EXTENDING OUTPUT PULSES DURATION IN FP-30x1(N) DEVICES, WY_PULS BOARD

- **Pulses change method**

FP-30x1(N) devices enable sending a single pulse (c.a. 2.5 ms) or a packet of pulses proportional to the counted flow/energy. Pulses/pulse packets are generated by the solid state relay maximum every 1 s. If pulses extending is necessary, then the FP-30x1(N) device with the WY_PULS board installed should be used.

The WY_PULS board enable changing the short input pulse (generated by the solid state relay of the FP-30x1(N) device) into an extended output pulse. An external connection between terminals of the selected relay output and terminals of the WY_PULS board, i.e. the OUT (P) output is required. The output pulse generated by the board is triggered by the falling edge of the input pulse generated by a solid state relay.

Single pulses can be generated every 1 second. For every single input pulse, an extended output pulse will be generated. The output pulse is triggered by the falling edge of the input pulse.
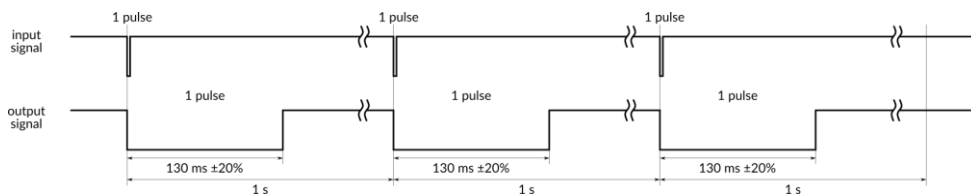
It is possible to generate an pulse packet (e.g. 5 short pulses). The falling edge of the first input pulse triggers the output pulse. Each subsequent falling edge in the input pulse packet will count the output pulse time from zero, as a result, the 130 ms ± 20% time will be calculated from the falling edge of the last input pulse in the read pulse packet. The total duration of the output pulse is the sum of 130 ms ± 20% and the duration of input pulses.
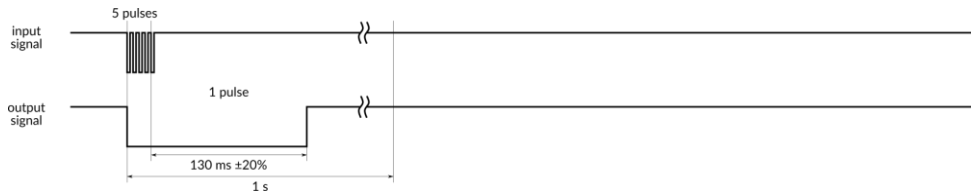
Pulse packets can be generated every 1 second. An extended output pulse will be generated for each packet. The output pulse is triggered by the falling edge of the first input pulse in the packet. A time of 130 ms ± 20% will be calculated from the falling edge of the last input pulse in the read pulse packet.
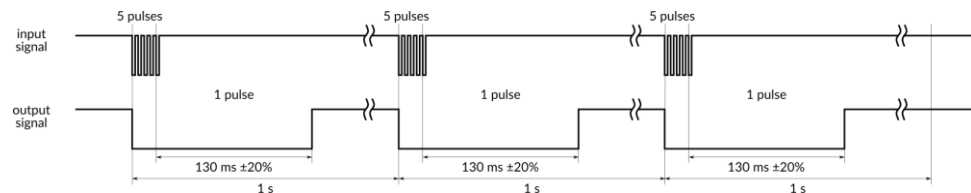
An example of the output signal generated by the board for input signal containing a single pulse and pulse packets of different lengths is presented below.
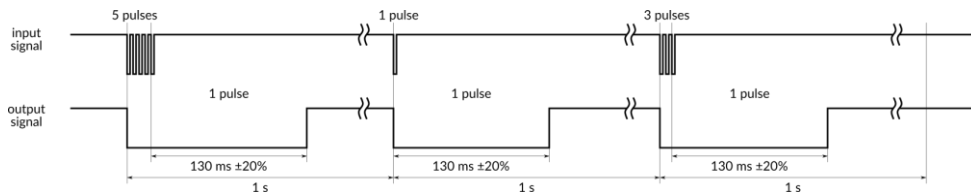
Notes: The WY_PULS board can be installed only in FP-30x1(N) type devices. The board do not provide the buffer - only the 1-second time window can be analyzed. If the relay output generates more than 150 pulses every 1 second, then the output pulse generated by the WY_PULS board can be extended for another time window.

- ## Device versions

The device with the WY_PULS board installed has -1P or -2P mark in the code. If the WY_PULS board is installed in the device, it is not possible to install 4-20 mA analog outputs. Possible versions of the device with the WY_PULS board installed:

FP-3011	□	-□	-□
Device version			
Panel mount version (no symbol)			
Wall mount version	N		
Main applications			
Basic option with one main application A		-0	
Extended option with A and B applications		-1	
Output board			
Version with one OUT (P) output (one WY_PULS board installed)			-1P

FP-3021	□	-□	-□
Device version			
Panel mount version (no symbol)			
Wall mount version	N		
Main applications			
Basic option with one main application A		-0	
Extended option with A and B applications		-1	
Output board			
Version with one OUT (P) output (one WY_PULS board installed)			-1P

FP-3031	□	-□	-□
Device version			
Panel mount version (no symbol)			
Wall mount version	N		
Main applications			
Basic option with one main application A		-0	
Extended option with A, B, C, X, Y, Z applications		-1	
Output board			
Version with one OUT (P) output (one WY_PULS board installed)			-1P
Version with two OUT (P) outputs (two WY_PULS boards installed)			-2P

Notes: The -1P/-2P mark which mean that the WY_PULS board is installed/two WY_PULS boards are installed will not be displayed on the screen of the device. In this case, follow the code on the label on the device housing and use the connection method presented in the next section.

- **Wiring**

The WY_PULS board terminals are marked as OUT (P) on the rear plate of the panel mount device. To ensure correct operation of the board, an external connection between terminals of the selected relay output and terminals I and G of the OUT (P) type output must be made. The +/~ terminal of the relay output should be connected to the I terminal of the OUT (P) output. The -/~ terminal of the relay output should be connected to the G terminal of the OUT (P) output.

The output can be configured as passive (passive contact) or active (0-5 V), more information in the next section.
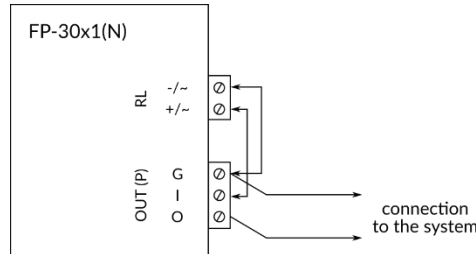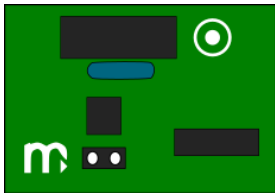

|	Terminal no.	Description	
FP-3011(N)	28	O (OUT)	OUT (P) WY_PULS board
	29	I (IN)	
	30	G (GND)	
	31	+/~	relay output 60 V / 0.1 A (RL1)
	32	-/~	
	33	+/~	relay output 60 V / 0.1 A (RL2)
	34	-/~	
	35	+/~	relay output 60 V / 0.1 A (RL3)
	36	-/~	
	37	+/~	relay output 60 V / 0.1 A (RL4)
	38	-/~	
FP-3021	14	O (OUT)	OUT (P) WY_PULS board
	15	I (IN)	
	16	G (GND)	
	17	+/~	relay output 60 V / 0.1 A (RL1)
	18	-/~	
	19	+/~	relay output 60 V / 0.1 A (RL2)
	20	-/~	
	21	+/~	relay output 60 V / 0.1 A (RL3)
	22	-/~	
	23	+/~	relay output 60 V / 0.1 A (RL4)
	24	-/~	
FP-3021N	16	O (OUT)	OUT (P) WY_PULS board
	17	I (IN)	
	18	G (GND)	
	19	+/~	relay output 60 V / 0.1 A (RL1)
	20	-/~	
	21	+/~	relay output 60 V / 0.1 A (RL2)
	22	-/~	
	23	+/~	relay output 60 V / 0.1 A (RL3)
	24	-/~	
	25	+/~	relay output 60 V / 0.1 A (RL4)
	26	-/~	
FP-3031(N)	49	O (OUT)	OUT 1 (P) WY_PULS board
	50	I (IN)	
	51	G (GND)	
	52	O (OUT)	OUT 2 (P) WY_PULS board
	53	I (IN)	
	54	G (GND)	
	55	+/~	relay output 60 V / 0.1 A (RL1)
	56	-/~	
	57	+/~	relay output 60 V / 0.1 A (RL2)
	58	-/~	
	59	+/~	relay output 60 V / 0.1 A (RL3)
	60	-/~	
	61	+/~	relay output 60 V / 0.1 A (RL4)
	62	-/~	

- ## Changing the operating mode

The OUT (P) output can be configured as a passive contact type output (solid state relay 60 V / 0.1 A) or as an active output 0-5 V (active state: 0 V, short-circuit current: 5 mA). The output operation mode can be changed only by changing the state of the jumper on the board. Changing the state of the jumper on the WY_PULS board requires the removal of the device housing.

Passive contact type output (open jumper)   Active 0-5 V output (shorted jumper)
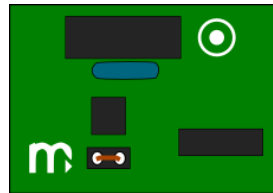
Notes: The default setting of the operating mode: passive contact type output (solid state relay). If it is necessary to change the state of the jumper, contact Metronic AKP Service.

Location of the WY_PULS board
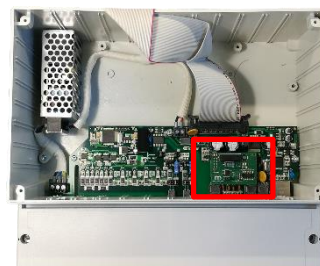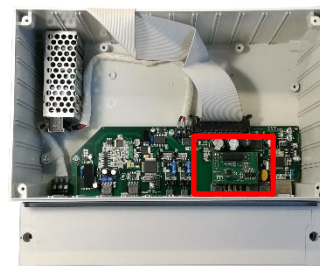
FP-3011

FP-3021

FP-3031

FP-3011N

FP-3021N

FP-3031N   *the User cannot change the state of the jumper, it is necessary to send the device to the Metronic AKP Service*

- **Information from the Manufacturer**

All functions of the recorder are subject to modifications for the benefit of technical progress.

Manufacturer: METRONIC AKP Sp. J.
                PL 31-426 Kraków, ul. Żmujdzka 3
                Tel.: (+48) 12 312 16 80
                www.metronic.pl