

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 environmentally friendly with 12-24 VDC supply
- also high-voltage input 12-250 VAC/VDC
- up to 8 different functions for each standard model:
 - 01 Pulse counter
 - 02 Tachometer (1/min)
 - 03 Time counter (display in hhhh:mm:ss)
 - 04 Time counter (display in hhhhhh,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 |
|----------------------------------------------------|-------------------------------------|-------------------------------------|-----------------------------------------|-------------------------------------|-------------------------------------|
| Hardware | | | | | |
| 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 |
| Software | | | | | |
| Impulse counter | x | x | x | x | x |
| Tachometer 1/min | x | x | | x | x |
| Time counter h : 1/100 hx | | x | x | x | x |
| Time counter h : min : s x | 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

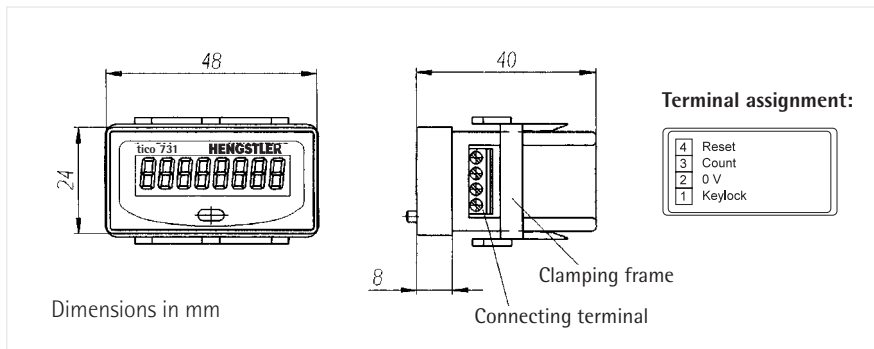
- LCD display
- lithium battery
- COUNT: programmable start input for voltage signal or contact, frequency 30 Hz
- RESET: reset input with contact (negative, 30 Hz)
- KEYLOCK: locking of the reset key
- short case

| | |
|-------------------------------|--------------------------------------------------------------|
| 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 65, 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, protective system II |
| Input resistance | < 50 kOhm (static) |
| 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 30 Hz: < 0.7 V and > 5 V, max 30 V DC |
| Active edge | negative or positive edge programmable |
| Counting frequency | programmable: 30 Hz (attenuated for contacts) |

| | |
|-----------------|-------------------------------------------------------------------------------------------------------------|
| Control inputs: | |
| reset | - manual reset via keyboard (can be locked) - external reset with static behaviour, active edge negative |
| Reset lock | - by means of bridge on keylock input to 0 V |

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731

| | | | | |
|---|-----|---|---|---|
| 0 | 731 | 1 | 0 | 3 |
| 0 | 731 | 1 | 0 | 4 |

* S * Option: with plug-in screw terminals

Software function

- 01 impulse counter
- 02 tachometer (1/min)
- 03 time counter (hhh:mm:ss)
- 04 time counter (hhhhhh.hh)

tico 731

TYPE 2



TECHNICAL DATA

Technical data

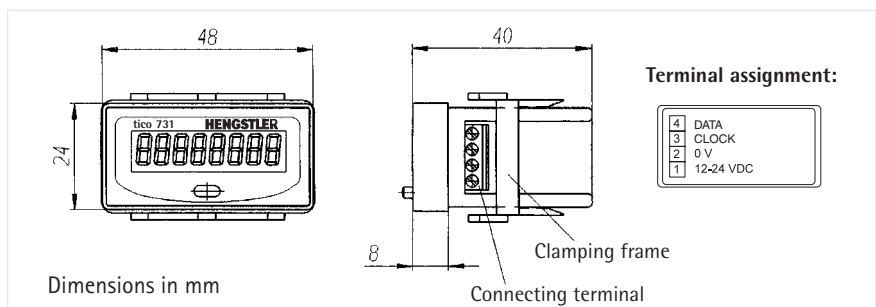
- LCD display
- DC supply voltage 12 – 24 V DC
- COUNT: programmable start input for voltage signal or contact, frequency 30 Hz
- RESET: reset input with contact (negative, 30 Hz)
- short case

| | |
|-------------------------------|--------------------------------------------------------------|
| 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 65, 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, protective system II |
| Input resistance | < 50 kOhm (static) |
| 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 |

| | |
|----------------------|--------------------------------------------------------------|
| Inputs: | |
| Amplitude thresholds | voltage input up to 30 Hz: < 0.7 V and > 5 V, max 30 V DC |
| Active edge | negative or positive edge programmable |
| Counting frequency | programmable: 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 |

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731

| | | | | | |
|---|-----|---|---|---|---|
| 0 | 731 | 2 | 0 | 3 | S |
| 0 | 731 | 2 | 0 | 4 | |

* Option: with plug-in screw terminals

Software function

- 01 impulse counter
- 02 tachometer (1/min)
- 03 time counter (hhh:mm:ss)
- 04 time counter (hhhhh.hh)
- 05 numerical display for PC

TYPE 3



TECHNICAL DATA

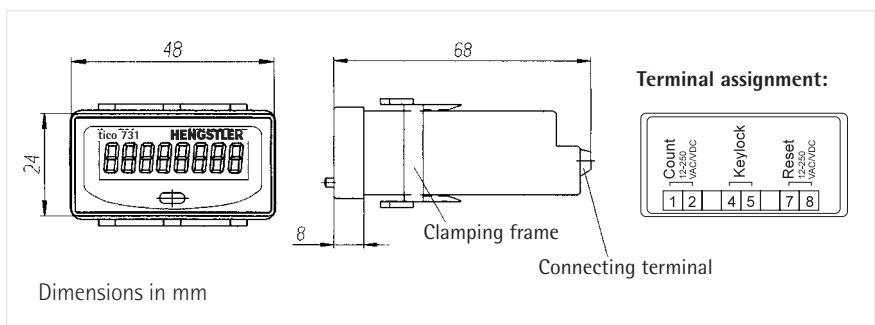
- LCD display
- Lithium battery
- COUNT: Start input for voltage pulses 12-250 V AC/DC (20 Hz)
- RESET: reset input for voltage pulses 12-250 V AC/DC (20 Hz)
- KEYLOCK: locking of the reset key
- long case

| | |
|-------------------------------|--------------------------------------------------------------|
| 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 65, 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, protective system II |
| Input resistance | < 50 kOhm (static) |
| Display | 8-digit LCD, 7 mm |
| Supply voltage U _b | internal lithium battery |
| Nominal data retention | lithium battery: 7 years |
| 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

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Software function
 01 impulse counter or
 03 time counter (hhh:mm:ss)
 04 time counter (hhhhh.hh)

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TYPE 4



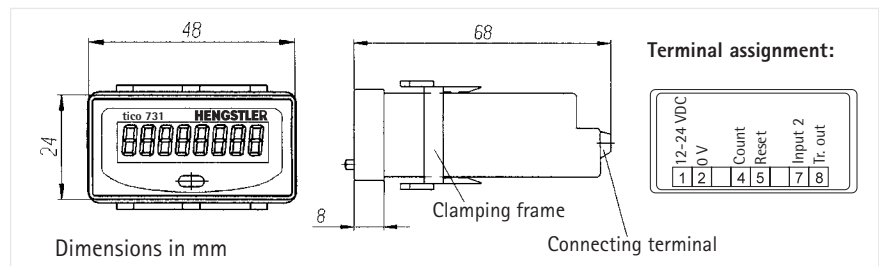
TECHNICAL DATA

Technical data

- LCD display
- 12-24 V DC supply voltage
- COUNT: programmable start input for voltage signal or contact, frequency 30 Hz
- INPUT 2: control input for temporary hold of display value (Hold)
- RESET: reset input
- OUT: transistor output for preset signal
- 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 65, 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, protective system II |
| Input resistance | < 50 kOhm (static) |
| Display | 8-digit LCD, 7 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 30 Hz: < 0.7 V and > 5 V, max. 30 V DC |
| Active edge | negative or positive edge programmable |
| Counting frequency | programmable: 30 Hz (attenuated for contacts) |
| Control inputs: | |
| Reset | - manual reset via keyboard (can be locked) - external reset with static behaviour, 30 Hz attenuated same edge as with count input |
| Input 2: | Display Hold |
| Reset lock | programmable via front key |
| Transistor output signal | PNP output |
| Voltage/switching current | voltage supply minus 2 V; max. 10 mA |

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731



Software function

- 01 impulse counter
- 02 tachometer (1/min)
- 03 time counter (hhh:mm:ss)
- 04 time counter (hhhhh.hh)
- 05 numerical display for PLC
- 06 bidirectional position indicator

TYPE 5



TECHNICAL DATA

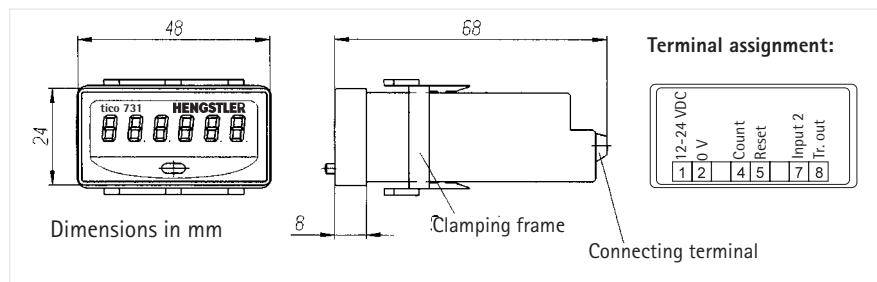
- LED display
- 12-24 V DC supply voltage
- COUNT: programmable start input for voltage signal or contact, frequency 30 Hz
- INPUT 2: control input for temporary hold of display value (Hold)
- RESET: reset input
- OUT: transistor output for preset signal
- Long case

| | |
|-------------------------------|--------------------------------------------------------------|
| 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 65, 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, protective system II |
| Input resistance | < 50 kOhm (static) |
| Display | 6-digit LED, 7 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 30 Hz: < 0.7 V and > 5 V, max. 30 V DC |
| Active edge | negative or positive edge programmable |
| Counting frequency | programmable: 30 Hz (attenuated for contacts) |

| | |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Control inputs: | |
| Reset | - manual reset via keyboard (can be locked) - external reset with static behaviour, 30 Hz attenuated same edge as count input |
| Input 2: | Display Hold |
| Reset lock | programmable via front key |
| Transistor output signal | PNP output |
| Voltage/switching current | supply minus 2 V; max. 10 mA |

DIMENSIONS CONNECTION DIAGRAM



ORDER NUMBER

Model tico 731

| | | | | |
|---|-----|---|---|---|
| 0 | 731 | 5 | 0 | 3 |
| 0 | 731 | 5 | 0 | 4 |

Software function

- 01 impulse counter
- 02 tachometer (1/min)
- 03 time counter (hhhh:mm:ss)
- 04 time counter (hhhhh.hh)
- 05 numerical display for PLC
- 06 bidirectional position indicator
- 07 counter with differential mode (1 kHz)

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 |
|---------------------------------------------------------------------------------------------------|-----------------|-------------|--------------|-------------------|--------------------|--------------------------------|
| Prescaler 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)¹⁾
- 3 Time counter (hhhh:mm:ss)
- 4 Time counter (hhhhh.hh)
- 6 Position indicator (2-channel)²⁾
- 7 Counter with differential mode³⁾

- 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 99.999⁴⁾

D: (Value);

Decimal point: 0 to 3 positions after the comma⁴⁾

V: (Value);

Preset value: 0 to 99 999 999⁵⁾

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