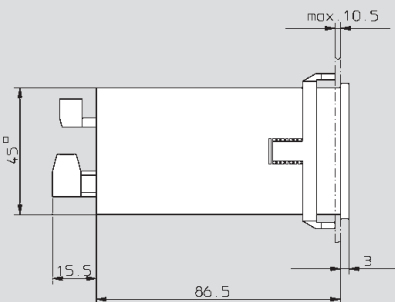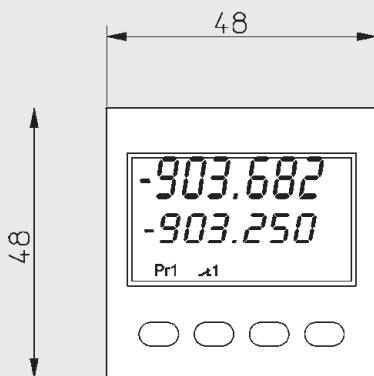# Digital preselection counters

type 320, 321

Multifunctional preselection counters, AC or DC, programmable as a pulse, frequency or time counter, 48 x 48 mm

These counters are easily programmable and cover the following application fields: preselection of pulses, cutting into lenghts, dosing, time control, speed and rate supervision, flow control.

Description:

- 6 digit LCD preselection counter with polarity sign
- 2-line indication for counter status and preselection value
- symbols for active outputs and current preselection
- programmable as pulse, frequency or time counter
- simple operation and preselection of values via 4 buttons
- factor input of 0,0001 to 9,9999
- two preselections (type 320 one preselection)
- relay output
- voltage: 90-...250 V AC or 11-...30 V DC
- normal housing 48 x 48 mm with adapter for 50 x 50 mm cutout
- electrical connection through plug-in screw terminals

Programmable features are:

- operating mode, polarity of the inputs, input type, factor, decimal point
- output signals as continuous or wiping contact
- automatic repeat
- gate time as frequency counter, while programming
- resolution in sec., min., h or h:min:sec as time counter

Inputs:

INP A, INP B
- Counter input; the maximum counting frequency of these two inputs is for every channel separately settable on 30 Hz or 10 kHz.

Gate
- Static gate input; no counting while this input is activated.

Reset
- Dynamic reset input: has the same function as the red SET button and resets the counter to zero (accumulative counting mode) or to the preselection value (subtractive counting mode).
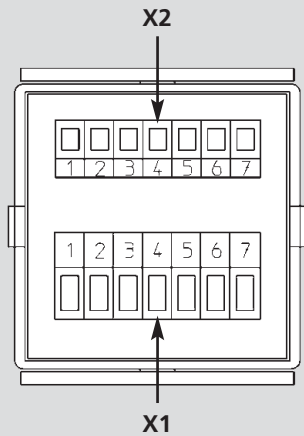
Key
- Static input for locking of the buttons; while this input is activated the buttons in front remain locked for operation.

Outputs
- 2 potential-free outputs (320: 1 output) as relay.

■ Digital preselection counters

X2

X1

connection diagram type 321

pin	AC-version / DC-version
1	output 1 relay
2	output 1 relay
3	output 2 relay common contact (C)
4	output 2 relay normally open (NO)
5	output 2 relay normally close (NC)
6	supply voltage 90 ... 260 V AC / 11 - 30 V (DC-version)
7	90 ... 260 V AC / 0 V (DC-version)

pin connection X1

pin	description	AC-version / DC-version
1	+24 V DC	transmitter voltage supply / not connected (DC-version)
2	0 V DC (GND)	GND / not connected (DC-version)
3	INP A	count input A
4	INP B	count input B
5	Reset	reset input
6	Gate	gate input
7	Key	key locking input

pin connection X2

Programming:

The programming of the counter 320 and 321 takes place via 4 buttons on the front of the unit. A user guidance on the display offers an operation without problems. Here you can effect all adjustments and the corresponding parameters can be selected out of one menu.

Programmable are:

Polarity of the inputs
■ Switching positive (PNP) or negative (NPN). The selection is valid for all inputs at the same time.

Operation variants, pulse or time counting
■ accumulative with starting to count from zero
■ subtractive with starting to count from the preselection value (320)
   or preselection value 2 (321)
■ accumulative with automatical reset by reaching the preselection value (320)
   or the preselection value 2 (321)
■ subtractive with automatical setting on the preselection value (320)
   or preselection value 2 (321) by reaching of zero
■ additional preselection cycle counter (only at type 321)

Input variants, pulse and frequency counter
■ E1: 1 counting input, 1 switching input for the counting direction
■ E2: 1 counting input upwards, 1 counting input down
■ E3: quadrature input
■ E4: quadrature input with pulse doubling

Decimals
■ The indication can be effected without, with one, two or three decimal places after the decimal point.

Factor
■ For an optimal transmitter adjustment the counting values can be preselected with a factor between 0,0001 and 9,9999.

Output signal
■ The output signal (at type 321 even separate signal for both outputs) can be preselected as make or break contact, positive or negative wiping signal, duration 0,01 to 99,99 sec.

Gate time at frequency counter
■ Programmable from 0,01 sec. to 99,99 sec.

Time counter
■ The counting can be done in h, min. or sec., with a resolution of 0,001; 0,01; 0,1 and 1,0 or in h:min:sec

■ Digital preselection counters

Included in delivery

- ■ **type 320 = 1 preselection, 1 relay output**
- ■ **type 321 = 2 preselections, 2 relay outputs**
- ■ **plug-in screw terminals X1, 7-pole, grid 5,08 mm**
- ■ **plug-in screw terminals X2, 7-pole, grid 3,81 mm**
- ■ **frontal frame for screw fixing 60 x 75 mm mounting cross section 50 x 50 mm**
- ■ **frontal frame for retaining clip fixing 55 x 55 mm mounting cross section 50 x 50 mm**
- ■ **frontal frame for retaining clip fixing 48 x 48 mm mounting cross section 45 x 45 mm**
- ■ **retaining clip**

Technical specifications:

indication:	2 lines, 6 digits, 7 segments LC-display with polarity sign
character height:	9 / 7 mm
preselection:	2 preselections at type 321, 1 preselection at type 320
counting input:	2 counting inputs, 4 input variants programmable
polarity of the inputs:	programmable, switching positive (PNP) or negative (NPN)
input resistance:	10 kOhm
max. counting frequency:	10 kHz, reducable to 30 Hz via DIL switcher
min. pulse time of the control inputs:	5 msec.
switching level of the inputs:	at AC supply: Log "0": 0...4 V DC, Log "1": 12...30 V DC
	at DC supply: Log "0": 0...0,2 x Ub, Log "1": 0,6 x Ub...30 V DC
pulse form:	variable, Schmitt-trigger input
output:	type 320: 1 relay output, type 321: 2 relay outputs
transmitter voltage:	24 V DC, 100 mA at 90-...260 V AC
value recording:	minimum 10 years or 10^6 memory cycles
interference resistance:	EN 50082, part 2
interference transmission:	EN 55011, class B
operation temperature:	0 to +50 °C
housing:	48 x 48 mm DIN
protection class:	IP 65 (front)
operating voltage:	90 - 250 V AC
	11 - 30 V DC