

# tico 731

## Flexible Counter Series in DIN size 24 x 48 mm



- high contrast 8-digit LCD display or brilliant 6-digit LED display
- different supply voltages available:
  - independent of mains supply with lithium battery or
  - maintenance-free and with 12-24 V DC supply
- also high-voltage input 12-250 V AC/V DC
- up to 8 different functions for each standard model:
  - 01 pulse counter
  - 02 tachometer (1/min)
  - 03 time counter (hhhh:mm:ss)
  - 04 time counter (hhhhh,hh)
  - 05 numerical display for the PLC (serial)
  - 06 bidirectional position indicator
  - 07 counter with differential mode
  - 08 maintenance counter (on request)

### OVERVIEW



Standard Models	Type 1	Type 2	Type 3	Type 4	Type 5
<b>Hardware</b>					
Display	8-digit LCD	8-digit LCD	8-digit LCD	8-digit LCD	6-digit LED
Supply voltage	Lithium battery	12 – 24 VDC	Lithium battery	12 – 24 VDC	12 – 24 VDC
Nominal data retention	7 years	NV-FRAM > 10 years	7 years	NV-FRAM > 10 years	NV-FRAM > 10 years
Active edge negative or positive edge programmable	x	x	x	x	x
Amplitude thresholds	< 0.7 and > 5 V, max. 30 V DC	< 0.7 and > 5 V, max. 30 V DC	< 3 V and > 12 V max. 250 V DC/AC	< 0.7 and > 5 V, max. 30 V DC	< 0.7 and > 5 V, max. 30 V DC
Counting frequency programmable	max. 7.5 kHz or 30 Hz attenuated	max. 7.5 kHz or 30 Hz attenuated	20 Hz	max. 7.5 kHz or 30 Hz attenuated	max. 7.5 kHz or 30 Hz attenuated
Control inputs	Reset and Keylock	Reset	Reset and Keylock	Reset and application input	Reset and application input
Keylock	external input	programmable	external input	programmable	programmable
Mounting depth	32 mm	32 mm	60 mm	60 mm	60 mm
<b>Software</b>					
Impulse counter	x	x	x	x	x
<b>Tachometer 1/min</b>	x	x		x	x
Time counter h : 1/100 h	x	x	x	x	x
Time counter h : min : s	x	x	x	x	x
Numerical display for PLC		x		x	x
Position indicator bi directional				x	x
Counter with differential mode					x
Maintenance counter (on request)					x

## TYPE 1



## TECHNICAL DATA

- LCD display
- Lithium battery
- COUNT: programmable count input for voltage signal or contact, frequency 7.5 kHz or 30 Hz
- HOLD: Display memory input contact (negative, 30 Hz)
- KEYLOCK: locking of the Hold button
- Gate measurement with 6 s measuring time in Imp/min

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 54, terminals IP 20
Dynamic strength	10 m/s <sup>2</sup> (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s <sup>2</sup> (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7.5 kHz)
Display	8-digit LCD, 7 mm
Supply voltage U <sub>b</sub>	internal lithium battery
Nominal data retention	lithium battery: 7 years

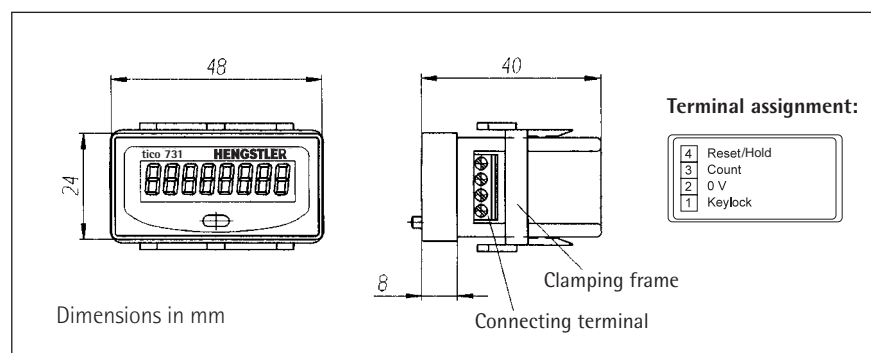
Inputs:

Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	max. 7.5 kHz

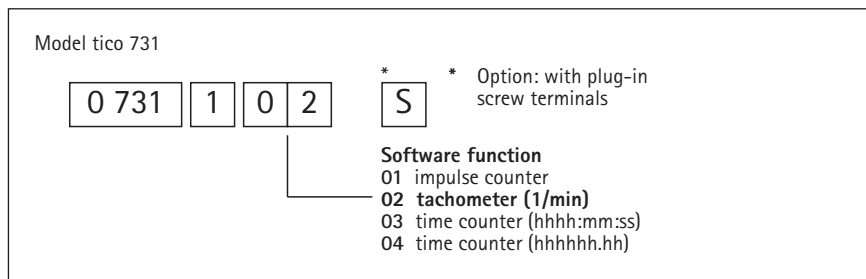
Control inputs:

Display Hold	- manual via keyboard (can be locked) - external Hold with static behaviour, active edge negative 30 Hz
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## DIMENSIONS CONNECTION DIAGRAM



## ORDER NUMBER



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## TYPE 2



### TECHNICAL DATA

## Technical data

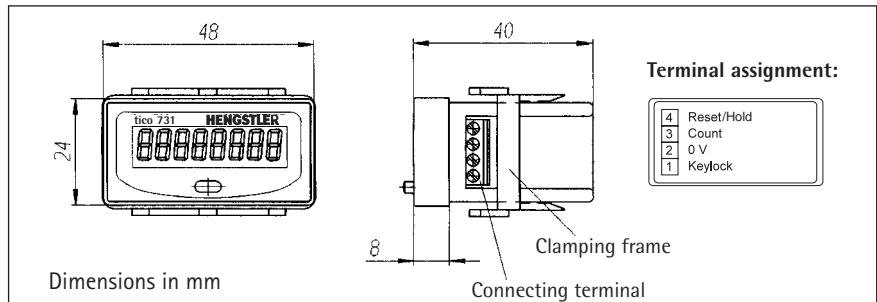
- LCD display
- DC supply voltage 12 – 24 V DC
- COUNT: programmable count input for voltage signal or contact, frequency (7.5 kHz or 30 Hz)
- HOLD: Display memory input contact (negative, 30 Hz)
- KEYLOCK: locking of the Hold button
- Gate measurement with 6 s measuring time in Imp/min

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 54, terminals IP 20
Dynamic strength	10 m/s <sup>2</sup> (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s <sup>2</sup> (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7.5 kHz)
Display	8-digit LCD, 7 mm
Supply voltage U <sub>b</sub>	12 ... 24 V DC
Current consumption DC	12 ... 24 V DC < 5 mA
Nominal data retention	nonvolatile memory > 10 years

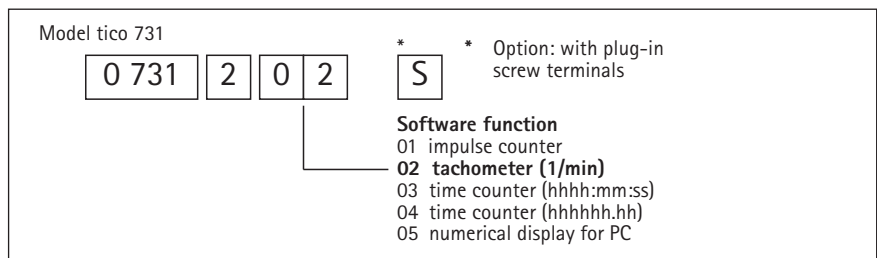
Inputs:	
Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max. 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	programmable: 7.5 kHz or 30 Hz (attenuated for contacts)

Control inputs:	
Hold	- manual hold via keyboard (can be locked) - external hold with static behaviour, active edge negative attenuated 30 Hz
Hold lock	programmable via front key

### DIMENSIONS CONNECTION DIAGRAM



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## TYPE 4

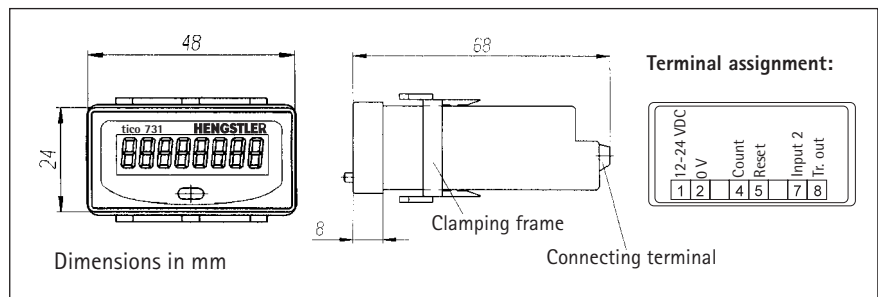


## TECHNICAL DATA

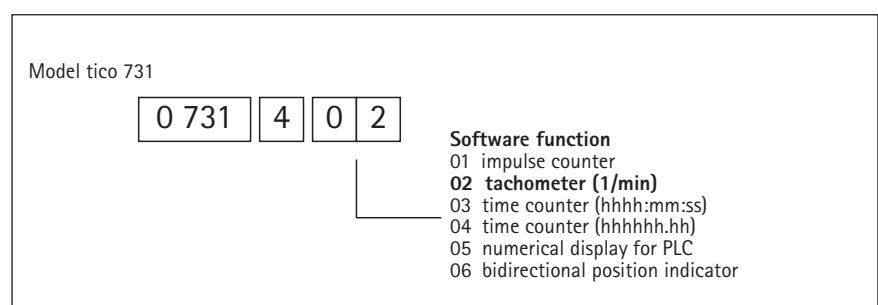
- LCD display
- 12-24 V DC supply voltage
- COUNT: programmable count input for voltage signal or contact, frequency 7.5 kHz or 30 Hz
- exactly period measuring principle (1/Tau)
- INPUT 2: control input for display memory (Hold)
- Long case

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 54, terminals IP 20
Dynamic strength	10 m/s <sup>2</sup> (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s <sup>2</sup> (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7.5 kHz)
Display	8-digit LCD, 7 mm
Supply voltage U <sub>b</sub>	12 ... 24 V DC
Current consumption DC	12 ... 24 V DC < 50 mA
Nominal data retention	nonvolatile memory > 10 years
Count input:	
Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max. 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	programmable: 7.5 kHz or 30 Hz (attenuated for contacts) with position indicator 2 kHz: active edge positive
Control inputs:	
Input 2: (Hold)	- manual hold via keyboard (can be locked) - external hold with static behaviour, active edge negative attenuated 30 Hz
Hold lock	programmable via front key

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## TYPE 5



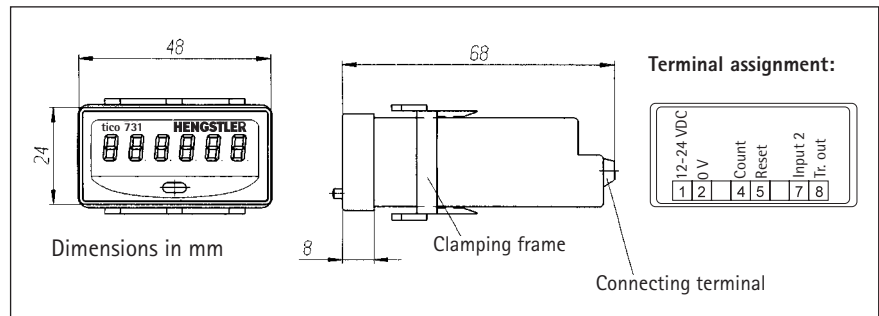
## TECHNICAL DATA

# Technical data

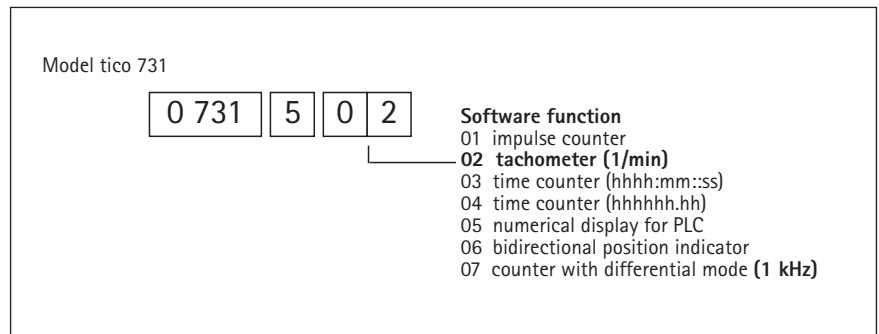
- LED display
- 12-24 V DC supply voltage
- COUNT: programmable count input for voltage signal or contact, frequency 7.5 kHz or 30 Hz
- exactly period measuring princip (1/Tau)
- INPUT 2: control input for display memory (Hold)
- Long case

Operating temperature	-10 ... 50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Projection class (IEC 144)	front side IP 54, terminals IP 20
Dynamic strength	10 m/s <sup>2</sup> (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s <sup>2</sup> (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	17 ms (30 Hz), 70 µs (7.5 kHz)
Display	6-digit LCD, 7 mm
Supply voltage U <sub>b</sub>	12 ... 24 V DC
Current consumption DC	12 ... 24 V DC < 50 mA
Nominal data retention	nonvolatile memory > 10 years
<b>Count input:</b>	
Amplitude thresholds	voltage input up to 7.5 kHz: < 0.7 V and > 5 V, max. 30 V DC
Active edge	negative or positive edge programmable
Counting frequency	programmable: 7.5 kHz or 30 Hz (attenuated for contacts)
<b>Control inputs:</b>	
Input 2: (Hold)	- manual hold via keyboard (can be locked) - external hold with static behaviour, active edge negative attenuated 30 Hz
Hold lock	programmable via front key

## DIMENSIONS CONNECTION DIAGRAM



## ORDER NUMBER



## SPECIAL FUNCTIONS

To best match your application, you can order special functions such as prescaler value, decimal point and preset value, which are permanently set by us before delivery. With the variable prescaler value you can adapt to already existing transfer ratios of your application. Small resolutions can be shown with the decimal point, e. g. for the position indicator or the tachometer.

A special feature is the possibility of displaying an information text in the display, e. g. for the surveillance of maintenance cycles. In this case the desired information is shown in the display after reaching the fixed preset value. You can display any text that can be created with the 7-segment alphabet, e. g. STOP, HELP, FILTER etc.

## ORDER NUMBER SPECIAL VERSIONS

Special functions for	Impulse counter	Tacho-meter	Time counter	Numerical display	Position indicator	Counter with differential work
Preset value 0,001 bis 99,999	x	x			x	x
Decimal point 0 to 3 positions behind the comma	x	x			x	x
Preset value 0 to 99 999 999	x		x			
Information text (on reaching the preset value) LCD = 8 characters LED = 6 characters	x		x			

## ORDER NUMBER SPECIAL VERSIONS

### Choose version and basic function:

Model tico 731



\* Option: with plug-in screw terminals only for standard model 1, 2

#### Standard version:

- 1 Standard model 1
- 2 Standard model 2
- 3 Standard model 3
- 4 Standard model 4
- 5 Standard model 5

#### Function:

- 1 Impulse counter
- 2 Tachometer (1/min)<sup>1)</sup>
- 3 Time counter (hhhh:mm:ss)
- 4 Time counter (hhhhh.hh)
- 6 Position indicator (2-channel)<sup>2)</sup>
- 7 Counter with differential mode<sup>3)</sup>

- 1) not available for standard type 3
- 2) not available for standard types 1, 2, 3
- 3) only available for standard type 5

### Please state the desired special version on your order:

**P: (Value);**

Prescaler value: 0.001 to 99.999<sup>4)</sup>

**D: (Value);**

Decimal point: 0 to 3 positions after the comma<sup>4)</sup>

**V: (Value);**

Preset value: 0 to 99 999 999<sup>5)</sup>

**T: (Text);**

The information text displayed on reaching the preset value can be built up as required from the 7-segment alphabet

- 4) not available for time counters
- 5) not available for tachometers and position indicator