

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 voltage options available:
 - independent of mains supply with lithium battery or
 - maintenance-free with 12 – 24 V DC supply
- also available with high-voltage input 12 – 250 V AC/DC
- up to 8 different functions for each standard model:
 - 01 Pulse counter
 - 02 Rate meter / Tachometer (1/min)
 - 03 Time counter (display in hhhh:mm:ss)
 - 04 Time counter (display in hhhhhh,hh)
 - 06 2-channel position indicator
 - 07 Up/down counter (Differential counter)

OVERVIEW



Standard Models	Type 1	Type 2	Type 3	Type 5
Hardware				
Display	8-digit LCD	8-digit LCD	8-digit LCD	6-digit LED
Supply voltage	Lithium battery	12 – 24 VDC	Lithium battery	12 – 24 VDC
Data retention	7 years	NV-FRAM > 10 years	7 years	NV-FRAM > 10 years
Active edge negative or positive (programmable)	x	x	x	x
Amplitude thresholds	< 0.7 and > 5 V max. 30 VDC	< 0.7 and > 5 V max. 30 VDC	< 3 and > 12 V max. 250 V AC/DC	< 0.7 and > 5 V max. 30 VDC
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
Control inputs	Reset and Keylock	Reset	Reset and Keylock	Reset and application input
Keylock	External input	Programmable	External input	Programmable
Mounting depth	32 mm	32 mm	60 mm	
Software				
Impulse counter	x	x	x	x
Tachometer 1/min	x	x		x
Time counter h : 1/100 h	x	x	x	x
Time counter h : min : s	x	x	x	x
Numerical display for PLC		x		x
Position indicator (2-channel)				x
Up/down counter (1 kHz) differential mode				x
Maintenance counter (on request)				x

Technical data

tico 731

TYPE 1



TECHNICAL DATA

- LCD display
- lithium battery
- COUNT: programmable count input for voltage signals or contacts
- count frequency 7.5 kHz or 30 Hz
- RESET: reset contact input (negative, 30 Hz)
- compact housing

Operating temperature	-10 ... +50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals, 1.0 mm ² (AWG 18), cable length < 30 m
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 ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010-1, EN 50178, 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 _b	internal lithium battery
Nominal data retention	lithium battery: 7 years

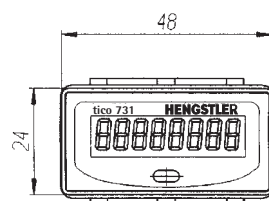
Inputs:

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	programmable: 7.5 kHz or 30 Hz (attenuated for contacts)

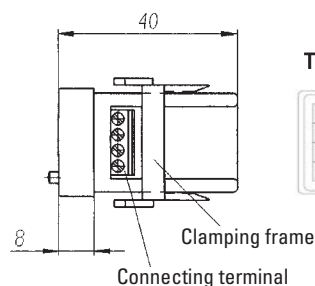
Control inputs:

Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, active edge negative attenuated 30 Hz
Reset lock	via Keylock input, bridged to 0 V
Counting frequency	max. 7.5 kHz

DIMENSIONS CONNECTION DIAGRAM



Dimensions in mm



Terminal assignment:

4	Reset
3	Count
2	0 V
1	12-27.3 VDC

ORDER NUMBER

Model tico 731

0 731 1 0 1 S

* Option: with plug-in screw terminals

Software function

- 01 pulse counter
- 02 rate meter (1/min)
- 03 time counter (hhhh:mm:ss)
- 04 time counter (hhhhh.hh)

tico 731

TYPE 2



TECHNICAL DATA

- LCD display
- 12 – 24 V DC supply voltage
- COUNT: programmable count input for voltage signals or contacts
- count frequency 7.5 kHz or 30 Hz
- RESET: reset contact input (negative, 30 Hz)
- compact housing

Operating temperature	-10 ... +50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals, 1.0 mm ² (AWG 18), cable length < 30 m
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 ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010-1, EN 50178, 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 _b	12 ... 24 V DC*
Current consumption DC	12 ... 24 V DC < 5 mA
Nominal data retention	nonvolatile memory > 10 years

*Not to be connected to a DC-Network. For further information see manual.

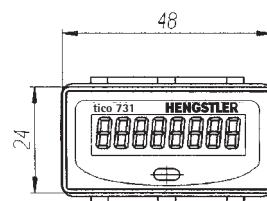
Inputs:

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)

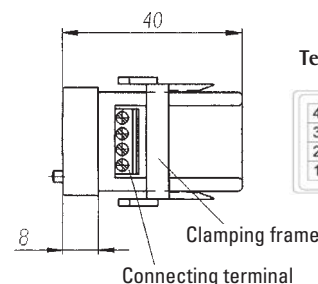
Control inputs:

Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, active edge negative attenuated 30 Hz
Reset lock	programmable via front key
Counting frequency	max. 7.5 kHz, transmission rate for numerical display: 100 Hz

DIMENSIONS CONNECTION DIAGRAM



Dimensions in mm



Terminal assignment:

4	Reset
3	Count
2	0 V
1	12-27.3 VDC

ORDER NUMBER

Model tico 731

0 731 2 0 1 S

* Option: with plug-in screw terminals

Software function

- 01 pulse counter
- 02 rate meter (1/min)
- 03 time counter (hhhh:mm:ss)
- 04 time counter (hhhhh.hh)
- 05 numerical display for PLC

TYPE 3



TECHNICAL DATA

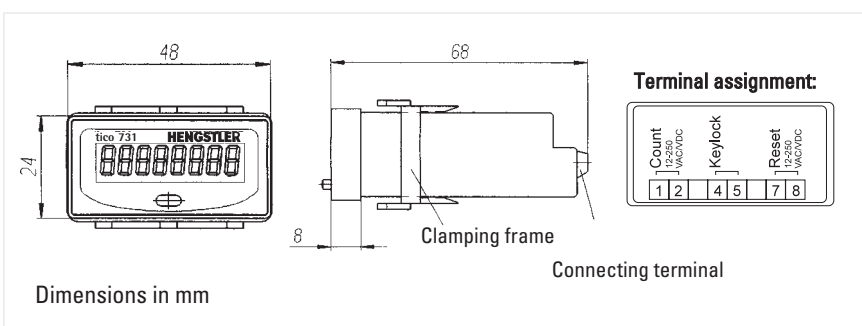
- LCD display
- lithium battery
- COUNT: count input for voltage pulses 12 – 250 V AC/DC (20 Hz)
- RESET: reset input for voltage pulses 12 – 250 V AC/DC (20 Hz)
- KEYLOCK: reset key locking function

Operating temperature	-10 ... +50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals, 2.5mm ² (AWG 14), cable length < 30 m
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 ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010-1, EN 50178, protective system II
Pulse shape	any square wave (1:1 for max. frequency)
Input resistance	< 50 kOhm (static)
Min. pulse length	25 ms (20 Hz)
Display	8-digit LCD, 7 mm
Supply voltage U _b	internal lithium battery
Current consumption DC	lithium battery: 7 years

Inputs:	
Amplitude thresholds	high voltage input 20 Hz: < 3 V and > 12 V, max. 250 V DC/AC
Active edge	voltage input positive edge
Counting frequency	20 Hz

Control inputs:	
Reset	- manual reset via keyboard (can be locked) - external reset with static behaviour, positive circuit
Reset lock	by means of bridge on the keylock input

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731

0 731 3 0 1

Software function
01 pulse counter
03 time counter (hhhh:mm:ss)
04 time counter (hhhhhh.hh)

TYPE 5



TECHNICAL DATA

- LED display
- 12-24 V DC supply voltage
- COUNT: programmable count input for voltage signals or contacts
- count frequency 7.5 kHz or 30 Hz

- INPUT 2: control input for temporary locking of count input (gate) or second count input with position indicator
- RESET: reset input
- OUT: transistor output for preset signal

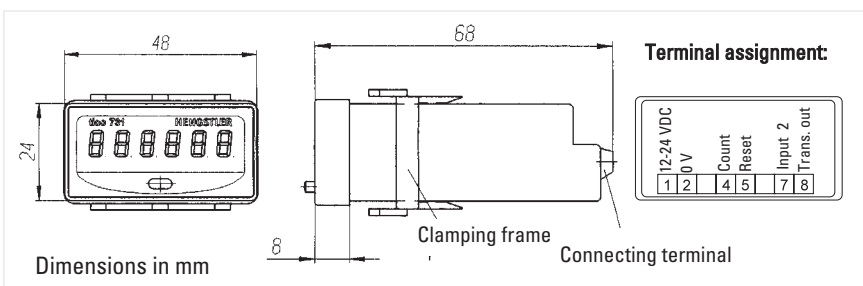
Operating temperature	-10 ... +50 °C
Storage temperature	-20 ... +60 °C
Electrical connection	screw terminals, 1.5mm ² (AWG 15), cable length < 30 m
Mounting	with clamping frame
Front panel cutout	45 + 0.6 x 22 + 0.3 mm
Protection class (IEC 144)	front side IP 54, terminals IP 20
Dynamic strength	10 m/s ² (10 ... 150 Hz) according to IEC 68-T2-6
Shock stability	100 m/s ² (18 ms) according to IEC 68-T2-27
General rating	according to EN 61010-1, EN 50178, 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, 7.6 mm
Supply voltage U _b	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

* Not to be connected to a DC-Network. For further information see manual.

Control inputs:	
Reset	– manual reset via keyboard (can be locked) – external reset with static behaviour, same edge as count input
Input 2:	gate or second count channel
Reset lock	programmable via front key
Transistor output signal	PNP output
Voltage/switching current	supply minus 2 V; max. 10 mA
Counting frequency	max. 7.5 kHz, transmission rate for numerical display: 1 kHz

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731					Software function
0	731	5	0	1	
0	731	5	0	7	01 pulse counter
					02 rate meter (1/min)
					03 time counter (hhh:mm:ss)
					04 time counter (hhhhhh.hh)
					05 numerical display for PLC
					06 2-channel position indicator
					07 up/down counter (1 kHz)

tico 731

SPECIAL FUNCTIONS

ORDER NUMBERS SPECIAL VERSIONS

ORDER NUMBERS SPECIAL VERSIONS

Special functions

To optimally adapt the device to your application, various special functions such as **prescaler value**, **decimal point position**, and **preset value** can be ordered and are permanently configured at the factory prior to delivery.

The **variable prescaler** value enables precise adjustment to existing transmission or scaling ratios within the application.

The **decimal point function** enables the display of smaller resolutions, for example for the position indicator or the tachometer.

A special feature is the ability to display a **custom information text** on the display, for example for monitoring maintenance intervals.

When the preset value is reached, the defined information text is displayed. The information text is freely selectable using the **7-segment character set**, for example: STOP, HALT, HELP, FILTER, etc.

Special functions for	Pulse counter	Rate meter	Time counter	Numerical display	Position Indicator	Up/down counter
Prescaler value 0.000015 to 65535,99998	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			

Choose version and basic function:

Model tico 731

0 731 7 S

Option "S": Plug-in screw terminals
only for Standard models 1 and 2

Standard version:

- 1 standard model 1
- 2 standard model 2
- 3 standard model 3
- 5 standard model 5

Function:

- 1 impulse counter
- 2 rate meter (1/min) (only Standard models 1, 2 and 5)
- 3 time counter (hhhh:mm:ss)
- 4 time counter (hhhhhh.hh)
- 6 2-channel position indicator (only Standard model 5)
- 7 up/down counter (only Standard model 5)

Please state the desired special version on your order:

P: (Value);

Prescaler value: 0.000015 to 65535.99998⁴⁾

D: (Value);

Decimal point: 0 to 3 positions after the dot⁴⁾

V: (Value);

Preset value: 0 to 99 999 999⁵⁾

T: (Text);

The information text displayed when the preset value is reached is freely selectable using the 7-segment character set

4) not available for time counters
5) not available for rate meters and position indicators