LABOR – ASTER

INDUSTRIAL AUTOMATION

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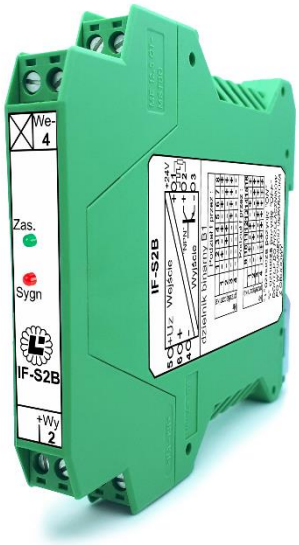
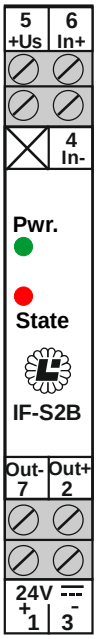
AC 083
QMS

Frequency divider of the input pulses type IF-S2B

- **Division of pulses string frequency e.g. from:**
  - **bistate pulses 0/24V,**
  - **NAMUR standard pulses NAMUR e.g. from proximity sensors**
- **Pulses output type OC:**
  - **NPN, PNP**
- **Possibility of supplying input pulses transmitter**
- **Output frequency division set with switchers accessible after opening the housing: 4 bits**
- **Galvanic separation between input and output, power supply**





APPLICATION :

Divider **IF-S2B** is designed to convert voltage or current pulses to pulses sting in standard type OC (NPN or PNP).

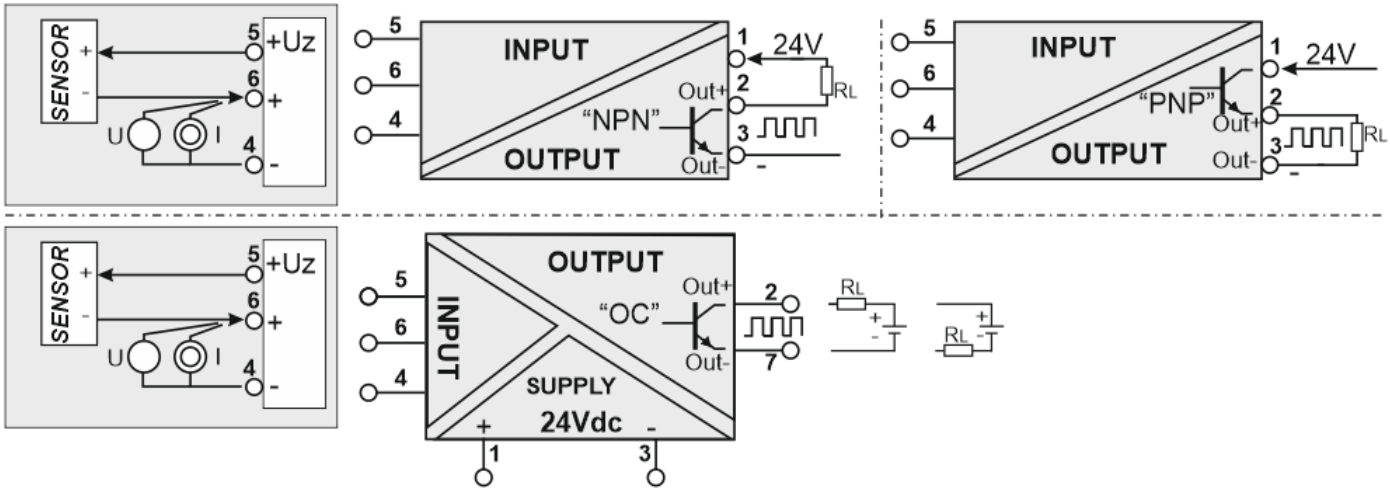
Galvanically separated output generates voltage pulses in OC standard with a frequency divided in relation to the input frequency. Division N is set with switchers – 4 bits according to Table 1 or Table 2 given at the end of this document. The switchers are accessible after opening the housing. Division can be different but the it is constant and cannot be changed. Different division should be specified in the order.

Examples of pulses source which can operate with IF-S2B:

- screw water meters;
- proximity sensors type NAMUR;
- flow meters.

BASIC TECHNICAL PARAMETERS:

Input:		
current pulses	-	10μA...1A
voltage pulses	-	20mV...100V
NAMUR pulses transmitter	-	$I_{min} \leq 1.2mA$, $I_{max} \geq 2.1mA$
Internal hysteresis	-	typically 50% of signal value
Input resistance:		
current input	-	<50Ω
voltage input	-	>250kΩ
NAMUR pulses converter	-	1kΩ
Additional power supply for pulse transmitter Us	-	8.2V or other as ordered
Frequency band	-	0…10kHz acc to order
Output signal	-	OC “NPN” or “PNP” 45V / 90mA
Shape of the output signal	-	square wave with duty: $\begin{cases} 50\% - \text{no division and division by even numbers} \\ 50\% \cdot \left(\frac{p-1}{p}\right) - \text{division by odd numbers (p – division)} \end{cases}$ or constant pulse width
Output pulse duration	-	0.05ms, 0.1ms, 1ms, 10ms as ordered
Output frequency division	-	settable with switchers according to Table 1 or Table 2 or constant if ordered so
Accuracy of switching levels in entire temperature range	-	±1% of amplitude specified in the order
Power supply	-	18...28V / 60mA
Input galvanic separation	-	2kV, 50Hz
Power supply indication	-	LED „Pwr.” is ON
State indication	-	LED „State” is flashing according to the output state or to the input pulses
Operation temperature	-	(-20...+70)°C
Dimensions	-	12.5 x 90 x 114.5mm
mounting		on TS35 rail
Housing protection level	-	IP20
Safety requirements	-	PN-EN 61010-1:2002
EMC requirements	-	PN-EN 61000-6-1
	-	PN-EN 61000-6-3



Way of connecting input and output signals

NOTE. Normally when there is no input pulse, the output key is opened. It is closed for a duration of the input pulse. There is an option to change the phase (no pulse->key closed, pulse->key opened) after agreement. It is recommended to specify the phase in the order.

HOW TO ORDER: describe the input signal (shape, amplitude changes, duty cycle changes etc.)

IF-S2B - __ - __ - __ - __ - __ - __

input signal amplitude **Vd / Vg**
Vd - minimal input signal amplitude
Vg - maximal input signal amplitude

input signal frequency **fd / fg**
fd - lower input signal frequency
fg - upper input signal frequency

output pulse duration
50% - square wave duty cycle 50%
... - other in [ms] (specify)

division
B1 - standard binary divider (acc to Table 1)
B2 - optional binary divider (acc to Table 2)
x - constant division (specify)

output **NPN / PNP / NPNS / PNPS**
NPN - load to „+"(not separated from power supply)
PNP - load to „-"(not separated from power supply)
OC - potential-free transistor (separated from power supply)

LED indication **WE / WY**
WE - LED „State" flashes with input pulses
WY - LED „State" flashes with output pulses

ORDER EXAMPLE: type IF-S2B – 0,02V/1V - 0/2kHz - 50% - WY - NPN - B1

Frequency divider type **IF-S2B**: square wave input signal with duty cycle 50%, lower voltage level 0V, upper voltage level changes in range 0,02…1V, frequency changes 0…2kHz; output signal duty cycle 50%; LED "State" flashes with output pulses; output type OC NPN; binary divider acc to Table 1

Table 1 – Standard settings of the division switchers (B1)

Division	Switcher number			
	4	3	2	1
1	*OFF*	*OFF*	*OFF*	*OFF*
2	*OFF*	*OFF*	*OFF*	*ON*
3	*OFF*	*OFF*	*ON*	*OFF*
4	*OFF*	*OFF*	*ON*	*ON*
5	*OFF*	*ON*	*OFF*	*OFF*
6	*ON*	*ON*	*OFF*	*ON*
7	*OFF*	*ON*	*ON*	*OFF*
8	*OFF*	*ON*	*ON*	*ON*
9	*ON*	*OFF*	*OFF*	*OFF*
10	*ON*	*OFF*	*OFF*	*ON*
11	*ON*	*OFF*	*ON*	*OFF*
12	*ON*	*OFF*	*ON*	*ON*
13	*ON*	*ON*	*OFF*	*OFF*
14	*ON*	*ON*	*OFF*	*ON*
15	*ON*	*ON*	*ON*	*OFF*
16	*ON*	*ON*	*ON*	*ON*

Table 2 – Optional settings of the division switchers (B2)

Division	Switcher number			
	4	3	2	1
1	*OFF*	*OFF*	*OFF*	*OFF*
2	*OFF*	*OFF*	*OFF*	*ON*
4	*OFF*	*OFF*	*ON*	*OFF*
8	*OFF*	*OFF*	*ON*	*ON*
16	*OFF*	*ON*	*OFF*	*OFF*
32	*ON*	*ON*	*OFF*	*ON*
64	*OFF*	*ON*	*ON*	*OFF*
128	*OFF*	*ON*	*ON*	*ON*
256	*ON*	*OFF*	*OFF*	*OFF*
512	*ON*	*OFF*	*OFF*	*ON*
1024	*ON*	*OFF*	*ON*	*OFF*
2048	*ON*	*OFF*	*ON*	*ON*
4096	*ON*	*ON*	*OFF*	*OFF*
8192	*ON*	*ON*	*OFF*	*ON*
16384	*ON*	*ON*	*ON*	*OFF*
32768	*ON*	*ON*	*ON*	*ON*

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