Product Leaflet

6.87.1

Scaling Unit Type 195

Kübler
You may count on
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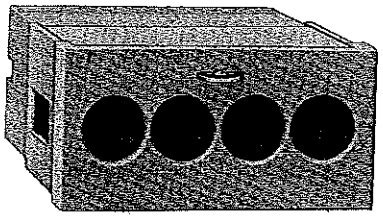

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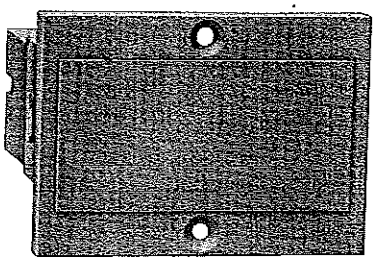

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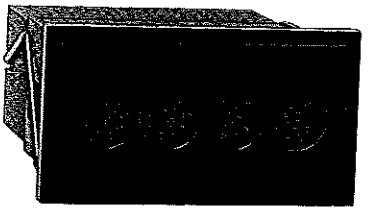

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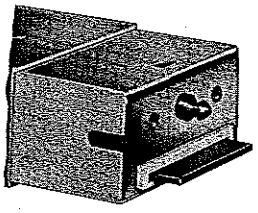

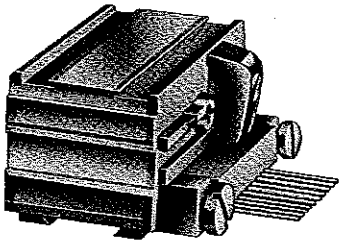

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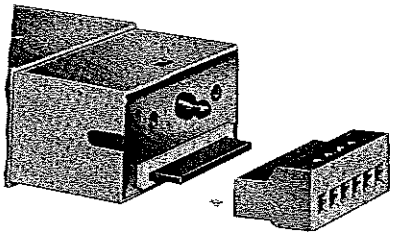


Counter with screw terminal 935

1. Areas of application

This unit is used in all those applications where data has to be divided or multiplied for further processing.
Examples:
Length measuring: An encoder generates 1 impulse after each mm path length. By means of the scaling unit meters or inches can be displayed on a counter connected.
Revolution measuring: An encoder is connected to a gear and generates 60 impulses every 3,125 revolutions. The revolutions must be directly displayed.
Further applications: Parts counting, flow metering, coil winding etc.

2. Construction and operation

The incoming impulses are multiplied by a 4-digit factor X,XXX (from 0,001 – 9,999). These impulses may then be divided by a programmable divisor of 1, 10, 100, 1000 or 10000. This allows to have an adjustable multiplier of X,XXX-0,000XXXX.
The output of the scaling unit has to be connected with the count input of the respective counter.
The unit may be connected to all those electronic counters which operate with input mode E1 or E2. Dip switches mounted on the sides allow programming of the input polarity, divisor and limit frequency (ref. to table). The units with external factor setting have on their front side 4 rotary switches allowing selection of the required value. If no external factor setting is requested the factor must be indicated on order sheet.

If count direction changes during count run the scaling unit must be reset in order to avoid a possible count error. When counting in only one direction the reset inputs of both counter and scaling unit must be connected together. After switching on the scaling unit is reset automatically.

3. Technical data

Operating voltage
Standard: 12 – 24 VDC, residual ripple 15 %

Option: 5 VDC ± 025 V

Power consumption: Max. 20 mA

Input mode: Operation only possible in conjunction with mode E1 or E2 respectively with adding or subtracting channels.

Inputs: 1 count input, 1 reset input
Due to the switch hysteresis the edge steepness of the input impulses may be very flat. Polarity is reversible (refer to programming). Switching may be effected by means of an electronic impulse or mechanical make contact.
The threshold is according to the operating voltage level:

Log. L < + 1,6 V at U_B = 5 V
< + 4 V at U_B = 12 V
< + 8 V at U_B = 24 V

Log. H + 3,6 V - 30 V at U_B = 5 V
+ 8 V - 30 V at U_B = 12 V
+ 16 V - 30 V at U_B = 24 V

Input impedance 10 kΩ

Max. count frequency:
50 Hz for mechanical impulse generators,
3 kHz for electronic impulse generators (impulse ratio 1:1),
Output impedance of signal source ≤ 1 kΩ

Output: Push pull output, max. output current 20 mA.
Ambient temperature: −5 ° C . . . +55 ° C.

Weights: Type 195: 75 g
Plugable screw terminal type 935: 10 g
Socket box type 910.2: 15 g
Mounting parts for type 910.2: 70 g

Colour of front panel: Grey similar to RAL 7001-Standard.
Black colour to be indicated on order sheet.

Wiring:

Plugable screw terminal 935	Multi point connector	Function
1	22	Impulse input
2	20	OV
3	18	+ UB
4	16	Reset input
5	14	Output
6	12	–

Type code:

Example: 195.31 / 12–24 VDC / 935

Type designation
Front bezel
Factor setting
Operating voltage
Accessories

Front bezel: 0 = no front bezel
1 = with front bezel for screw mounting M3
2 = with front bezel for spring clip mounting
3 = with front bezel for screw mounting M4, suitable for sealing covers Dv (latch-locking) and Dvs (key-locking)

Factor setting: 0 = no external factor setting. Required factor to be indicated on order sheet.
1 = external factor setting by means of screw driver.

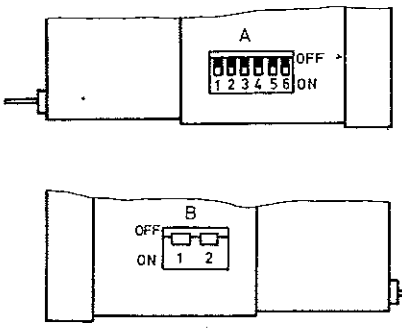
Operating voltage: 12–24 VDC = standard
5 VDC = option

Accessories:
935 = plugable screw terminal (standard)
910.2 = socket box with multi point connector. (The supply of units with front panel 0 includes the necessary mounting parts.)

Note: The limit frequency of the counter connected to the scaling unit should be greater than 50 kHz (exeption type 700 and type 820, ref. to 5 programming).

4. Mounting:
For mounting into a switch board screw- and spring clip versions are available.
By means of socket boxes 25 x 50 mm this unit may be combined also with other counter types.

5. Programming:
Laterally accessible dip switches allow programming of the multiplying unit according to counter type and application.



The following table describes the different dip switch functions:

Dip Switch		Functions / Remarks	
B/1		Polarity (scaling unit and counter must have the same polarity)	
OFF		negative edge active → NPN	
ON		positive edge active → PNP	
B/2		Divisor ON/OFF	
OFF		Divisor ON, multiplier: 0,XXXX-0,000XXXX, adjustable by A/2 and A/3	
ON		Divisor OFF, multiplier: X,XXX	
A/1		Limit frequency for count input of scaling unit	
OFF		50 Hz (for mechanical contacts)	
ON		3 kHz	
A/2	**A/3**	Divisor (only when B/2 in OFF-position)	
		Divisor	max. output frequencies
OFF	OFF	10	5 kHz
OFF	ON	100	500 Hz
ON	OFF	1000	50 Hz
ON	ON	10000	5 Hz
A/4	**A/5**	Output frequency of scaling unit	
OFF	OFF	50 kHz (count frequency for all counters exept series 700 and 820)	
ON	OFF	refer to*	
ON	ON	refer to*	
A/6		No function	

XXXX = Factor, adjustable at front side through 4 rotary switches. (Versions with external adjustment only.)

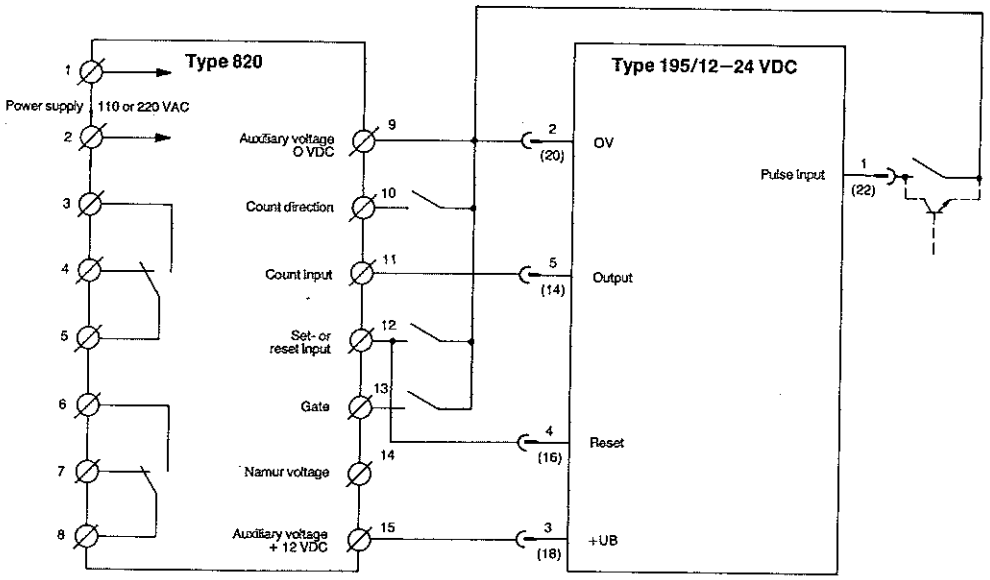
* As counter types of series 700 and 820 have a max. count frequency of 500 Hz resp. 1,1 kHz the following restrictions must be observed with regard to the input- and output frequencies of the scaling unit:

Counter Type	Multiplier	A/4	A/5	max. input freq. of scaling unit
Series 700	≤ 0,1000	OFF	OFF	3 kHz
	> 0,1000 to < 1,000	ON	OFF	90 Hz
	≥ 1,000	ON	ON	40 Hz
Series 820	≤ 0,3000	OFF	OFF	3 kHz
	> 0,3000	ON	OFF	90 Hz

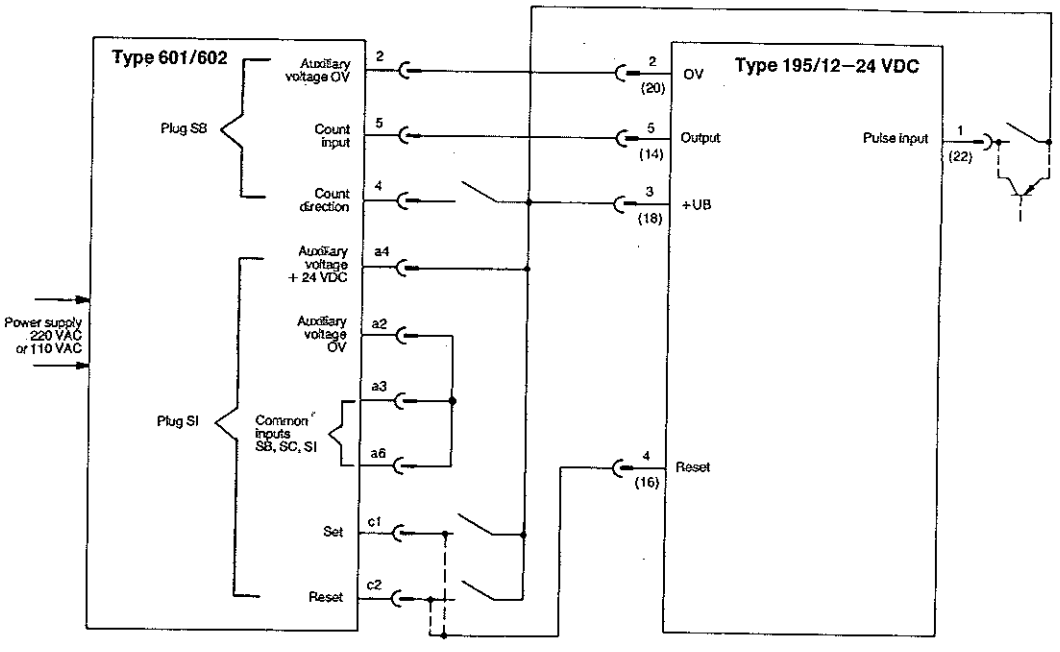
Example:
Requested multiplier: 0,625;
Polarity: PNP; Counter: Type 820.
Programming of scaling unit: Factor 6250 via rotary switches.

B/1	B/2	A/1	A/2	A/3	A/4	A/5
ON	OFF	ON	OFF	OFF	ON	OFF

6. Wiring:
Example: Type 195 connected to type 820, polarity NPN, input mode E1 ( ) ≙ multi point connector

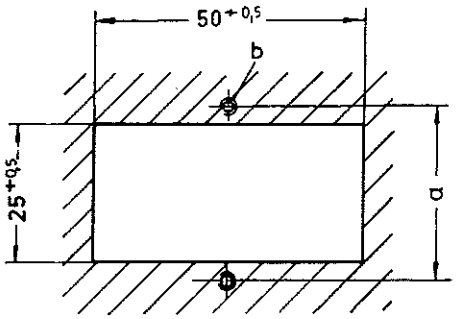


Example: Type 195 connected to counter type 601 or 602, polarity PNP, input mode E1 ( ) ≙ multi point connector

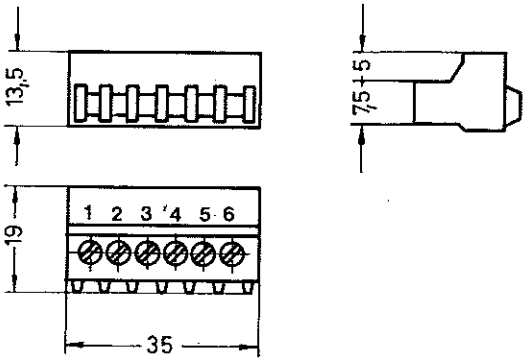


7. Dimension diagrams:

Panel cut-outs:
Type 195
Holes omitted with spring clip mounting version



plugable screw terminal 935



Front bezel No.	a	b
1	32	M3
3	38	M4

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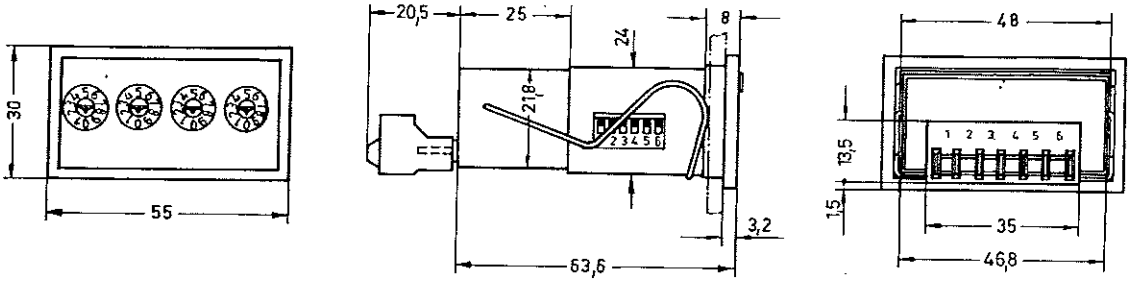

Front bezel 2 with spring clip and screw terminal 935

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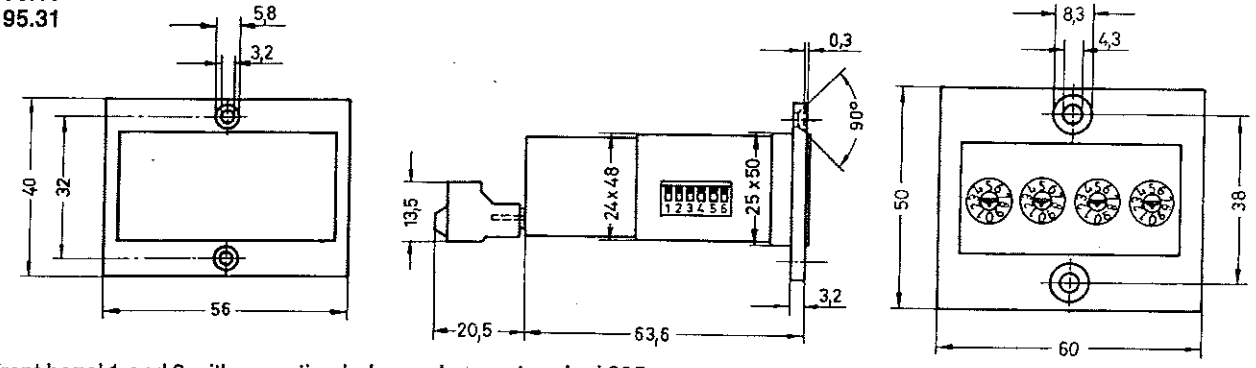
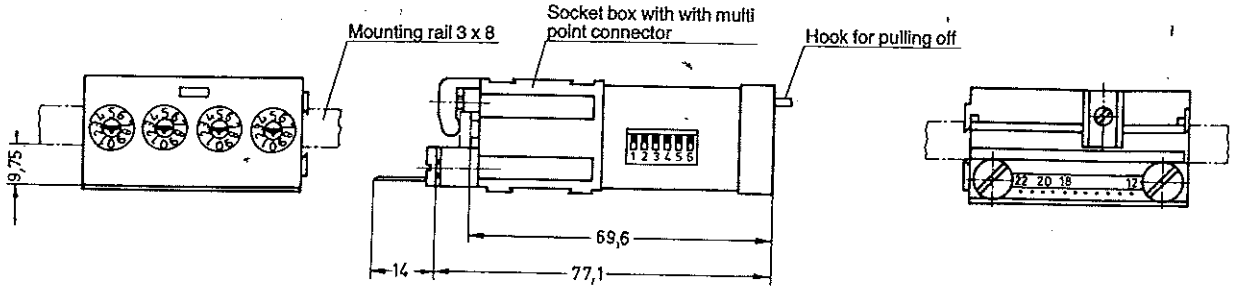


Front bezel 1 and 3 with mounting holes and screw terminal 935

195.01 + 910.2



no front bezel, with socket box and multi point connector