP65) or SOFT TOUCH (without gaiter –IP54) configuration, with highly precise ball cage movements and various connection options according to the conditioning and display interfaces used.

The analogue version, with LVDT or HBT transducer, allows the use of the product with standard Marposs amplifiers, or with third party amplifiers available on the market.

These probes are available both with and without connector (UNPLUGGED).

**Red Crown2 USB** is the version with USB connector, which provides high levels of measuring accuracy and is easy to use.

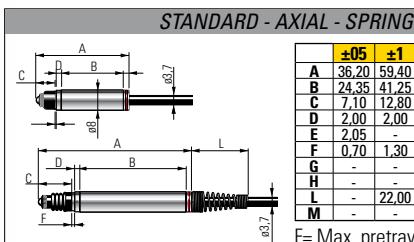
- ACCURACY. The high level of accuracy is guaranteed during the production when the compensation of the linearity and sensitivity errors are stored in each probe. Each unique unit is certified and identified by a serial number, to ensure complete traceability.
- PLUG & GAUGE. All the conditioning and interface electronics of the transducer are integrated in the USB connector, therefore no additional connecting devices are required to use the product.
- EASY TO USE. The measurement can be displayed with Marposs electronics (Nemo, Merlin, E9066) or by connecting directly with USB Host devices, where Red Crown2 USB is visible as a standard virtual COM.
- APPLICATIONS. Both static and dynamic measurements can be performed (maximum sampling frequency 1000 samples/s).
- SOFTWARE INTERFACES. For the measurement integration the Marposs software (U-Com, Easy Acquisition and QSPC) are available; alternatively a simple list of protocol commands for an easy and quick integration in other programming environments can be used.

**Digi Crown2**, digitized version, is the probe family that provides high levels of measuring accuracy combined with the Digi Net network interface.

Digi Crown2 and Digi Net together provide the following advantages:

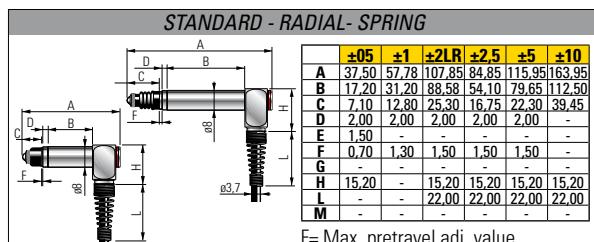
- ACCURACY. High levels of measuring accuracy is guaranteed by the linearization data stored in the memory of the connector. The Digi Net interface box is able to read the error map and perform an automatic compensation.
- PLUG & GAUGE. The memory in the connector allows any Digi Crown2 probe to be connected to the Digi Net network without requiring individual probe programming.
- FLEXIBILITY. The modularity of the system can create a network where 1 input-channel\* and 2 input-channel\* interface boxes are provided with the exact number of probes required. In a comprehensive Digi Net the Digi Crown2 can be combined with any type of incremental sensor, with analogue output sensors, and various I/O interfaces to provide a complete machine integration.
- VERSATILITY. The application can be designed by selecting the most suitable probe for the measuring task (for any measuring range the models are available with spring or pneumatic push, with axial or radial cable output and with or without gasket), and connecting it to the interface\* box.
- APPLICATIONS. Both static and synchronised dynamic measurements can be performed (maximum sampling frequency 4,000 samples/sec)
- CONNECTIVITY. The Digi Crown2 probe is designed for the Digi Net system, but it also connects to the Marposs standard line of LVDT amplifiers.

## **STANDARD**



	<b>+05</b>	<b>+1</b>	<b>+2LR</b>	<b>+2.5</b>	<b>+5</b>	<b>+10</b>
<b>A</b>	36.20	59.40	105.85	83.35	114.45	162.45
<b>B</b>	24.35	41.25	75.50	61.05	86.60	120.50
<b>C</b>	7.10	12.80	25.30	16.75	22.30	39.45
<b>D</b>	2.00	2.00	2.00	2.00	2.00	2.00
<b>E</b>	2.05	-	-	-	-	-
<b>F</b>	0.70	1.30	1.50	1.50	1.50	-
<b>G</b>	-	-	-	-	-	-
<b>H</b>	-	-	-	-	-	-
<b>L</b>	-	22.00	22.00	22.00	22.00	22.00

F= Max pretravel adj value



	<b>+05</b>	<b>+1</b>	<b>+2LR</b>	<b>+2.5</b>	<b>+5</b>	<b>+10</b>
<b>A</b>	37.50	57.78	107.85	84.85	119.55	163.90
B	17.20	31.20	88.58	54.10	79.65	112.50
C	7.10	12.80	25.30	16.75	22.30	39.45
D	2.00	2.00	2.00	2.00	2.00	-
<b>E</b>	1.50	-	-	-	-	-
<b>F</b>	0.70	1.30	1.50	1.50	1.50	-
<b>G</b>	-	-	-	-	-	-
<b>H</b>	15.20	-	15.20	15.20	15.20	15.20
<b>L</b>	-	22.00	22.00	22.00	22.00	22.00

F= Max pretravel adj. value

MECHANICAL SPECIFICATIONS		$\pm 0,5 \text{ mm}$		$\pm 1 \text{ mm}$						$\pm 2 \text{ mm LongRange}$							
Cable (A=axial - R=radial)		A	R	A	R	A	R	A	R	A	R	A	R	A	R		
Movement (*)		S		S		PP		V		PV		S		PP		V	PV
Measuring range (mm)		1				2								4			
Mechanical travel (mm)		1,5				3								11			
Body Ø (mm)		8				8								8			
Spring strength (N/mm $\pm 15\%$ )		0,17		0,14		0,04		0,023				0,023		0,03		0,02	
Measuring force (N $\pm 25\%$ )		1,00		0,70		0,8 $\div$ 2,5		0,70				0,70		0,7 $\div$ 2,3		0,70	
PP pressure	bar					0,5 $\div$ 1								0,5 $\div$ 1			
	psi					7,5 $\div$ 14,5								7,5 $\div$ 14,5			
Vacuum retract pressure	bar							$\leq 0,6$							$\leq 0,6$		
	psi							$\leq 0,9$							$\leq 0,9$		
Cable length (m)		2			2									2			
Gasket	Fluoroelast.			Fluoroelastometer										Fluoroelastometer			
Repeatability ( $\mu\text{m}$ )		0,15			0,15									0,15			
Thermal drift ( $\mu\text{m}/^\circ\text{C}$ )		0,25			0,25									0,25			
Operating temperature (°C)		(-10) $\mathbb{H}$ (+65)			(-10) $\mathbb{H}$ (+65)									(-10) $\mathbb{H}$ (+65)			
Storage temperature (°C)		(-20) $\mathbb{H}$ (+100)			(-20) $\mathbb{H}$ (+100)									(-20) $\mathbb{H}$ (+100)			
Protection grade		IP65			IP65									IP65			
Contact type		carbide			carbide									carbide			
Contact tread		M2,5			M2,5									M2,5			

**Red Crown 2 LVDT MARPOSS**

TRADE NAME		F05	FR05					
ORDER CODE		3PR01L0000	3PR01L1200	F10	FR10			
Sensitivity (mV/V/mm)	230			230				
Accuracy error ( $\mu\text{m}$ )	(***)			$\pm \text{MAX}(1+ 2^*\text{K} ,  7^*\text{K} )^{***})$				$\pm \text{MAX}(2+ 2^*\text{K} ,  7^*\text{K} )^{***})$
Calibration spec.	3,5355V RMS with load 1M $\Omega$ /360pF/7,5kHz			3,5355V RMS with load 1M $\Omega$ /360pF/7,5kHz				

**Red Crown 2 HBT MARPOSS** (for TESA compatible models please refer to dedicated section on page 6, 7, 10, 11)

TRADE NAME	H05	HR05													
ORDER CODE	3PR01N0000	3PR01N1200	3PR02N0000	3PR02N1200	3PR02N0400	3PR02N1600	3PR02N0560	3PR02N1760	3PR10N0199	3PR10N1399	3PR10N0559	3PR10N1759	3PR10N0599	3PR10N1799	
Sensitivity (mV/V/mm)	73,75				73,75								73,75		
Accuracy error ( $\mu\text{m}$ )	(***)				+ MAX(1+[2*K], [7*K]/***)								+ MAX(2+[2*K], [7*K]/***)		
Calibration spec.					3,5355V RMS with load 2K $\Omega$ $\pm$ 0,1% / 7,5kHz				3,5355V RMS with load 2K $\Omega$ $\pm$ 0,1% / 7,5kHz				3,5355V RMS with load 2K $\Omega$ $\pm$ 0,1% / 7,5kHz		

## **RED CROWN 2 USB**

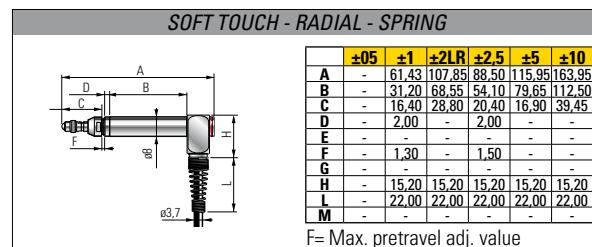
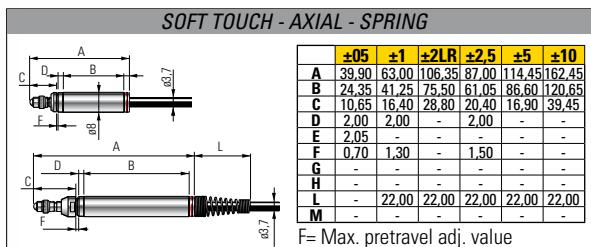
**DIGI GROWN 2**

\* Movement = spring - PP = pneumatic push - V = vacuum - PV = push/vacuum - \*\* Accuracy = +/-MAX(0.5+K1|I7+K1) \*\*\* K = Reading (mm)

	<b>+05</b>	<b>+1</b>	<b>+2LR</b>	<b>+2,5</b>	<b>+5</b>	<b>+10</b>
<b>A</b>	-	65,98	109,65	86,65	117,75	166,75
<b>B</b>	-	44,55	75,50	61,05	86,60	120,65
<b>C</b>	-	12,80	25,30	16,75	22,30	39,45
<b>D</b>	-	2,00	2,00	2,00	2,00	-
<b>E</b>	-	-	-	-	-	-
<b>F</b>	-	1,30	1,50	1,50	1,50	-
<b>G</b>	-	-	-	-	-	-
<b>H</b>	-	-	-	-	-	-
<b>L</b>	-	-	22,00	-	-	-
<b>M</b>	-	6,00	6,00	6,00	6,00	6,00

**F= Max. pretravel adj. value**

±2,5 mm						±5 mm						±10 mm					
A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R
S		PP	V		PV	S		PP	V		PV	S		PP	V		PV
		5						10						20			
		6,6						11						21			
		8						8						8			
0,023		0,03		0,02		0,03		0,02		0,02		-		-		-	
0,70		0,7 ÷ 2,3		0,70		0,70		0,7 ÷ 2,4		0,70		0,70		0,7 ÷ 2,4		0,70	
		0,5 ÷ 1						0,5 ÷ 1						0,5 ÷ 1			
		7,5 ÷ 14,5						7,5 ÷ 14,5						7,5 ÷ 14,5			
		≤ 0,6						≤ 0,6						≤ 0,6			
		≤ 0,9						≤ 0,9						≤ 0,9			
		2						2						2			
Fluoroelastometer						Fluoroelastometer						Fluoroelastometer					
		0,15						0,15						0,15			
		0,25						0,25						0,25			
		(-10) + (+65)						(-10) + (+65)						(-10) + (+65)			
		(-20) + (+100)						(-20) + (+100)						(-20) + (+100)			
		IP65						IP65						IP65			
		carbide						carbide						carbide			
		M2,5						M2,5						M2,5			
		115						115						23			
		± MAX(2,5 + [2*K]; [7*K])****)						± MAX(5 + [2*K]; [7*K])***)						± MAX(10 + [2*K]; [7*K])****)			
3,5355V RMS with load 1MΩ//360pF/7,5kHz								3,5355V RMS with load 1MΩ//360pF/7,5kHz						3,5355V RMS with load 1MΩ//360pF/7,5kHz			
		36,875						29,5						7,375			
		± MAX(2,5 + [2*K]; [7*K])****)						± MAX(5 + [2*K]; [7*K])***)						± MAX(10 + [2*K]; [7*K])****)			
3,5355V RMS with load 2KΩ±0,1%/7,5kHz								3,5355V RMS with load 2KΩ±0,1%/7,5kHz						3,5355V RMS with load 2KΩ±0,1%/7,5kHz			

**SOFT TOUCH**

<b>SOFT TOUCH</b>	<b><math>\pm 0,5 \text{ mm}</math></b>		<b><math>\pm 1 \text{ mm}</math></b>				<b><math>\pm 2 \text{ mm LongRange}</math></b>					
Cable (A=axial - R=radial)	A	R	A	R	A	R	A	R	A	R	A	R
Movement (*)	S		S		PP		V		PV		S	PP
Measuring range (mm)	1			2							4	
Mechanical travel (mm)	1,5			3							11	
Body Ø (mm)	8			8							8	
Spring strength (N/mm $\pm 15\%$ )	0,070		0,06	0,045						0,016	0,010	
Total Measuring force (N $\pm 25\%$ )	0,40		0,30	0,18 $\div$ 0,23			0,09 $\div$ 1,41		0,30	0,18 $\div$ 0,23		0,09 $\div$ 1,41
PP pressure bar				0,5 $\div$ 2			0,125 $\div$ 2		0,5 $\div$ 2			0,125 $\div$ 2
psi				7,3 $\div$ 29			1,825 $\div$ 29		7,3 $\div$ 29			1,825 $\div$ 29
Vacuum retract pressure bar							$\leq 0,6$					$\leq 0,6$
psi							$\leq 0,9$					$\leq 0,9$
Cable length (m)	2			2							2	
Repeatability ( $\mu\text{m}$ )	0,15			0,15							0,15	
Thermal drift ( $\mu\text{m}/^\circ\text{C}$ )	0,25			0,25							0,25	
Operating temperature ( $^\circ\text{C}$ )	(-10) $\div$ (+65)			(-10) $\div$ (+65)						(-10) $\div$ (+65)		
Storage temperature ( $^\circ\text{C}$ )	(-20) $\div$ (+100)			(-20) $\div$ (+100)						(-20) $\div$ (+100)		
Protection grade	IP50			IP50 (IP54 PP version)						IP50 (IP54 PP version)		
Contact type	Nylon (PA66)			Nylon (PA66)						carbide		
Contact tread	M2,5			M2,5						M2,5		

**Red Crown 2 LVDT MARPOSS**

<b>TRADE NAME</b>	<b>ORDER CODE</b>	
Sensitivity (mV/V/mm)	230	230
Accuracy error ( $\mu\text{m}$ )	(***)	$\pm \text{MAX}(1+ 2^*\text{K} ; 7^*\text{K} )***$
Calibration spec.	3,5355V RMS with load 1M $\Omega$ / 360pF/7,5kHz	3,5355V RMS with load 1M $\Omega$ / 360pF/7,5kHz

**Red Crown 2 HBT TESA**

<b>TRADE NAME</b>	<b>ORDER CODE</b>	
Sensitivity (mV/V/mm)	73,75	73,75
Accuracy error ( $\mu\text{m}$ )	(***)	$\pm \text{MAX}(1+ 2^*\text{K} ; 7^*\text{K} )***$
Calibration spec.	3V RMS with load 2k $\Omega$ $\pm 0,1\%$ / 13kHz	3,5355V RMS with load 2k $\Omega$ $\pm 0,1\%$ / 7,5kHz

**RED CROWN 2 USB**

<b>TRADE NAME</b>	<b>ORDER CODE</b>	
Accuracy error ( $\mu\text{m}$ )	$\pm(0,2+K^*1)$	$\pm(0,2+K^*1)$

**DIGI CROWN 2**

<b>TRADE NAME</b>	<b>ORDER CODE</b>	
Accuracy error ( $\mu\text{m}$ )	$\pm(0,2+K^*1)$	$\pm(0,2+K^*1)$

\* Movement S= spring - PP= pneumatic push - V= vacuum - PV= push/vacuum - \*\* Accuracy =  $=/-\text{MAX}(0,5+2^*\text{K};|7^*\text{K}|)$  \*\*\* K= Reading (mm)

SOFT TOUCH - AXIAL - PNEUMATIC PUSH							SOFT TOUCH - RADIAL - PNEUMATIC PUSH							
	<b>±05</b>	<b>±1</b>	<b>±2LR</b>	<b>±2,5</b>	<b>±5</b>	<b>±10</b>		<b>±05</b>	<b>±1</b>	<b>±2LR</b>	<b>±2,5</b>	<b>±5</b>	<b>±10</b>	
A	-	69,63	109,65	90,30	117,75	165,75		A	-	66,30	107,85	88,50	115,95	163,95
B	-	44,55	75,50	61,05	86,60	120,65		B	-	36,10	68,55	52,60	78,15	112,50
C	-	16,40	28,80	20,40	16,90	39,45		C	-	16,40	28,80	20,40	16,90	39,45
D	-	2,00	-	2,00	-	-		D	-	2,00	-	2,00	-	-
E	-	-	-	-	-	-		E	-	-	-	-	-	-
F	-	1,30	-	1,50	-	-		F	-	1,30	-	1,50	-	-
G	-	-	-	-	-	-		G	-	7,30	7,50	7,30	7,30	7,30
H	-	-	-	-	-	-		H	-	15,20	15,20	15,20	15,20	15,20
L	-	-	-	-	-	-		L	-	22,00	22,00	22,00	22,00	22,00
M	-	6,00	6,00	6,00	6,00	6,00		M	-	-	-	-	-	-

F= Max. pretravel adj. value

<b>±2,5 mm</b>				<b>±5 mm</b>				<b>±10 mm</b>					
A	R	A	R	A	R	A	R	A	R	A	R	S	PV
S		PP		V		PV		S	PP	V	PV	20	
		5						10				21	
		6,6						11				8	
		8						8					
0,016		0,01						0,02				0,030	
0,30		0,18 ÷ 1,23						0,30				0,30	
		0,5 ÷ 2						0,18 ÷ 1,23				0,18 ÷ 1,23	
		7,3 ÷ 29						0,5 ÷ 2				0,5 ÷ 2	
								7,3 ÷ 29				0,125 ÷ 2	
												7,3 ÷ 29	
												1,825 ÷ 29	
													1,825 ÷ 29
													≤ 0,6
													≤ 0,6
													≤ 0,9
													≤ 0,9
		2											
		0,15											0,15
		0,25											0,25
		(-10) + (+65)											(-10) + (+65)
		(-20) + (+100)											(-20) + (+100)
		IP50 (IP54 PP version)											IP50 (IP54 PP version)
		Nylon (PA66)											Nylon (PA66)
		M2,5											M2,5

115	± MAX(2,5 +  2*K ;  7*K ) ***)	115	± MAX(5 +  2*K ;  7*K ) ***)	23	± MAX(10 +  2*K ;  7*K ) ***)
3,5355V RMS with load 1MΩ//360pF/7,5kHz		3,5355V RMS with load 1MΩ//360pF/7,5kHz		3,5355V RMS with load 1MΩ//360pF/7,5kHz	

73,75	± MAX(2,5 +  2*K ;  7*K ) ***)	29,5	± MAX(5 +  2*K ;  7*K ) ***)	7,375	± MAX(10 +  2*K ;  7*K ) ***)
3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz	

3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz	
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3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz	
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3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz	
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3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz		3V RMS with load 2kΩ ± 0,1% / 13kHz	
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**UNPLUGGED**

STANDARD	$\pm 0,5 \text{ mm}$	$\pm 1 \text{ mm}$						$\pm 2 \text{ mm Long Range}$					
	A   R	A   R	A   R	A   R	A   R	A   R	A   R	A   R	A   R	A   R	A   R	A   R	A   R
Cable (A=axial - R=radial)	S	S	PP	V	PV	S	PP	V	PV				
Movement (*)	1		2							4			
Measuring range (mm)	1,5		3							11			
Mechanical travel (mm)	8		8							8			
Body Ø (mm)													
Spring strength (N/mm $\pm 15\%$ )	0,17	0,14	0,04	0,023			0,023	0,03	0,02				
Measuring force (N $\pm 25\%$ )	1,00	0,75	0,8-2,5	0,75			0,70	0,7-2,3	0,70				
PP pressure bar			0,5 $\div$ 1					0,5 $\div$ 1					
PP pressure psi			7,5 $\div$ 14,5					7,5 $\div$ 14,5					
Vacuum retract pressure bar				$\leq 0,6$						$\leq 0,6$			
Vacuum retract pressure psi				$\leq 0,9$						$\leq 0,9$			
Cable length (m)	3,5		3,5							3,5			
Gasket	Fluoroelast.		Fluoroelastometer					Fluoroelastometer					
Repeatability ( $\mu\text{m}$ )	0,15		0,15					0,15					
Thermal drift ( $\mu\text{m}/^\circ\text{C}$ )	0,25		0,25					0,25					
Operating temperature ( $^\circ\text{C}$ )	(-10) $\div$ (+65)		(-10) $\div$ (+65)					(-10) $\div$ (+65)					
Storage temperature ( $^\circ\text{C}$ )	(-20) $\div$ (+100)		(-20) $\div$ (+100)					(-20) $\div$ (+100)					
Protection grade	IP65		IP65					IP65					
Contact type	carbide		carbide					carbide					
Contact tread	M2,5		M2,5					M2,5					

**Red Crown 2 LVDT MARPOSS**

TRADE NAME	3PR01M0000	F05	3PR01M1200	FR05	3PR02M0000	F10	3PR02M1200	FR10	3PR02M0400	FPA10	3PR02M1600	FP10	3PR02M0500	FVA10	3PR02M1760	FV10	3PR10M0199	F21	3PR10M1399	FR21	3PR10M0559	FPA21	3PR10M1759	FP21	3PR10M0559	FVA21	3PR10M1799	FV21
ORDER CODE																												
Sensitivity (mV/V/mm)	233 $\pm 5\%$		233 $\pm 5\%$																									
Linearity error ( $\mu\text{m}$ )	(**)		$\pm \text{MAX}(1; 5^*K )^{***})$																									

**Red Crown 2 HBT MARPOSS**

TRADE NAME	H05	HR05	H10	HR10	HPA10	3PR02Z1200	HP10	3PR02Z1600	HVA10	3PR02Z0560	3PR02Z1760	HV10	-	-	-	-	-	-	-	-	-	-	-	-	-	
ORDER CODE																										
Sensitivity (mV/V/mm)	86 $\pm 5\%$		83 $\pm 5\%$																							
Linearity error ( $\mu\text{m}$ )	(**)		$\pm \text{MAX}(1; 5^*K )^{***})$																							

Calibration spec. 3,5355V RMS with load 1M $\Omega$ /360pF/7,5kHz 3,5355V RMS with load 1M $\Omega$ /360pF/7,5kHz

\* Movement S= spring - PP= pneumatic push - V= vacuum - PV= push/vacuum - \*\* Accuracy  $\pm 0,5 = +/-\text{MAX}(0,5;|5^*K|)$  - \*\*\* K= Reading (mm)

<b><math>\pm 2,5 \text{ mm}</math></b>								<b><math>\pm 5 \text{ mm}</math></b>								<b><math>\pm 10 \text{ mm}</math></b>																			
A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R	A	R												
S	PP	V	PV	S	PP	V	PV	S	PP	V	PV	S	PP	V	PV	S	PP	V	PV	S	PP	V	PV												
5				10				20				21				8				-															
6,6				11				-				-				-				-															
8				8				-				-				-				-															
0,023	0,03	0,02	-	0,03	0,02	0,02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-												
0,70	0,7 ÷ 2,3	0,70	-	0,70	0,7 ÷ 2,4	0,70	-	0,70	-	-	-	-	-	-	-	0,70	-	-	0,70	-	-	-	-												
0,5 ÷ 1	-	-	-	0,5 ÷ 1	-	-	-	-	-	-	-	-	-	-	-	0,5 ÷ 1	-	-	-	-	-	-	-												
7,5 ÷ 14,5	-	-	-	7,5 ÷ 14,5	-	-	-	-	-	-	-	-	-	-	-	7,5 ÷ 14,5	-	-	-	-	-	-	-												
≤ 0,6	-	-	-	≤ 0,6	-	-	-	≤ 0,6	-	-	-	-	-	-	-	≤ 0,6	-	-	-	-	-	-	-												
≤ 0,9	-	-	-	≤ 0,9	-	-	-	≤ 0,9	-	-	-	-	-	-	-	≤ 0,9	-	-	-	-	-	-	-												
3,5	-	-	-	3,5	-	-	-	3,5	-	-	-	-	-	-	-	3,5	-	-	-	-	-	-	-												
Fluoroelastometer								Fluoroelastometer								Fluoroelastometer																			
0,15				0,15				0,15				0,25				0,25				-															
0,25				0,25				-				-				-				-															
(-10) + (+65)				(-10) + (+65)				(-10) + (+65)				(-10) + (+65)				(-10) + (+65)				-															
(-20) + (+100)				(-20) + (+100)				IP65				IP65				IP65				-															
carbide				carbide				M2,5				M2,5				M2,5				-															
117,5 ± 5%								117,5 ± 5%								23 ± 5%																			
± MAX(2,5;  5*K )***)								± MAX(5;  5*K )***)								± MAX(10;  5*K )***)																			
3,5355V RMS with load 1MΩ//360pF/7,5kHz								3,5355V RMS with load 1MΩ//360pF/7,5kHz								3,5355V RMS with load 1MΩ//360pF/7,5kHz																			
80,5 ± 5%								53,5 ± 5%								37 ± 5%																			
± MAX(2,5;  5*K )***)								± MAX(5;  5*K )***)								± MAX(10;  5*K )***)																			
3,5355V RMS with load 2kΩ±0,1%/7,5kHz								3,5355V RMS with load 2kΩ±0,1%/7,5kHz								3,5355V RMS with load 2kΩ±0,1%/7,5kHz																			

## STANDARD COMPATIBLE MODELS

SPRING	$\pm 05 \text{ mm}$		$\pm 1 \text{ mm}$		$\pm 2 \text{ mm LongRange}$		$\pm 2 \text{ mm}$		
Cable	AX	90°	AX	90°	AX	90°	AX	90°	
<b>HBT</b>	<b>H05</b>	<b>HR05</b>	<b>H10</b>	<b>HR10</b>	<b>H21</b>	<b>HR21</b>	<b>H20</b>	<b>HR20</b>	
TESA	3PR01T0000	3PR01T1200	3PR02T0000	3PR02T1200	3PR10T0199	3PR10T1399	3PR05T0199	-	
MERCER	3PR01R0000	3PR01R1200	3PR02R0000	3PR02R1200	-	-	-	-	
METEM	3PR01S0000	3PR01S1200	3PR02S0000	3PR02S1200	-	-	-	-	
MAHR-FEINPRUEF	3PR01P0000	3PR01P1200	3PR02P0000	3PR02P1200	-	-	3PR05P0199	-	
<b>LVDT</b>	<b>F05</b>	<b>FR05</b>	<b>F10</b>	<b>FR10</b>	<b>F21</b>	<b>FR21</b>	<b>F20</b>	<b>FR20</b>	
MICROCONTROL	3PR01K0000	3PR01K1200	3PR02K0000	3PR02K1200	-	-	-	-	

PNEUM. PUSH	$\pm 05 \text{ mm}$		$\pm 1 \text{ mm}$		$\pm 2 \text{ mm LongRange}$		$\pm 2 \text{ mm}$		
Cable	AX	90°	AX	90°	AX	90°	AX	90°	
<b>HBT</b>			<b>HPA10</b>	<b>HP10</b>	<b>HPA21</b>	<b>HP21</b>	<b>HPA20</b>	<b>HP20</b>	
TESA	NA	NA	3PR02T0400	3PR02T1600	3PR10T0559	3PR10T1759	-	-	
MERCER	NA	NA	3PR02R0400	3PR02R1600	-	-	-	-	
METEM	NA	NA	3PR02S0400	3PR02S1600	-	-	-	-	
MAHR-FEINPRUEF	NA	NA	3PR02P0400	3PR02P1600	-	-	-	-	
<b>LVDT</b>			<b>FPA10</b>	<b>FPA10</b>	<b>FPA21</b>	<b>FPA21</b>	<b>FPA20</b>	<b>FPA20</b>	
MICROCONTROL	NA	NA	3PR02K0400	3PR02K1600	-	-	-	-	

VACUUM	$\pm 05 \text{ mm}$		$\pm 1 \text{ mm}$		$\pm 2 \text{ mm LongRange}$		$\pm 2 \text{ mm}$		
Cable	AX	90°	AX	90°	AX	90°	AX	90°	
<b>HBT</b>			<b>HVA10</b>	<b>HV10</b>	<b>HVA21</b>	<b>HV21</b>	<b>HVA20</b>	<b>HV20</b>	
TESA	NA	NA	3PR02T0560	3PR02T1760	3PR10T0599	3PR10T1799	-	-	
MERCER	NA	NA	3PR02R0560	3PR02R1760	-	-	-	-	
METEM	NA	NA	3PR02S0560	3PR02S1760	-	-	-	-	
MAHR-FEINPRUEF	NA	NA	3PR02P0560	3PR02P1760	-	-	-	-	
<b>LVDT</b>			<b>FVA10</b>	<b>FV10</b>	<b>FVA21</b>	<b>FV21</b>	<b>FVA20</b>	<b>FV20</b>	
MICROCONTROL	NA	NA	3PR02K0560	3PR02K1760	-	-	-	-	

## SOFT TOUCH COMPATIBLE MODELS

SPRING	$\pm 05 \text{ mm}$		$\pm 1 \text{ mm}$		$\pm 2 \text{ mm LongRange}$		$\pm 2 \text{ mm}$		
Cable	AX	90°	AX	90°	AX	90°	AX	90°	
<b>HBT</b>	<b>H05L</b>	<b>HR05L</b>	<b>H10L</b>	<b>HR10L</b>	<b>H21L</b>	<b>HR21L</b>	<b>H20L</b>	<b>HR20L</b>	
TESA	3PR01T5000	3PR01T6200	3PR02T5000	3PR02T6200	3PR10T5199	3PR10T6399	3PR05T5199	-	
METEM	3PR01S5000	3PR01S6200	3PR02S5000	3PR02S6200	-	-	-	-	
<b>LVDT</b>	<b>F05L</b>	<b>FR05L</b>	<b>F10L</b>	<b>FR10L</b>	<b>F21L</b>	<b>FR21L</b>	<b>F20L</b>	<b>FR11L</b>	
MICROCONTROL	-	-	-	3PR02K6200	-	-	-	-	

PNEUM. PUSH	$\pm 05 \text{ mm}$		$\pm 1 \text{ mm}$		$\pm 2 \text{ mm LongRange}$		$\pm 2 \text{ mm}$		
Cable	AX	90°	AX	90°	AX	90°	AX	90°	
<b>HBT</b>			<b>HPA10L</b>	<b>HP10L</b>	<b>HPA21L</b>	<b>HP21L</b>	<b>HPA20L</b>	<b>HP20L</b>	
TESA	NA	NA	3PR02T5400	3PR02T6600	3PR10T5559	3PR10T6759	-	-	
METEM	NA	NA	3PR02S5400	3PR02S6600	-	-	-	-	
<b>LVDT</b>			<b>FPA10L</b>	<b>FP10L</b>	<b>FPA21L</b>	<b>FP21L</b>	<b>FPA20L</b>	<b>FP11L</b>	
MICROCONTROL	NA	NA	3PR02K5400	3PR02K6600	-	-	-	-	

VACUUM	$\pm 05 \text{ mm}$		$\pm 1 \text{ mm}$		$\pm 2 \text{ mm LongRange}$		$\pm 2 \text{ mm}$		
Cable	AX	90°	AX	90°	AX	90°	AX	90°	
<b>HBT</b>			<b>HVA10L</b>	<b>HV10L</b>	<b>HVA21L</b>	<b>HV21L</b>	<b>HVA20L</b>	<b>HV20L</b>	
TESA	NA	NA	3PR02T5560	3PR02T6760	3PR10T5599	3PR10T6799	-	-	
METEM	NA	NA	3PR02S5560	3PR02S6760	-	-	-	-	
<b>LVDT</b>			<b>FVA10L</b>	<b>FV10L</b>	<b>FVA21L</b>	<b>FV21L</b>	<b>FVA20L</b>	<b>FV11L</b>	
MICROCONTROL	NA	NA	3PR02K5560	3PR02K6760	-	-	-	-	

<b>±2,5 mm</b>		<b>±5 mm</b>		<b>±10 mm</b>	
<b>AX</b>	<b>90°</b>	<b>AX</b>	<b>90°</b>	<b>AX</b>	<b>90°</b>
<b>H25</b>	<b>HR25</b>	<b>H50</b>	<b>HR50</b>	<b>H100</b>	<b>HR100</b>
3PR05T0000	3PR05T1200	3PR10T0000	3PR10T1200	3PR20T0000	3PR20T1200
3PR05R0000	3PR05R1200	3PR10R0000	3PR10R1200	3PR20R0000	3PR20R1200
3PR05S0000	3PR05S1200	3PR10S0000	3PR10S1200	3PR20S0000	3PR20S1200
3PR05P0000	3PR05P1200	3PR10P0000	3PR10P1200	3PR20P0000	3PR20P1200
<b>F25</b>	<b>FR25</b>	<b>F50</b>	<b>FR50</b>	<b>F100</b>	<b>FR100</b>
3PR05K0000	3PR05K1200	3PR10K0000	3PR10K1200	3PR20K0000	3PR20K1200

For dimensions please refer  
to drawings on page 4-5.

<b>±2,5 mm</b>		<b>±5 mm</b>		<b>±10 mm</b>	
<b>AX</b>	<b>90°</b>	<b>AX</b>	<b>90°</b>	<b>AX</b>	<b>90°</b>
<b>HVA25</b>	<b>HV25</b>	<b>HVA50</b>	<b>HV50</b>	<b>HVA100</b>	<b>HV100</b>
3PR05T0560	3PR05T1760	3PR10T0560	3PR10T1760	3PR20T0560	3PR20T1760
3PR05R0560	3PR05R1760	3PR10R0560	3PR10R1760	3PR20R0560	3PR20R1760
3PR05S0560	3PR05S1760	3PR10S0560	3PR10S1760	3PR20S0560	3PR20S1760
3PR05P0560	3PR05P1760	3PR10P0560	3PR10P1760	3PR20P0560	3PR20P1760
<b>FVA25</b>	<b>FV25</b>	<b>FVA50</b>	<b>FV50</b>	<b>FVA100</b>	<b>FV100</b>
3PR05K0560	3PR05K1760	3PR10K0560	3PR10K1760	3PR20K0560	3PR20K1760

For dimensions please refer  
to drawings on page 6-7.

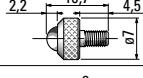
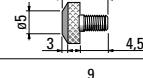
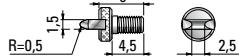
<b>±2,5 mm</b>		<b>±5 mm</b>		<b>±10 mm</b>	
<b>AX</b>	<b>90°</b>	<b>AX</b>	<b>90°</b>	<b>AX</b>	<b>90°</b>
<b>HPA25L</b>	<b>HP25L</b>	<b>HPA50L</b>	<b>HP50L</b>	<b>HPA100L</b>	<b>HP100L</b>
3PR05T5400	3PR05T6600	3PR10T5400	3PR10T6600	3PR20T5400	3PR20T6600
3PR05S5400	3PR05S6600	3PR10S5400	3PR10S6600	3PR20S5400	3PR20S6600
<b>FPA25L</b>	<b>FP25L</b>	<b>FPA50L</b>	<b>FP50L</b>	<b>FPA100L</b>	<b>FP100L</b>
3PR05K5400	3PR05K6600	3PR10K5400	3PR10K6600	3PR20K5400	3PR20K6600

For dimensions please refer  
to drawings on page 6-7.

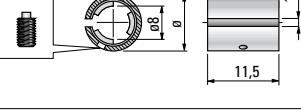
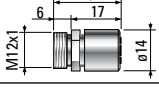
## SPRINGS

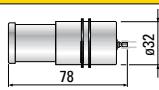
SPRING	FORCE	Measuring Range					Order code
		±0,5	±1	±2LR	±2,5	±5	
	0,4 (N)	X					1024099751
	2 (N)	X					1024099753
	2,5 (N)	X					1024099754
	1 (N)		X				1042414337
	2 (N)		X				1042414336
	2,5 (N)		X				1042414335
	1 (N)				X		1042414435
	1,6 (N)				X		1042414441
	2 (N)				X		1042414436
	2,5 (N)				X		1042414437
	1 (N)					X	1042414537
	1,6 (N)					X	1042414561
	2 (N)					X	1042414536

## ACCESSORIES

CONTACTS	DESCRIPTION	Order code
	Contact ø5 mm / M2,5	3392409910
	Flat contact M2,5	3392409912
	Cut contact M2,5	3392409914

CABLE EXTENSIONS	DESCRIPTION	Order code
 LVDT / HBT	Cable extension 1 m	6735932026
	Cable extension 2 m	6735932015
	Cable extension 5 m	6735932016
	Cable extension 10 m	6735932017
	Cable extension 15 m	6735932037

CLAMPING	DESCRIPTION	Order code
	Bushing outside ø 10 mm	1019826001
	Bushing outside ø 3/8"	1019826002
	Dowel M3x10	1024099760
	Dowel 4-40 UNC x .375"	1024099761
	Tongs bushing ø 8	2042414100

OTHER ACCESSORIES	DESCRIPTION	Order code
	Vacuum pump + L = 1 m tubing	4717008002
	Pre-travel regulator wrench	1346413200

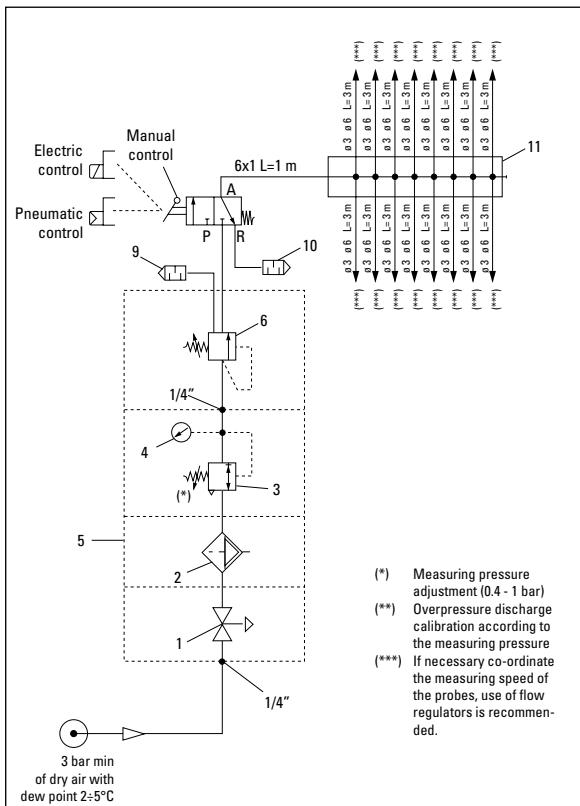
AIR ADAPTORS	DESCRIPTION	Order code
	Axial air adaptor	4430RSMV03
	Radial air adaptor	4430RSMVAB

## PNEUMATIC SYSTEM

For applications with pneumatic push and vacuum retraction probe type, the pneumatic system should be sized as shown in the below schemes.

Air supply: air must be dry and unoiled, with dew point in the range 2-5 °C and filtered to 5 µm.

PNEUMATIC SYSTEM FOR MEASURING PROBES

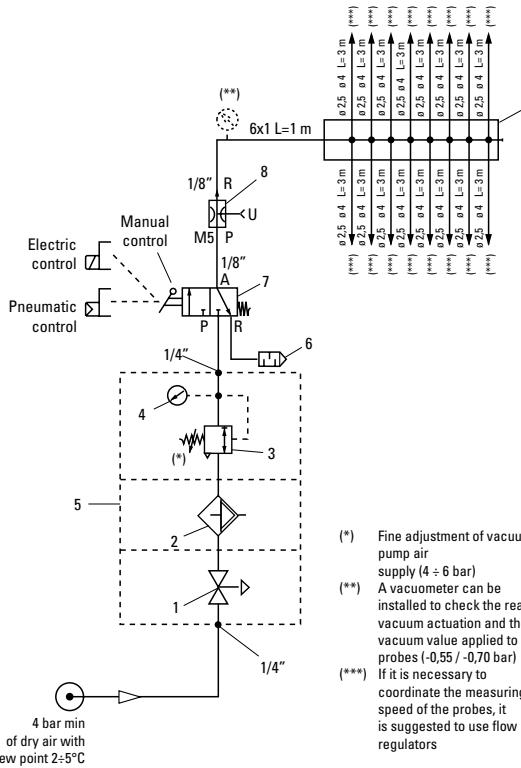


Ref	Q.ty	Description
1	1	ON-OFF valve 1/4"
2	1	Filter 5µ with semi automatic discharge
3	1	Pressure regulator
4	1	Pressure gauge ø 50 1/8" scale 0÷4 bar
5	2	Rapid terminal with bracket 72
6	1	Overpressure discharge valve
7	1	Beam 1/4"
8	1	Silencer 1/2"
9	1	Monostable lever 3-way 2-position valve
10	1	Silencer 1/8"
11	1	Distributor for max 16 probes

Application specs for pneumatic push probes:

- Standard version with gaiter: 0,4÷1 bar
- Version without gaiter: 0,5÷2 bar

PNEUMATIC LAYOUT FOR VACUUM CONTACT RETRACTION



Ref	Q.ty	Description
1	1	ON-OFF valve 1/4"
2	1	Filter 5µ with semi automatic discharge
3	1	Pressure regulator
4	1	Pressure gauge ø 50 1/8" scale 0÷4 bar
5	2	Rapid terminal with bracket 72
6	1	Silencer 1/2"
7	1	Monostable lever 3-way 2-position valve
8	1	Vacuum pump
9	1	Distributor for max 16 probes

Application specs for probes with spring push and vacuum retraction:

- Standard version with gaiter: -0,55 - -0,7 bar
- Version without gaiter: 0,5÷2 bar

**CROSS REFERENCE TABLE: SENSORS - INTERFACE UNITS - DISPLAY UNITS**

A124	D124	QUICK BLOCK	DIGI BLOCK	HAND HELD GAUGES	RED CROWN 2	DIGI CROWN 2	RED CROWN 2 USB	DEVICE NAME	#CH	ACQUISITION TIME	
●		●		●	●			QUICK READ	1-2	2 ms	
●		●		●	●	(*)		E4N	1-4	2 ms	
●		●		●	●	(*)		TCI1 TCI4 TCI8	1 4 8	2 ms	
●	●	●	●	●	●	(*)		GAGE POD	16	0,25 ms	
		●		●	●	(*)		EASY BOX	4	1 ms	
				●	●	(*)		DIGI NET	1-744	0,25 ms	
					(**)	(*)			1-31	0,25 ms	
									1-8	0,25 ms	
							●		1-744	0,25 ms	
									1	1 ms	

\* Digi Crown2 probes, can also be connected to all Marposs standard LVDT interfaces.

\*\* Red Crown2 LVDT can be connected to Digi Crown Net by dedicated programming.

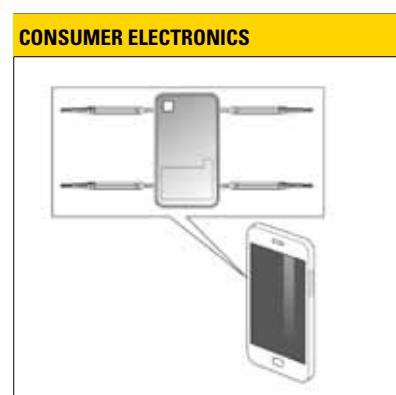
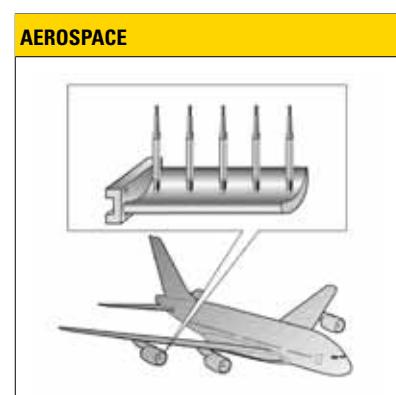
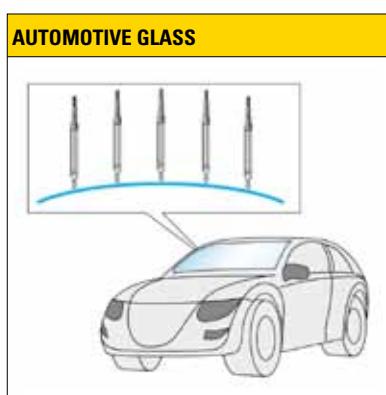
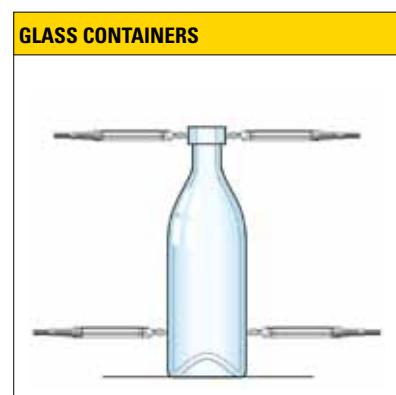
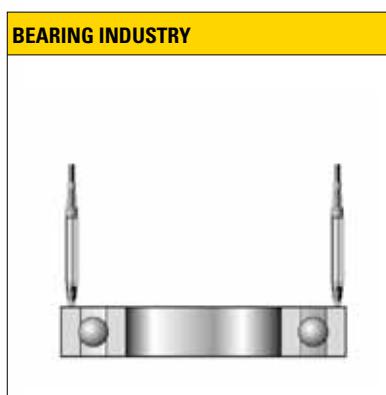
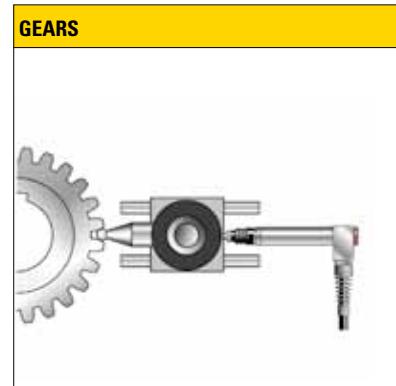
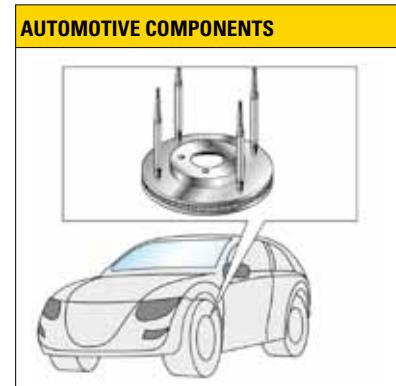
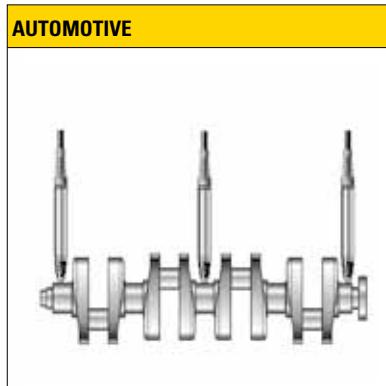


	OUTPUT TYPE	ACQUISITION SW	DISPLAY UNIT	VISUALIZATION ON
	SERIAL 232	EMBEDDED	QUICK READ	LED BARGRAPH + DIGITAL DISPLAY
	SERIAL 232 / DIGIMATIC / BCD	EMBEDDED	E4N	LED BARGRAPH + DIGITAL DISPLAY
	ANALOGUE (VOLTAGE / CURRENT)	-		PLC/CNC
	USB ETHERNET WIFI	Marposs Acq. SW (1)	E9066 INDUSTRIAL PC / COMMERCIAL PC	LCD DISPLAY
	USB	Marposs Acq. SW (1)	E9066 INDUSTRIAL PC / COMMERCIAL PC	LCD DISPLAY
	USB	EMBEDDED	MERLIN	LCD DISPLAY
	USB	EMBEDDED	NEMO	LCD DISPLAY
	USB/232/PCI CARD/ISA CARD	Marposs Acq. SW (2)	E9066 INDUSTRIAL PC / COMMERCIAL PC	LCD DISPLAY
	USB/232	EMBEDDED	MERLIN	8,4" LCD DISPLAY
	DIRECT	EMBEDDED	NEMO	5,7" LCD DISPLAY
	USB/232	MADE BY PROTOCOL COMMAND	PLC	PLC
	USB	Marposs Acq. SW (1)	NEMO/MERLIN/E9066/INDUSTRIAL PC/COMMERCIAL PC/PLC/ANY HOST USB	DEPENDING ON THE DISPLAY UNIT

(1) Please refer to the Easy Box section in Testar catalogue

(2) Please refer to the Digi Net section in Testar catalogue

## APPLICATION EXAMPLES



For a full list of address locations, please consult the Marposs official website

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