

# Electronic Totalizing Counters



Type	tico 731	tico 732	tico 734	tico 735P1
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Small, compact, 5 different versions</li> <li>■ Voltage supply via lithium cell or 12-24 VDC</li> <li>■ 8-digit LCD or 6-digit LED display</li> <li>■ Programmable counting frequency and active edge</li> <li>■ High-voltage version for 12-250 VDC/AC input pulses</li> <li>■ Optional with prescaling function; decimal point and output signal</li> </ul>	<ul style="list-style-type: none"> <li>■ Multifunctional, used as counter, tachometer, time counter, shift or batch counter</li> <li>■ Voltage supply 12-24 VDC; 115 VAC, or 230 VAC</li> <li>■ 6-digit LCD or LED display</li> <li>■ Offering a large variety of programmable functions</li> <li>■ Without or with 1 or 2 presets</li> <li>■ Freely adjustable prescaling</li> <li>■ Programmable keyboard lock</li> <li>■ Integrated totalizing counter</li> </ul>	<ul style="list-style-type: none"> <li>■ Totalizing counter with large, 8-digit LCD display; illuminated</li> <li>■ Voltage supply via exchangeable lithium cell</li> <li>■ Small mounting depth</li> <li>■ Expandable by a variety of module options</li> <li>■ 10 versions offering different functions (same design)</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display; digit height 18.5 mm</li> <li>■ Programmable display colour</li> <li>■ Upgrading options (e.g. RS 485)</li> <li>■ Service-friendly due to plug-in system</li> <li>■ Complete functions by 8 counter versions and 5 process indicators</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	48 x 24 x 32 short 48 x 24 x 60 long	48 x 48 x 93.5	72 x 36 x 36	96 x 48 x 100
Front panel cutout (mm)	45 x 22.5	45 x 45	68 x 33	92 x 45
Display	LCD 8-digit, 7 mm LED 6-digit, 7.6 mm	LCD 6-digit, 9 mm LED 6-digit, 7.6 mm	LCD 8-digit, 12 mm	LED 5-digit, 18.5 mm Dual-colour
Protection	IP 65	IP 65	IP 65	IP 66
Supply voltage	Li battery, type 1+3, 12-24 VDC	12-24 VDC, 115 VAC, 230 VAC versions	Exchangeable Li battery	22-55 VDC / 20-50 VAC or 90-264 VAC
<b>Inputs</b>				
Input control	PNP/NPN, type 3 with 12-250 VDC/AC	PNP/NPN	PNP/NPN	PNP/NPN
Frequency	7.5 kHz / 30 Hz, type 3; 20 Hz	5 kHz / 30 Hz	10 kHz / 30 Hz	10 kHz / 200 Hz / 20 Hz
Prescaler	Optional, 0.001-99.999	0.001-999.999	Optional 0.0001-99.9999	0.0001-9.9999
Reset input	NPN type 1+2, type 3 with 12-250 VDC/AC NPN/PNP Type 4-5	PNP/NPN	NPN	NPN
Control inputs	Optional: 2 <sup>nd</sup> counter input, keyboard lock or gate input	2 <sup>nd</sup> counter input and gate input	Keyboard lock	2 <sup>nd</sup> counter input and keyboard lock
<b>Counting mode</b>				
Add mode	Standard	Programmable	Standard	
Difference mode	Optional type 5	Programmable	Optional	Programmable
Counting direction		Programmable		Programmable
Add/Add Mode		Programmable		Programmable
Phase Discriminator	Optional Type 4+5	Programmable	Optional	Programmable
<b>Output</b>	Optional as transistor PNP or display	Without, or with 1 or 2 relays and transistor outputs	Option as SSR output	Optional with 1 or 2 relays and transistor outputs
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# Electronic Totalizing Counters



Type	signo 727	Type 710		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Large 6-digit LED display</li> <li>■ Voltage supply 12-24 VDC or 115/230 VAC</li> <li>■ Connections via plug-in screw terminals</li> <li>■ Very high counting frequency up to 40 kHz</li> <li>■ With or without 2 limit values, for use as relay and transistor</li> <li>■ Options: RS 232 or RS 485</li> </ul>	<ul style="list-style-type: none"> <li>■ Totalizing counter, plugs into modular system 400</li> <li>■ Voltage supply 12-24 VDC</li> <li>■ 6-digit LED display</li> <li>■ Versions with gate input, display memory or direction input</li> <li>■ With or without front reset key</li> <li>■ Accessories: panel frame and connection box</li> </ul>		
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	96 x 48 x 108	50 x 25 x 88		
Front panel cutout (mm)	92 x 45	50 x 25		
Display	LED 6-digit, 14 mm	LED 6-digit, 7 mm		
Protection	IP 54	IP 54		
Supply voltage	12-24 VDC; 115/230 VAC	12-24 VDC		
<b>Inputs</b>				
Input control	PNP/NPN	PNP or NPN		
Frequency	40 kHz / 30 Hz	5 kHz / 30 Hz		
Prescaler	0.0000-99.9999			
Reset input	PNP/NPN	PNP, NPN, depending on version		
Control inputs	Gate input, reset enable and keylock input	Gate input, display hold, counting direction, depending on version		
<b>Counting mode</b>				
Add Mode		Standard		
Difference mode	Programmable			
Counting direction	Programmable	Depending on version		
Add/Add Mode				
Phase Discriminator	1-,2-,4-fold programming			
<b>Output</b>	Version with 2 limit values; for use as relay or transistor			
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# Electromechanical Totalizing Counters



Type	Type 464-468	Type 864-868	Type 634 / 635	Type 635 iw
<b>Features</b>	<ul style="list-style-type: none"> <li>■ 4-, 6- or 8-digit display</li> <li>■ With manual/electrical reset or without reset</li> <li>■ Plugs into modular system 400</li> <li>■ Convenient for service</li> </ul>	<ul style="list-style-type: none"> <li>■ 4-, 6- or 8-digit display</li> <li>■ With manual/electrical reset or without reset</li> <li>■ Plugs into modular system 400</li> <li>■ Convenient for service</li> </ul>	<ul style="list-style-type: none"> <li>■ Small mounting dimensions</li> <li>■ Low power consumption</li> <li>■ Standard connections</li> <li>■ Suitable for PCB mounting</li> <li>■ Machine-solderable and washable</li> </ul>	<ul style="list-style-type: none"> <li>■ Small AC voltage counter</li> <li>■ Low power consumption</li> <li>■ Easy to install</li> <li>■ Protection IP 66</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	50 x 25 x 75.5	56 x 40 x 72.5 55 x 28 x 72.5	25.2 x 31 x 14.6 30 x 20 x 40	30 x 20 x 58.3
Front panel cutout (mm)	50 x 25	52 x 27	27 x 14.2 only .8	27 x 14.4
No. of digits/ Digit height	4-8 depending on version/4 mm	6; 8 depending on version/4 mm	6, optional 7/ 4 mm (visual)	6/ 4 mm (visual)
Protection	IP 40	IP 40	IP 65	IP 66
Pulse voltage	24 VDC; 24 VAC; 115 VAC; 230 VAC	24 VDC; 24 VAC; 115 VAC; 230 VAC	5; 12; 24 VDC	24; 115; 230 VAC
Power consumption	DC 2.5 W, AC 2.75 VA	DC 2.5 W, AC 2.75 VA	50-440 mW depending on version	85-600 mW
Reset	Without reset, with manual or electrical reset, depending on version	Without reset or with manual reset, depending on version		
Operating temperature	- 10...50 °C	- 10...50 °C	- 10...50 °C; optional - 40...+ 85 °C	-10...50 °C
Duty cycle	100 % at 25 °C	100 % at 25 °C	100 % at 25 °C	100 % at 25 °C
Accessories	Panel frame connection box			
Dimensions (mm) (including panel frame)	60 x 50 x 88			
Cutout (mm) (including panel frame )	55 x 29.5			
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# Electromechanical Totalizing Counters



Type	Type 635 DIN	Type 872-877	Type 869	Type 853
<b>Features</b>	<ul style="list-style-type: none"> <li>■ For DIN rail mounting</li> <li>■ Wide voltage range</li> <li>■ Screw-type terminals</li> <li>■ Without reset function</li> </ul>	<ul style="list-style-type: none"> <li>■ Small mounting dimensions</li> <li>■ 4-,5-,6- or 7-digit display</li> <li>■ Connections with AMP plug</li> <li>■ For surface mounting or base mounting</li> <li>■ With or without reset function</li> </ul>	<ul style="list-style-type: none"> <li>■ Small mounting dimensions</li> <li>■ 6- or 7-digit display</li> <li>■ Protection IP 54</li> <li>■ For base mounting, surface mounting or flush mounting</li> </ul>	<ul style="list-style-type: none"> <li>■ Surface mounting</li> <li>■ Easy to install</li> <li>■ Pushbutton reset</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	25.5 x 68.5 x 28	31.5- 38 x 26.5 x 75	46 x 46 x 55 with front panel; 40 x 24.5 x 55	53 x 100 x 26
Front panel cutout (mm)		32 - 38.5 x 27	40.5 x 25	
No. of digits/ Digit height	6/ 4 mm	4; 5; 6; 7 depending on version 4 mm	6 or 7, depending on version 4 mm	6/ 4 mm
Protection	IP 10	IP 40	IP 40	IP 10
Pulse voltage	5/12/24 VDC; 115/230 VAC	12; 24 VDC; 24; 110 230 VAC	24 VDC	24 VDC; 230 VAC
Power consumption	80 - 665 mW	DC 1.5 W, AC 2.5 VA	1.7 W	DC 2.75 W, AC 4 VA
Reset		Without reset or with manual reset, depending on version		Manual
Operating temperature	- 10...50 °C	- 10...50 °C	- 10...50 °C	- 10...50 °C
Duty cycle	100 % at 25 °C	100 % at 25 °C	100 % at 25°	100 % at 25 °C
Accessories		Mounting base	Mounting base	
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# Mechanical Totalizing Counters



Type	Type 344-346	Type 101/103/301/309	Type 125	Type 150
<b>Features</b>	<ul style="list-style-type: none"> <li>■ 4-digit hand tally</li> <li>■ Mounting by means of thumb ring; for wall or bench-mounting</li> <li>■ Reset via rotary knob</li> <li>■ Rugged and simple</li> <li>■ Maintenance-free operation</li> </ul>	<ul style="list-style-type: none"> <li>■ Small mechanical revolution and stroke counter</li> <li>■ 4- or 5-digit display</li> <li>■ For flush- or surface mounting</li> <li>■ With or without case</li> <li>■ Without reset function</li> </ul>	<ul style="list-style-type: none"> <li>■ 4-digit hand tally, revolution and stroke counter</li> <li>■ With key reset function</li> <li>■ Small dimensions</li> </ul>	<ul style="list-style-type: none"> <li>■ 6-digit revolution, length and stroke counter</li> <li>■ Length counter PTB-approved</li> <li>■ With key reset function</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	60 x 60 x 26	34.8 x 32 x 20	54 x 45 x 43.5 hand tally, 53 x 28.4 x 35	80 x 45 x 43.5
No. of digits	4	4 or 5	4	6
Digit height	4 mm	4.2 mm	4 mm	4 mm
Protection			IP 50	IP 50
Reset function	Manual, via rotary knob		Manual, via reset key	Manual, via reset key
Drive	Hand button	Shaft, right or left	Shaft, right or left	Both sides; stroke counter right or left
Torque/ Actuating distance		0.05 Ncm, stroke counter 1.0 Ncm		0.2 Ncm, stroke counter 5 Ncm
Max. speed		1000/100 r.p.m.	1500/500 r.p.m.	3000/1500 r.p.m.
Max. stroke		500 strokes/min	500 strokes/min	500 strokes/min
Transmission ratio	1:1	1:1 / 1:10	1:1 / 1:10	1:1 / 1:2 / 1:10
Mounting	Suitable for manual mounting, wall or bench mounting	Flush-mounting case, surface-mounting case	Baseplate	Baseplate
Accessories		Stroke lever	Stroke lever, measuring wheels	Stroke lever, measuring wheels
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# Mechanical Totalizing Counters



Type	Type 205	Type 312	Type 225	Colibri
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Length counter with key reset</li> <li>■ 7-digit display</li> <li>■ Large digits, 8 mm</li> </ul>	<ul style="list-style-type: none"> <li>■ Stroke counter with key reset</li> <li>■ 7-digit display</li> <li>■ Large digits, 8 mm</li> </ul>	<ul style="list-style-type: none"> <li>■ 6-digit revolution, length and stroke counter</li> <li>■ Length counter PTB-approved</li> <li>■ With key reset</li> <li>■ Large digits, 6.5 mm</li> </ul>	<ul style="list-style-type: none"> <li>■ Non-contact counter with magnetic drive</li> <li>■ Small mounting dimensions</li> <li>■ Protection IP 66</li> <li>■ Maintenance-free operation</li> <li>■ Easy to mount</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	92 x 80 x 48	92 x 80 x 48	132 x 70 x 74.2	27 x 25 x 20.2
No. of digits	7	7	6	6
Digit height	8 mm	8 mm	6.5 mm	4 mm, visual digit height
Protection	IP 53	IP 53		IP 66
Reset	Key reset	Key reset	Manual, via reset key	
Drive	Both sides	Both sides	Both sides, front, rear, bottom	Via Fe, N- or S-pole magnets
Torque/ Actuating distance	0.5 Ncm	8.6 Ncm	1.2 Ncm, stroke counter 8 Ncm	Fe = 0.5 mm; N+ S pole magnets depending on strength
Max. speed	3000 digits/min		10.000 digits/min	
Max. stroke		500 strokes/min	800 strokes/min	
Transmission ratio	1:2 / 1:5 / 1: 10	1:1	1:1 / 1:5 / 1: 50	
Mounting	Baseplate	Baseplate	Baseplate	ZOB = Without plate ZBO = Top plate ZBH = Rear plate ZBL = Left plate
Accessories	Measuring wheels	Stroke lever	Stroke lever, measuring wheels	Mounting plates, Hose clamps Magnets
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# Electronic Preset Counters



Type	tico 732	tico 734 / 007	tico 735P7/P8	signo 721
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Multifunctional, used as counter, tachometer, time counter, shift or batch counter</li> <li>■ Voltage supply 12-24 VDC; 115 VAC, or 230 VAC</li> <li>■ 6-digit LCD or LED display</li> <li>■ Offering a large variety of programmable functions</li> <li>■ Without preset or with 1 or 2 presets</li> <li>■ Freely selectable prescaling function</li> <li>■ Programmable keyboard lock</li> <li>■ Integrated totalizing counter</li> </ul>	<ul style="list-style-type: none"> <li>■ Preset counter with large, 8-digit LCD display; illuminated</li> <li>■ Voltage supply via exchangeable lithium cells</li> <li>■ Small mounting depth</li> <li>■ SSR output</li> <li>■ Expandable by a variety of module options</li> <li>■ 10 versions offering different functions (same design)</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display; digit height 18.5 mm</li> <li>■ 1 or 2 presets</li> <li>■ Programmable display colour</li> <li>■ Upgrading options (e.g. RS 485)</li> <li>■ Service-friendly due to plug-in system</li> <li>■ Complete functions due to 8 counter versions and 5 process indicators</li> </ul>	<ul style="list-style-type: none"> <li>■ Preset counter with 5-digit LED display</li> <li>■ Keyboard foil</li> <li>■ Correction value</li> <li>■ Prescaling factor from 0.001-9.999 with PNP output for totalizing counter</li> <li>■ Service-friendly due to plug-in screw terminals</li> <li>■ Suitable for a variety of applications due to control input and many different versions</li> <li>■ Keyboard lock</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	48 x 48 x 93.5	72 x 36 x 36	96 x 48 x 100	48 x 48 x 108
Front panel cutout (mm)	45 x 45	68 x 33	92 x 45	45 x 45
Display	LCD 6-digit, 9 mm LED 6-digit, 7.6 mm	LCD 8-digit, 12 mm	LED 5 digit, 18.5 mm Dual-colour	LED 5-digit, 7 mm
Protection	IP 65	IP 65	IP 66	IP 54
Supply voltage	12-24 VDC, 115 VAC, 230 VAC versions	Exchangeable Li battery	22-55 VDC / 20-50 VAC or 90-264 VAC	12-24 VDC, 24 VAC 100-240 VAC versions
<b>Inputs</b>				
Input control	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN
Frequency	5 kHz / 30 Hz	10 kHz / 30 Hz	10 kHz / 200 Hz / 20 Hz	5 kHz / 30 Hz
Prescaling factor	0.001-999.999	0.0001-99.9999	0.0001-9.9999	0.001-9.999
Reset input	PNP/NPN	NPN	NPN	PNP/NPN
Control inputs	2 <sup>nd</sup> counter input and gate input	Keyboard lock	Keyboard lock	Keylock, Gate, Display Hold or Up/Down input
<b>Count Mode</b>				
Add Mode or Subtracting Mode	Programmable	Programmable	Programmable	Programmable
Difference Mode	Programmable	Optional	Programmable	
Count Direction Mode	Programmable	Programmable	Programmable	Optional
Add/Add Mode	Programmable		Programmable	
Phase Discriminator	Programmable	Optional	Programmable	
<b>Output</b>	Without, or with 1 or 2 relays and transistor outputs	SSR output, with optional module as relay output	Optional with 1 or 2 relays and transistor outputs	With 1 or 2 relays or transistor outputs
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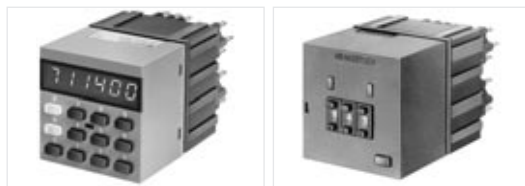
# Electronic Preset Counters



Type	signo 723.1	signo 723.5	signo 724	signo 724-S
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Large 6-digit LED display</li> <li>■ Voltage supply 12-24 VDC or 115/230 VAC</li> <li>■ Connections via plug-in screw terminals</li> <li>■ Very high counting frequency up to 40 kHz</li> <li>■ 2 Presets (as relay and transistor); one preset is programmable as a trailing preset</li> <li>■ Reproducible, freely selectable set value</li> <li>■ Optional with RS 232 or RS 485 interface</li> </ul>	<ul style="list-style-type: none"> <li>■ Large 6-digit LCD display with permanently visible presets</li> <li>■ Voltage supply 12-24 VDC or 100-240 VAC</li> <li>■ Connections via plug-in screw terminal</li> <li>■ Counting frequency up to 10 kHz</li> <li>■ 2 presets (relay and transistor)</li> <li>■ With batch counter and batch preset</li> <li>■ Optional with totalizing counter</li> <li>■ Optional with RS 485 interface Profibus or Suconet</li> </ul>	<ul style="list-style-type: none"> <li>■ Large 7-digit LED display with permanently visible presets</li> <li>■ Voltage supply 12-24 VDC or 100-240 VAC</li> <li>■ Connections via plug-in screw terminals</li> <li>■ Counting frequency up to 20 kHz</li> <li>■ 2 presets</li> <li>■ Trail output</li> <li>■ With batch counter and batch preset</li> <li>■ Reproducible, freely selectable set value</li> <li>■ Programmable outputs and operating modes</li> <li>■ Optional with RS 485 or RS 232 interface</li> </ul>	<ul style="list-style-type: none"> <li>■ Large 7-digit LED display with permanently visible presets</li> <li>■ Voltage supply 12-24 VDC or 100-240 VAC</li> <li>■ Connections via plug-in screw terminals</li> <li>■ Monitoring of 5 shifts with totalizing counter</li> <li>■ Integrated operating hour meter and tachometer</li> <li>■ 2 presets (relay and transistor)</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	96 x 48 x 108	72 x 72 x 108	144 x 72 x 108	144 x 72 x 108
Front panel cutout (mm)	92 x 45	68 x 68	138 x 68	138 x 68
Display	LED 6-digit, 14 mm	LCD 6-digit, 13 mm 2xLCD 6-digit, 6 mm	LED 7-digit, 14 mm 2xLED 6-digit, 7 mm	LED 7-digit, 14 mm LED 6-digit, 7 mm
Protection	IP 54	IP 65	IP 64	IP 64
Supply voltage	12-24 VDC; 115/230 VAC versions	12-24 VDC; 24 VAC; 100-240 VAC versions	12-24 VDC; 24 VAC; 100-240 VAC versions	12-24 VDC; 24 VAC; 100-240 VAC versions
<b>Inputs</b>				
Input control	PNP/NPN	PNP	PNP	PNP
Frequency	40 kHz / 30 Hz	10 kHz / 30 Hz	20 kHz, 5 kHz, 30 Hz	1 kHz, 30 Hz
Prescaling factor	0.0000-99.9999	0.0005-99.9999	0.0001-99.9999	0.0001-99.9999
Reset input	PNP/NPN	PNP	PNP	PNP
Control inputs	Gate input, display hold and keylock input	Gate input, display hold buffer and keylock input	Gate input, display buffer input Res+Out and keylock input	Gate input, Res+Out input, shift reset and keylock input
<b>Count Mode</b>				
Add Mode				
Difference Mode	Programmable	Programmable	Programmable	Programmable
Count Direction Mode	Programmable	Programmable	Programmable	Programmable
Add/Add Mode				
Phase Discriminator	1-,2-,4-fold programmable	1-,2-,4-fold programmable	1-,2-,4-fold programmable	1-,2-,4-fold programmable
<b>Output</b>	2 preset outputs (relay and transistor)	2 presets (relay and transistor), batch preset (transistor)	3 presets (relay and transistor), batch preset, direction output (transistor)	2 presets (relay and transistor)
<b>Page</b>	143	151	157	165



# Electronic Preset Counters



Type	Type 711	Type 781.4		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Single-channel preset counter</li> <li>■ 6-digit LED display</li> <li>■ Adding or subtracting counting direction</li> <li>■ Relay or transistor outputs</li> <li>■ Preset input via 10-key keypad</li> <li>■ Plugs into modular system 400</li> </ul>	<ul style="list-style-type: none"> <li>■ Repeating module; 1 preset</li> <li>■ 3-digit preset key for simple entry</li> <li>■ LED indicators for input and output signals</li> <li>■ Relay or transistor outputs</li> <li>■ Plugs into modular system 400</li> </ul>		
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	50 x 50 x 95.5	50 x 50 x 95.5		
Front panel cutout (mm)	50 x 50	50 x 50		
Display	LED 6-digit, 7 mm	2 LED indicators 3 preset keys		
Protection	IP 54	IP 30		
Supply voltage	12-24 VDC; 24, 115 or 230 VAC via power supply module	12-24 VDC, 24, 115 or 230 VAC via power supply module		
<b>Inputs</b>				
Input control	PNP/NPN	PNP or NPN		
Frequency	5 kHz / 30 Hz	5 kHz / 30 Hz		
Reset input	PNP or NPN	PNP		
Control inputs				
<b>Counting mode</b>				
Add Mode	Standard	Standard		
<b>Output</b>				
	1 preset (relay or transistor version)	1 preset (relay or transistor version)		
Accessories	Panel frame, connection box, power supplies	Panel frame, connection box, power supplies		
Panel frame dimensions (mm)	60 x 75 x 88	60 x 75 x 88		
Panel frame cutout (mm)	55 x 29 x 55	55 x 29 x 55		
<b>Page</b>	169	172		

# Electromechanical Preset Counters



Type	Type 486-487	Type 886-887	Type 446 / 447
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Adding preset counter</li> <li>■ Display 3-digit or 5-digit with permanently visible presets</li> <li>■ Manual, electrical, or automatic reset</li> <li>■ Plugs into modular system 400</li> <li>■ Easy to service</li> </ul>	<ul style="list-style-type: none"> <li>■ Adding preset counter</li> <li>■ Display 3-digit or 5-digit with permanently visible presets</li> <li>■ Manual, electrical, or automatic reset</li> <li>■ Available with different front panel sizes</li> <li>■ Compact design</li> </ul>	<ul style="list-style-type: none"> <li>■ Subtracting preset counter</li> <li>■ Display 3-digit or 5-digit with permanently visible presets</li> <li>■ Manual, electrical, or automatic reset</li> <li>■ Plugs into modular system 400</li> <li>■ Easy to service</li> </ul>
<b>Technical Data</b>			
Dimensions (mm) (Width x Height x Depth)	50 x 50 x 92.5	60 x 75 x 72.5 55 x 53.2 x 72.5	50 x 50 x 92.5
Front panel cutout (mm)	50 x 50	52 x 52	50 x 50
Display	3; 5, depending on version	3; 5, depending on version	3; 5, depending on version
Digit height	4 mm	4 mm	4 mm
Protection	IP 30	IP 30	IP 30
Pulse voltage	24 VDC, 24 VAC, 115 VAC, 230 VAC	24 VDC, 24 VAC, 115 VAC, 230 VAC	24 VDC, 24 VAC, 115 VAC, 230 VAC
Power consumption	DC 2.5 W; AC 2.75 VA	DC 2.5 W; AC 2.75 VA	DC 2.5 W; AC 2.75 VA
Reset	Manual, electrical - depending on version; optional: automatic reset	Manual, electrical - depending on version	Manual, electrical - depending on version; optional: automatic reset
Operating temperature	- 10...50 °C	- 10...50 °C	- 10...50 °C
Duty cycle	100 % at 25 °C	100 % at 25 °C	100 % at 25 °C
Accessories	Panel frame, connection box, reset automatic module 100 % duty cycle module		Panel frame, connection box, reset automatic module 100 % duty cycle module
Dimensions (mm) (with panel frame)	60 x 75 x 88		60 x 75 x 88
Panel frame cutout (mm)	55 x 55		55 x 55
<b>Page</b>	<b>174</b>	<b>176</b>	<b>178</b>

# Mechanical Preset Counters



Type		Type 250		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ 5-digit indication, revolution, length and stroke counter</li> <li>■ Subtracting counting direction</li> <li>■ Large stroke keys for preset input</li> <li>■ Pushbutton reset</li> <li>■ Large digits, 6.5 mm</li> </ul>			
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	132 x 70 x 74.2			
Digits	5			
Digit height	6.5 mm			
Protection	IP 40; connections IP00			
Reset	Manual reset via reset key			
Drive	Both sides, front, back, bottom			
Torque/ Actuating distance	1.2 Ncm Stroke counter 8 Ncm			
Max. speed	10.000 digits/min.			
Max. no. of strokes	800 strokes/min.			
Transmission ratio	1:1 / 1:5 / 2:1 / 5:1			
Mounting	Baseplate			
Accessories	Stroke levers, measuring wheels			
<b>Page</b>	<b>180</b>			

# PLC and Process Indicators

## With limit values



Type	tico 731 PLC Indicator	tico 735 DC Process Indicator	tico 735 Temperature Indicator	tico 735 volt/amp Indicator
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Integrated miniature PLC indicator</li> <li>■ 8-digit LCD display or 6-digit LED display</li> <li>■ Clock and data signal control (bit-serial)</li> <li>■ Graphics or BCD mode</li> <li>■ Simple protocol</li> <li>■ Key evaluation</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display ; digit height 18.5 mm</li> <li>■ Programmable colour change for alarm indication</li> <li>■ 2 alarms</li> <li>■ Upgradable options: RS 485, linear output, digital input</li> <li>■ Non-linear display scaling up to 10 points</li> <li>■ Tare/offset function</li> <li>■ Alarm duration indication</li> <li>■ Totalizing of process values by integration</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display, digit height 18.5 mm</li> <li>■ Programmable colour change for alarm indication</li> <li>■ 2 alarms</li> <li>■ Upgradable options: RS 485, linear output, digital input</li> <li>■ Free scaling</li> <li>■ Input range can be trimmed</li> <li>■ Alarm length indication</li> <li>■ Sensor break detection after two seconds</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display, digit height 18.5 mm</li> <li>■ Programmable colour change for alarm indication</li> <li>■ 2 alarms</li> <li>■ Upgradable options: RS 485, linear output, digital input</li> <li>■ Free scaling</li> <li>■ Input range can be trimmed</li> <li>■ Alarm length indication</li> <li>■ Up to 600 V</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	48 x 24 x 60	96 x 48 x 100	96 x 48 x 100	96 x 48 x 100
Front panel cutout (mm)	45 x 22.5	92 x 45	92 x 45	92 x 45
Display	LCD 8-digit, 7 mm LED 6-digit, 7.6 mm	LED 5-digit, 18.5 mm Dual-colour	LED 5-digit, 18.5 mm Dual-colour	LED 5-digit, 18.5 mm Dual-colour
Protection	IP 65	IP 66	IP 66	IP 54
Supply voltage	12-24 VDC	22-55 VDC / 20-50 VAC or 90-264 VAC	22-55 VDC / 20-50 VAC or 90-264 VAC	12-24 VDC; 24 VAC or 100-240 VAC
Temperature range	- 10-50 °C	0-55 °C	0-55 °C	0-50 °C
<b>Inputs</b>				
Measuring range	PNP/NPN - adjustable	0/4 -20 mA; 10-50 mA 0/2-10 V; 0/1-5 V; ± 100 mV; ± 10 V	J,T,K,N,B,R,S, PT 100	100 mV...600 V 1 mA...1A
Scanning	max. 1200 baud	100 ms	250 ms	250 ms
Accuracy		0.01 %	0.1 %	0.1 %
Control inputs	Clock and data signals bit-serial	Programming lock or Tare function	Programming lock	Programming lock
<b>Outputs</b>				
Alarms	PNP max. 10 mA, as long as the key is pressed	2 transistor outputs 1 relay (changeover) Optional: 2 <sup>nd</sup> relay	2 transistor outputs 1 relay (changeover contact) Optional: 2 <sup>nd</sup> relay	2 transistor outputs 1 relay (changeover contact) Optional: 2 <sup>nd</sup> relay
Auxiliary voltage		24 VDC; max. 30 mA		24 VDC; max. 30 mA
<b>Page</b>	186	190	190	190

# Process Indicators with Limit Values



Type	tico 735 AC volt/amp. indicator	tico 735 measuring bridge
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display, digit height 18.5 mm</li> <li>■ Programmable colour change for alarm indication</li> <li>■ 2 alarms</li> <li>■ Upgradable options: RS 485, linear output, digital input</li> <li>■ Free scaling</li> <li>■ Alarm length indication</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display, digit height 18.5 mm</li> <li>■ Programmable colour change for alarm indication</li> <li>■ 2 alarms</li> <li>■ Upgradable options: RS 485, linear output, digital input</li> <li>■ Non-linear display scaling up to 10 points</li> <li>■ Alarm length indication</li> <li>■ Tare/offset function</li> <li>■ Total rate indication by integration</li> </ul>
<b>Technical Data</b>		
Dimensions (mm) (Width x Height x Depth)	96 x 48 x 100	96 x 48 x 100
Front panel cutout (mm)	92 x 45	92 x 45
Display	LED 5-digit, 18.5 mm Dual-colour	LED 5-digit, 18.5 mm Dual-colour
Protection	IP 66	IP 66
Supply voltage	22-25 VDC; 20-50 VAC, or 90-264 VAC	22-25 VDC; 20-50 VAC or 90-264 VAC
Temperature range	0-55 °C	0-55 °C
<b>Inputs</b>		
Measuring range	1 V ... 600 V 1 mA...1 A	1-100 mV ± 100 mV (under preparation)
Scanning frequency	250 ms	100 ms
Accuracy	0.1 %	0.03 %
Control inputs	Program lockout	Program lockout or Tare function
<b>Outputs</b>		
Alarms	2 transistor outputs 1 relay (changeover contact) Optional: 2 <sup>nd</sup> relay	2 transistor outputs 1 relay (changeover contact) Optional: 2 <sup>nd</sup> relay
Auxiliary voltage	24 VDC, max. 30 mA	Bridge supply 5 V, or 10 V, 60 mA
<b>Page</b>	190	190

# Electronic Time Counters



Type	tico 731	tico 732	tico 734 006
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Small, compact, 5 different versions</li> <li>■ Voltage supply via lithium cell or 12-24 VDC</li> <li>■ 8-digit LCD or 6-digit LED display</li> <li>■ Two versions with different time ranges for each type</li> <li>■ High-voltage version for 12-250 VDC/AC input pulses</li> <li>■ Optional with output signal for use as maintenance counter</li> </ul>	<ul style="list-style-type: none"> <li>■ Multifunctional, used as counter, tachometer, time counter, shift or batch counter</li> <li>■ Voltage supply 12-24 VDC; 115 VAC, or 230 VAC</li> <li>■ 6-digit LCD or LED display</li> <li>■ Offering a variety of programmable functions</li> <li>■ Without or with 1 or 2 presets</li> <li>■ Offering many adjustable time ranges</li> <li>■ Resolution up to 1 ms</li> <li>■ Programmable keyboard lockout</li> <li>■ Integrated sun totalizing counter</li> </ul>	<ul style="list-style-type: none"> <li>■ Totalizing counter with large 6-digit LCD display; illuminated</li> <li>■ 4 different programmable time ranges</li> <li>■ Voltage supply via exchangeable lithium cell</li> <li>■ Small mounting depth</li> <li>■ Expandable by a variety of module options</li> <li>■ 10 versions of the same design are offering different functions</li> </ul>
<b>Technical Data</b>			
Dimensions (mm) (Width x Height x Depth)	48 x 24 x 32 short 48 x 24 x 60 long	48 x 48 x 93.5	72 x 36 x 36
Front panel cutout (mm)	45 x 22.5	45 x 45	68 x 33
Display	LCD 8-digit, 7 mm LED 6-digit, 7.6 mm	LCD 6-digit, 9 mm LED 6-digit, 7.6 mm	LCD 6-digit, 12 mm
Protection	IP 65	IP 65	IP 65
Supply voltage	Li battery, type 1+3, 12-24 VDC	12-24 VDC, 115 VAC, 230 VAC versions	Exchangeable Li battery
<b>Inputs</b>			
Input control	PNP/NPN, type 3 with 12-250 VDC/AC	PNP/NPN	PNP/NPN
Time format	hhhhhh.hh; hhhh:mm:ss; (LCD) hhhh.hh; hh:mm:ss (LED)	Sec, min, hours, decimal point up to 0.000 or programmable format hh:mm:ss	ssssss; mmmmm.m; hhhhh.h; hh:mm:ss; programmable
Measuring principle	Accumulated measurement; Pulse-width	Accumulated or single- pulse measurement; Pulse-width or period duration	Accumulated measurement; Pulse-width
Reset input	NPN type 1+2, type 3 with 12-250 VDC/AC; NPN/PNP Type 4-5	PNP/NPN	NPN
Control inputs	Optional: Keylock or Display hold input	2 <sup>nd</sup> counter input and display input	Keylock input
<b>Output</b>	Optional as transistor PNP or display	Without, or with 1 or 2 relays and transistor outputs	Optional as SSR output
<b>Page</b>	<b>202</b>	<b>209</b>	<b>212</b>

# Electromechanical Time Counters



Type	Type 891	Type 891 DIN	Type 478	Type 633 DC
<b>Features</b>	<ul style="list-style-type: none"> <li>■ 7-digit display</li> <li>■ Without reset function</li> <li>■ DIN dimensions 48 x 24; 48 x 48 and 72 x 72 via adapter frame</li> <li>■ Low-cost</li> <li>■ Screw-type terminal connections</li> </ul>	<ul style="list-style-type: none"> <li>■ 7-digit display</li> <li>■ Without reset function</li> <li>■ DIN-rail mounting</li> <li>■ Compact design</li> <li>■ Low-cost</li> <li>■ Screw-type terminal connections</li> </ul>	<ul style="list-style-type: none"> <li>■ 6- or 7-digit display</li> <li>■ Manual reset function or without reset function</li> <li>■ Plugs into modular system 400</li> <li>■ Easy to service</li> </ul>	<ul style="list-style-type: none"> <li>■ Small building dimensions</li> <li>■ Low power consumption</li> <li>■ Standard connections</li> <li>■ Suitable for PCB mounting</li> <li>■ Machine-solderable and washable</li> <li>■ High shock resistance</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	48 x 24 x 40.5	48 x 70 x 49	50 x 25 x 75.5	25.2 x 31 x 14.6 30 x 20 x 40
Front panel cutout (mm)	45 x 22.5		50 x 25	27 x 14.2; only .8
No. of digits/	7	7	6 or 7, depending on version	7
Digit height	5 mm (visual)	5 mm (visual)	4 mm	4 mm (visual)
Protection	IP 66	IP 66	IP 40	IP 65
Pulse voltage	12-36 VDC; 24 VAC; 115 VAC; 230 VAC; further voltages available as options	12-36 VDC; 24 VAC; 115 VAC; 230 VAC; further voltages available as options	12 VDC; 24 VDC; 24 VAC; 115 VAC; 230 VAC; depending on version	5; 12; 24 VDC
Power consumption	DC 0.75 W; AC 0.7 VA	DC 0.75 W; AC 0.7 VA	Approx. 1 VA	Approx. 30 mW
Reset	None	None	None; manual – depending on version	None
Operating temperature	- 10...50 °C	- 10...50 °C	- 10...50 °C;	- 10...50 °C; optional - 40...+ 85 °C
Time format	hhhhh.hh	hhhhh.hh	hhhh.hh or hhhhh.hh	hhhhh.hh
Accessories	Panel frame adapter		Panel frame, connection box	
Dimensions (mm) (including panel frame)	54 x 29; 48 x 48; 52 x 52; 72 x 72; D 73; D 58		60 x 50 x 88	
Cutout (mm) (including panel frame)	50 x 25; 45 x 45; D 50; 68 x 68; D 50; D 50		55 x 29.5	
<b>Page</b>	<b>215</b>	<b>217</b>	<b>219</b>	<b>221</b>

# Electromechanical Time Counters



Type	Type 633 DIN	Type 633 AC		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Suitable for DIN-rail mounting</li> <li>■ Suitable for installation in switching cabinets</li> <li>■ Screw-type terminal connections</li> <li>■ Without reset function</li> <li>■ Low power consumption</li> </ul>	<ul style="list-style-type: none"> <li>■ Small AC voltage meter</li> <li>■ Low power consumption</li> <li>■ Simple installation</li> <li>■ Protection class IP 65</li> <li>■ Screw-type terminal connections or cable connections</li> </ul>		
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	25.5 x 68.5 x 28	30 x 20 x 56		
Front panel cutout (mm)		27 x 14.4		
No. of digits	7	6		
Digit height	4 mm (visual)	4 mm (visual)		
Protection	IP 10	IP 66		
Pulse voltage	5, 12 or 24 VDC, depending on version	24, 115, 230 VAC		
Power consumption	Approx. 250 mW	0.08 -1 VA		
Operating temperature	0...60 °C	- 10...50 °C		
Time format	hhhhh.hh	hhhhh.h		
Accessories		Panel frame		
<b>Page</b>	<b>223</b>	<b>224</b>		



# Electronic Preset Time Counters



Type	tico 732	tico 734 008	tico 735P6
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Multifunctional, used as counter, tachometer, time counter, shift or batch counter</li> <li>■ Voltage supply 12-24 VDC; 115 VAC, or 230 VAC</li> <li>■ 6-digit LCD or LED display</li> <li>■ Variety of programmable functions</li> <li>■ Without presets or with 1 or 2 presets</li> <li>■ Variety of adjustable time ranges</li> <li>■ Resolution up to 1 ms</li> <li>■ Programmable keyboard lock</li> <li>■ Integrated sum totalizing counter</li> </ul>	<ul style="list-style-type: none"> <li>■ Totalizing counter with large, 6-digit LCD display; illuminated</li> <li>■ Different time, 4 ranges programmable</li> <li>■ Voltage supply via exchangeable lithium cell</li> <li>■ Small mounting depth</li> <li>■ Expandable by a variety of module options</li> <li>■ 10 versions offering different functions (same design)</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display; digit height 18.5 mm</li> <li>■ Programmable display colour</li> <li>■ Different time, 5 ranges programmable</li> <li>■ Upgrading options (e.g. RS 485)</li> <li>■ Service-friendly due to plug-in system</li> <li>■ Complete functions by 8 counter versions and 5 process indicators</li> </ul>
<b>Technical Data</b>			
Dimensions (mm) (Width x Height x Depth)	48 x 48 x 93.5	72 x 36 x 36	96 x 48 x 100
Front panel cutout (mm)	45 x 45	68 x 33	92 x 45
Display	LCD 6-digit, 9 mm LED 6-digit, 7.6 mm	LCD 6-digit, 12 mm	LED 5 digit, 18.5 mm Dual-colour
Protection	IP 65	IP 65	IP 66
Supply voltage	12-24 VDC, 115 VAC, 230 VAC versions	Exchangeable Li battery	22-55 VDC / 20-50 VAC or 90-264 VAC
<b>Inputs</b>			
Input control	PNP/NPN	PNP/NPN	PNP/NPN
Time format	Sec., min, hours, with decimal point up to 0.000; or programmable format hh:mm:ss	sssss; mmmmm.m; hhhh.h; hh:mm:ss; programmable	ssss.s; mmmm.m; hhhh.h; mmm.ss; hhh.mm; programmable
Measuring principle	Accumulated or single-pulse measurement; Pulse width or period duration	Accumulated measurement Pulse width	Accumulated or single-pulse measurement Pulse width
Reset input	PNP/NPN	NPN	NPN
Control inputs	Display hold input	Keylock	Keylock
Control inputs	Display buffer input	Keyboard lock	Keyboard lock
<b>Output</b>	Without, or with 1 or 2 relays and transistor outputs	As SSR output	1 relay and transistor output
<b>Page</b>	226	229	232

# Electromechanical Preset Time Counters



Type	Type 489	Type 888		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Adding preset time counter</li> <li>■ 5-digit display with permanently visible preset</li> <li>■ Manual reset</li> <li>■ Display up to 9999.9 hours</li> <li>■ Plugs into modular system 400</li> <li>■ Easy to service</li> </ul>	<ul style="list-style-type: none"> <li>■ Adding preset time counter</li> <li>■ 5-digit display with permanently visible preset value</li> <li>■ Manual reset</li> <li>■ Front panel size 55 x 53.2</li> <li>■ Display up to 999.99 hours</li> <li>■ Compact design</li> </ul>		
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	50 x 50 x 92.5	55 x 53.2 x 72.5		
Front panel cutout (mm)	50 x 50	52 x 52		
No. of digits	5	5		
Digit height	4 mm	4 mm		
Protection	IP 40	IP 40		
Pulse voltage	24 VDC, 24, 115, 230 VAC	24 VDC or 230 VAC		
Power consumption	1 VA / W	1 VA / W		
Reset	Manual	Manual		
Operating temperature	- 10...50 °C	- 10...50 °C		
Time format	hhh.h	hhh.hh		
Accessories	Panel frame, connection box			
Dimensions, including panel frame (mm)	60 x 75 x 88			
Front panel cutout (mm)	55 x 55			
<b>Page</b>	<b>235</b>	<b>237</b>		

# Electronic Time Relays



Type	tico 740	tico 741	tico 742
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Dial for convenient and fast adjustment of values</li> <li>■ Programming via DIP switches</li> <li>■ Front-panel or DIN-rail mounting</li> <li>■ Functions: On-delay; Off-delay; Bounce contact; clock generator</li> </ul>	<ul style="list-style-type: none"> <li>■ Convenient keyboard operation</li> <li>■ Dual-line LCD display</li> <li>■ Resolution up to 0.01 sec.</li> <li>■ Front-panel or DIN-rail mounting</li> <li>■ Functions: On-delay; Off-delay; Bounce contact; clock generator with start signal</li> </ul>	<ul style="list-style-type: none"> <li>■ 3 different base versions</li> <li>■ Easy operation</li> <li>■ Dual-line LED display</li> <li>■ Resolution up to 1 msec</li> <li>■ Front-panel or DIN-rail mounting</li> <li>■ Functions: "High performance" with 17 different operating modes; "asymmetrical clock generator" with batch counter and 2 separate presets; "Multifunction" as for tico 741</li> </ul>
<b>Technical Data</b>			
Dimensions (mm) (Width x Height x Depth)	48 x 48 x 81	48 x 48 x 81	48 x 48 x 81
Front panel cutout (mm)	45 x 45	45 x 45	45 x 45
Display	Dial and LED for the timing process	LCD 4-digit, dual-line	LED 4-digit, dual-line
Protection	IP 65	IP 65	IP 65
Supply voltage	12-24 VDC and 24-240 VAC	24 VDC and 24-240 VAC	22-55 VDC / 20-50 VAC or 90-264 VAC
<b>Inputs</b>			
Input control	NPN or contact	NPN or contact	NPN or contact
Time ranges	1 s; 10 s; 1 min; 10 min; 1 hour; 10 hours; adjustable	hhhh; mmmm; ssss; hh:mm; mm:ss; with decimal point up to 0.01 for h; m; s range	hhhh; mmmm; ssss; hh:mm; mm:ss; with decimal point up to 0.001 at h;m;s range
Functions	On-delay Off-delay Bounce contact Clock generator	On-delay Off-delay Bounce contact Off-delay bounce relay Clock generator with start signal	"High Performance" with 17 different operating modes; "asymmetrical clock generator" with batch counter and separate input; "Multifunction" as for tico 741
Reset input	NPN or contact	NPN or contact	NPN or contact
Inhibit input	---	---	NPN or contact
<b>Output</b>	2 relays as time change-over contacts	2 relays as changeover contacts or with instantaneous contact	2 relays or 2 transistors; separately programmable
<b>Page</b>	239	239	243

# Electronic Tachometers



Type	tico 731	tico 732	tico 734	tico 735
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Small, compact, 5 different versions</li> <li>■ Voltage supply via lithium cell or 12-24 VDC</li> <li>■ 8-digit LCD or 6-digit LED display</li> <li>■ Display as Pulses/min.</li> <li>■ Type 1 and 2 with gate measuring principle; Type 4 and 5 with faster and more accurate period length measuring principle</li> <li>■ Optional with prescaling function</li> </ul>	<ul style="list-style-type: none"> <li>■ Multifunctional, used as counter, tachometer, time counter, shift or batch counter</li> <li>■ Voltage supply 12-24 VDC; 115 VAC, or 230 VAC</li> <li>■ 6-digit LCD or LED display</li> <li>■ Variety of programming functions</li> <li>■ Without preset or with 2 limit values</li> <li>■ Display as pulses/sec. or pulses/min.</li> <li>■ Programmable start-up suppression</li> <li>■ Principle of period length measurement</li> </ul>	<ul style="list-style-type: none"> <li>■ Tachometer with large, 4-digit LCD display; illuminated</li> <li>■ 4 versions frequency display, scaleable tachometer, tachometer with totalizing counter; and tachometer with totalizing counter and pulse output</li> <li>■ Voltage supply via exchangeable lithium cell</li> <li>■ Small mounting depth</li> <li>■ Expandable by a variety of module options</li> <li>■ 10 versions offering different functions (same design)</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display; digit height 18.5 mm</li> <li>■ Programmable display colour</li> <li>■ Upgrading options (e.g. RS 485); linear output</li> <li>■ Service-friendly due to plug-in system</li> <li>■ 2 versions tachometer and tachometer + totalizing counter</li> <li>■ Complete functions by 8 counter versions and 5 process indicators</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	48 x 24 x 32 short 48 x 24 x 60 long	48 x 48 x 93.5	72 x 36 x 36	96 x 48 x 100
Front panel cutout (mm)	45 x 22.5	45 x 45	68 x 33	92 x 45
Display	LCD 8-digit, 7 mm LED 6-digit, 7.6 mm	LCD 6-digit, 9 mm LED 6-digit, 7.6 mm	LCD 4-digit tachometer Optional: 8-digit totalizing counter; 12 mm	LED 5-digit, 18.5 mm Dual-colour
Protection	IP 65	IP 65	IP 65	IP 66
Supply voltage	Li battery, type 1+3, 12-24 VDC	12-24 VDC, 115 VAC, 230 VAC versions	Exchangeable Li battery	22-55 VDC / 20-50 VAC or 90-264 VAC
<b>Inputs</b>	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN
Frequency	7.5 kHz / 30 Hz	5 kHz / 30 Hz	10 kHz / 30 Hz	10 kHz / 200 Hz / 20 Hz
Prescaling factor	Optional, 0.001-99.999	0.001-999.999	Optional 0.001-9999	0.0001-99999
Measuring principle	Gate time Type 1+2; period length measurement; 1 /Tau Type 4+5	Period length measurement, 1/Tau	Period length measurement, 1/Tau	Period length measurement, 1/Tau
Display	Pulse/min.	Pulse/sec. or pulse/min	Pulse/sec.	Pulse/sec.
Reset input	NPN type 1+2, NPN/PNP Type 4-5	PNP/NPN	NPN	NPN
Control inputs	Optional: keylock or display hold input	2 <sup>nd</sup> counter input and gate input	Keylock	2 <sup>nd</sup> counter input and keylock
Evaluation	Counter input	Counter input, direction A-B, A+B; phase discriminator	Counter input	Type 4: A, A/B, 1/A; Type 5: A, totalizing counter; A+B; A-B; etc.
<b>Output</b>		None; or 2 relay and transistor outputs	Optional as SSR output for pulse scaler	Optional with linear output; 1 or 2 relay and transistor outputs
<b>Page</b>	252	258	261	264

# Electronic Tachometers



Type		signo 722		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Large 5-digit LED display; digit height 14 mm</li> <li>■ Frequency range 1/min. - 10000/s</li> <li>■ Prescaling function 0.001 - 9.999; expandable via divisor</li> <li>■ Easy to service by means of plug-type screw terminals</li> <li>■ Programmable start-up suppression</li> <li>■ With or without limit values for frequency monitoring</li> </ul>			
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	96 x 48 x 108			
Front panel cutout (mm)	92 x 45			
Display	LED 5-digit, 14 mm			
Protection	IP 54			
Supply voltage	12-24 VDC or 100-240 VAC			
<b>Inputs</b>				
Input control	PNP			
Frequency	10 kHz / 30 Hz			
Prescaler	0.001 - 9.999 and divisor 0-9999			
Measuring principle	Period length measurement 1/Tau			
Display	Pulse/min. or pulse/sec.			
Reset input	PNP			
Control inputs	Keylock and display hold input			
Evaluation	Counter input			
<b>Output</b>	None, or 2 relays			
<b>Page</b>	267			

# Pneumatic Totalizing, Preset and Preset Time Counters



Type	Type 495, Integrated	Type 495 for surface-mounting	Type 497	Type 497
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Integrated totalizing counter</li> <li>■ 6-digit or 8-digit display</li> <li>■ Manual reset, pneumatic reset, or without reset function</li> <li>■ Hose coupler or rapid-fit connector</li> <li>■ Easy to install</li> <li>■ Maintenance-free operation</li> </ul>	<ul style="list-style-type: none"> <li>■ Surface-mount totalizing counter</li> <li>■ 6-digit display</li> <li>■ Manual or pneumatic reset</li> <li>■ Hose coupler or rapid-fit connector</li> <li>■ Easy to mount</li> <li>■ Maintenance-free operation</li> </ul>	<ul style="list-style-type: none"> <li>■ Integrated preset counter</li> <li>■ Adding or subtracting</li> <li>■ 3-digit or 5-digit display</li> <li>■ Integrated pneumatic reset</li> <li>■ Convenient button setting</li> <li>■ Adding; with continuously visible preset</li> </ul>	<ul style="list-style-type: none"> <li>■ Integrated preset time counter</li> <li>■ 3-digit or 5-digit display</li> <li>■ Integrated pneumatic reset</li> <li>■ Convenient button setting</li> <li>■ Hose coupler or rapid-fit connector</li> <li>■ Continuously visible preset</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	60 x 51 x 65	53 x 100 x 26	60 x 75 x 62	60 x 75 x 122
Front panel cutout (mm)	52 x 26		52 x 52	52 x 52
Display	8-digit 4 mm 6-digit 4 mm	6-digit, 4 mm	3-digit 4 mm 5-digit 4 mm	3-digit 4 mm 5-digit 4 mm
Operating pressure	2-8 bar	2-8 bar	2-8 bar	2-8 bar
Air	Filtered (< 40 µm) oil-free	Filtered (< 40 µm) oil-free	Filtered (< 40 µm) oil-free	Filtered (< 40 µm) oil-free
<b>Inputs</b>				
Count input	Adding	Adding	Adding, subtracting; depending on version	Adding
Frequency/Time format	25 Hz / 8 ms	25 Hz / 8 ms	20 Hz / 8 ms	Seconds, minutes, depending on version
Options	Hose coupler M5; or rapid-fit connector	Hose coupler M5, or rapid-fit connector	With automatic reset; hose coupler M5, or rapid-fit connector	With automatic reset; hose coupler M5, or rapid-fit connector
Reset input	Manual, pneumatic, or without reset function	Manual or pneumatic	Manual, pneumatic or automatic	Manual, pneumatic or automatic
<b>Output</b>			On reaching the preset/zero value	On reaching the preset value
<b>Page</b>	276	278	281	286

# Pneumatic Timers, Proximity Switches, Signal Indicators



Type	Type 499 Timer	Reset Module	Proximity Switch	Signal Indicator
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Integrated timer; optional for DIN-rail mounting</li> <li>■ DIN-dimensions</li> <li>■ Small mounting dimensions</li> <li>■ No continuous air supply required</li> <li>■ Stationary preset value</li> <li>■ 0.2 to 300 seconds</li> </ul>	<ul style="list-style-type: none"> <li>■ Integrated reset module for timers</li> <li>■ Enables automatic timer sequences</li> <li>■ DIN dimensions</li> <li>■ Small mounting dimensions</li> <li>■ Stationary preset</li> <li>■ Output signal adjustable from 0.2 - 2 seconds</li> </ul>	<ul style="list-style-type: none"> <li>■ Non-contact actuation</li> <li>■ Small mounting dimensions</li> <li>■ Can be actuated by magnetic field and iron (Fe)</li> <li>■ No continuous air consumption</li> </ul>	<ul style="list-style-type: none"> <li>■ Signals the operating status of pneumatic hose connections</li> <li>■ Easy to mount</li> <li>■ Connections/fittings for 2 or 3 mm hoses (internal diameter)</li> <li>■ Operating pressure 2-8 bar</li> <li>■ No air consumption</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	24 x 48 x 60	24 x 48 x 60	18.2 x 40.3 x 19.6	30 x D9
Front panel cutout (mm)	22.2 x 45	22.2 x 45		
Display	Digit roll	Digit roll		Yellow signal indication (while being pressurized)
Operating pressure	2-6 bar	2-6 bar	2-6 bar	2-8 bar
Air	Filtered (<40 µm) oil-free	Filtered (< 40 µm) Non-oiled; light oil mist is permissible	Filtered (< 40 µm) Non-oiled; light oil mist is permissible	Filtered (< 40 µm) Non-oiled; light oil mist is permissible
<b>Inputs</b>				
Start input	Timer is started as soon as input is pressurized	Time starts elapsing as soon as the input is pressurized	Magnetic field and Fe actuation	Upon application of pressure
Time range	0.2-3 s; 2-30 s, 20-300 s; depending on version	0.2 - 2 s	Actuating distance Fe: approx. 2 mm	As long as the hose is pressurized
Options	Hose coupler M5 or rapid-fit connector; DIN-rail mounting	Hose coupler M5, or rapid-fit connector	Strap retainer attachment	Fittings for hose diameters 2 or 3 mm (internal diameter)
Reset	By interrupting the air intake			
<b>Output</b>				
	After the set time has elapsed, input 1 is connected to output 2	Interrupts the output for approx. 300 ms after the set time value has elapsed	Upon actuation by magnetic field or Fe	
<b>Page</b>	288	290	292	293

# Electronic Position Indicators



Type	tico 731	tico 734 002	tico 735	signo 727
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Small, compact, 5 different versions</li> <li>■ Voltage supply 12-24 VDC</li> <li>■ 8-digit LCD or 6-digit LED display</li> <li>■ Optional with prescaling and decimal point function</li> </ul>	<ul style="list-style-type: none"> <li>■ Position indicator with large dual-color, 8-digit LCD display; illuminated</li> <li>■ Reproducible, freely selectable set value</li> <li>■ Programmable prescaling and decimal point functions</li> <li>■ Voltage supply via exchangeable Li cell</li> <li>■ Small mounting depth</li> <li>■ Expandable by a variety of optional modules</li> <li>■ 10 versions of the same design offering different functions</li> </ul>	<ul style="list-style-type: none"> <li>■ Large dual-colour, 5-digit LED display, digit height 18.5 mm</li> <li>■ Programmable colour change</li> <li>■ Reproducible, freely selectable set value</li> <li>■ 2 preset values</li> <li>■ Upgradable options: RS 485, linear output</li> <li>■ Easy to service due to modular system</li> <li>■ Complete functions by 8 counter versions and 5 process indicators</li> </ul>	<ul style="list-style-type: none"> <li>■ Large 6-digit LED display, digit height 14 mm</li> <li>■ Voltage supply 12-24 VDC or 115/230 VAC</li> <li>■ Plug-in screw terminal connections</li> <li>■ Very high counting frequency up to 40 kHz</li> <li>■ Without, or with 2 limit values (as relay and transistor)</li> <li>■ Indication of chain values or absolute values</li> <li>■ Optional with RS 232 or RS 485 interface</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	48 x 24 x 60	72 x 36 x 36	96 x 48 x 100	96 x 48 x 108
Front panel cutout (mm)	45 x 22.5	68 x 33	92 x 45	92 x 45
Display	LCD 8-digit, 7 mm LED 6-digit, 7.6 mm	LCD 8-digit, 12 mm illuminated	LED 5-digit, 18.5 mm Dual-colour	LED 6-digit, 14 mm
Protection	IP 65	IP 65	IP 66	IP 54
Supply voltage	12-24 VDC	Lithium battery, exchangeable	22-55 VDC / 20-50 VAC or 90-264 VAC	12-24 VDC; 24 VAC or 100-240 VAC
Temperature range	-10-50 °C	0-50 °C	0-55 °C	0-50 °C
<b>Inputs</b>				
Input control	PNP/NPN	PNP/NPN	PNP/NPN	PNP/NPN
Frequency	2 kHz	10 kHz / 30 Hz	10 kHz / 200 Hz / 20 Hz	40 kHz / 30 Hz
Count Mode	Phase discriminator (single)	Phase discriminator (single)	Phase discriminator (single)	Phase discriminator (single, dual, quadruple)
Prescaling factor	Optional 0.001-99.999	Optional 0.001-99.9999	0.0001-9.9999	0.0001-99.999
Set value		Programmable	Programmable	Programmable
Reset input	PNP/NPN	NPN	NPN	PNP/NPN
Control inputs		Keylock	Keylock	Keylock; display hold and reset enable
<b>Output</b>			Optional with linear output; 1 or 2 relay and transistor outputs	Without, or with 2 relay and transistor outputs
<b>Page</b>	298	302	305	308



# Electronic Position Indicators



Type		signo 727 SSI		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Large 6-digit LED display; digit height 14 mm</li> <li>■ Voltage supply 12-24 VDC or 115/230 VAC</li> <li>■ SSI (Synchronous Serial Interface) input for absolute encoder</li> <li>■ Freely scaleable display</li> <li>■ Connections via plug-in screw terminals</li> <li>■ Chain value or absolute value indication</li> <li>■ Without, or with 2 limit values as relay and transistor</li> </ul>			
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	96 x 48 x 108			
Front panel cutout (mm)	92 x 45			
Display	LED 6-digit, 14 mm			
Protection	IP 54			
Supply voltage	12-24 VDC or 115/230 VAC			
Temperature range	0-50 °C			
<b>Inputs</b>				
Input control	SSI			
Baud rate	100 kHz			
Counting mode	SSI for single-turn and multiturn encoders up to 24 bit			
Prescaling factor	Resolution programmable per revolution			
Set value	Programmable			
Reset input	PNP/NPN			
Control inputs	Keylock and reset/display hold input			
<b>Output</b>	Without, or with 2 relay and transistor outputs			
<b>Page</b>	315			

# Accessories



Type	651 Pulse Scaler DIN-rail	651 Pulse Scaler Modular System	654 Pulse Amplifier	Contin.-Duty Module for Electrical Reset
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Programmable pulse scaling factor up to 2047:1</li> <li>■ NAMUR generator input</li> <li>■ DIN-rail attachment</li> <li>■ PNP transistor output</li> <li>■ Can be used as pulse shaper</li> </ul>	<ul style="list-style-type: none"> <li>■ Programmable pulse scaling factor up to 1000:1</li> <li>■ NAMUR generator input</li> <li>■ Plugs into and combines with modular system 400</li> <li>■ Transistor output PNP/NPN</li> <li>■ Pulse frequency up to 5 kHz</li> </ul>	<ul style="list-style-type: none"> <li>■ PNP or NPN input</li> <li>■ PNP or NPN output</li> <li>■ For electromechanical or electronic counters</li> <li>■ For use as amplifier or level adapter</li> <li>■ DIN-rail mounting</li> </ul>	<ul style="list-style-type: none"> <li>■ 100 % Continuous-duty module for electrical reset for preset counters 446, 447, 486, 487 and preset time counters 489; with electrical reset</li> <li>■ Plugs into modular system 400</li> <li>■ Integrated connection box</li> </ul>
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	22.6 x 68.5 x 48	50 x 25 x 92.5	22.6 x 68.5 x 48	51 x 51 x 121 (with plugged-in counter) 50 x 50
Front panel cutout (mm)		50 x 25		
Programming	Via DIP switches	Via jumpers		
Protection	IP 20	IP 20	IP 50	IP 00
Supply voltage	10-30 VDC	24 VDC	10-30 VDC	24 VDC; 24 VAC; 115 VAC or 230 VAC
<b>Inputs</b>				
Input control	PNP or NAMUR	PNP, optional: NAMUR	PNP/NPN	Depending on version
Frequency/signal length	5 kHz / 30 Hz	5 kHz / 50 Hz	1 MHz	15 ms (minimum)
Scaling factor	Up to 2047:1	Up to 1000:1		
Reset input	PNP	PNP		
<b>Output</b>				
	PNP transistor 0.2 ms - 2 s; djustable depending on version 100 mA	PNP/NPN transistor programmable, 25 ms; 400 mA	PNP/NPN transistor 300 mA	Changeover contact; 250 ms Max. 220 V
Accessories		Socket (connection box), panel frame		
<b>Page</b>	324	326	328	330

# Accessories



Type	Reset Module for Preset Counters	Power Supply Unit for Type 711		
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Automatic reset for preset counters 446,447,486,487, and preset time counter 489, with electrical reset</li> <li>■ Plugs into modular system 400</li> <li>■ Integrated connection box</li> </ul>	<ul style="list-style-type: none"> <li>■ 115 or 230 VAC power supply</li> <li>■ Compatible with electronic preset counters 711.4 and 781.4</li> <li>■ Integrated connection box</li> </ul>		
<b>Technical Data</b>				
Dimensions (mm) (Width x Height x Depth)	51 x 51 x 121 with plugged-in counter	51 x 51 x 121 with plugged-in counter		
Front panel cutout (mm)	50 x 50	50 x 50		
Protection	IP 00	IP 00		
Supply voltage	24 VDC; 24 VAC; 115 VAC or 230 VAC	115 VAC or 230 VAC		
<b>Inputs</b>				
Input control	Depending on version			
<b>Output</b>	Changeover contact, max. 220 V, DC max. 1 per s AC max. 1 per 2 s	24 VDC, max. 60 mA		
<b>Page</b>	331	332		

# Accessories



Type	Panel Frame	Adapter Panel Frame	Protective Cases	Sealing Covers
<b>Features</b>	<ul style="list-style-type: none"> <li>■ Integrated panel frame for modular system 400</li> <li>■ Sizes 1-5</li> <li>■ Combines with components of the modular system</li> </ul>	<ul style="list-style-type: none"> <li>■ Adapter panel frames for tico and signo DIN counters</li> <li>■ To adapt to different DIN sizes and cutout dimensions</li> </ul>	<ul style="list-style-type: none"> <li>■ Protective case with screw-type terminals</li> <li>■ Screw or clamp mounting</li> <li>■ Version with translucent cover is available</li> </ul>	<ul style="list-style-type: none"> <li>■ Sealing covers for modular system 400</li> <li>■ Easy to install</li> <li>■ Protection class IP 65/66</li> </ul>
<b>Technical Data</b> Dimensions (mm) (Width x Height x Depth)	60 x 50 x 47 size 1 60 x 75 x 47 size 2 60 x 100 x 71 size 3 60 x 125 x 71 size 4 72 x 144 x 71 size 5	60 x 50 to 48 x 24 72 x 72 to 48 x 48 60 x 75 to 48 x 48 125 x 60 to 96 x 48 60 x 75 to 2 pieces 48 x 24 60 x 100 to 48 x 24 and 48 x 48	63 x 38 x 99 for size 1 63 x 63 x 99 for size 2 60 x 50 x 85 for size 1 60 x 75 x 75 for size 2	For 60 x 50 size 1 and 60 x 75 size 2 Front panels
Front panel cutout (mm)	54 x 29.5 size 1 54 x 54 size 2 55 x 82 size 3 55 x 106 size 4 54 x 132 size 5	55 x 29.2 size 1 68 x 68 DIN 54 x 54 size 2 106 x 55 size 4 54 x 54 size 2 55 x 82 size 3	55 x 29.5 size 1 55 x 55 size 2	
Protection class			IP 52 with translucent cover	IP 65/66
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# Accessories

Type	Case 680	Measuring Wheels	Stroke Levers	Further Accessories
<b>Features</b>	<ul style="list-style-type: none"> <li>■ For DIN-rail mounting or attachment by means of screws</li> <li>■ Case made of insulating material</li> <li>■ Installation of counters of the modular system 400 in protective case size 2</li> </ul>	<ul style="list-style-type: none"> <li>■ Different, practice-oriented circumference versions</li> <li>■ Different shaft diameters</li> <li>■ Surfaces adapted to the material measured 31.5-38 x 26.5 x 75</li> </ul>	<ul style="list-style-type: none"> <li>■ Different stroke lever shapes</li> <li>■ Adapted to individual fields of application</li> <li>■ Compatible with mechanical stroke counters</li> </ul>	<b>Further Accessories</b>
<b>Technical Data</b> Dimensions (mm) (Width x Height x Depth)	65 x 110 x 136	Depending on version	Depending on version	
Page	338	339	342	