Pulse Units Reed, Opto-electronic, Inductive

Top-fit registers by a simple plug-in



- ✗ Fast contact rate: just right for MULTI-PULS and TDD.
- ✗ Long life contactor technology: retrofittable on old and new registers.
- **X** Sturdy push-fit connection: secure positioning in precise guide grooves.
- **X** Hermetically sealed housing: protected to IP 68.



Pulse Units Reed, Opto-electronic, Inductive

For all those who want to make the most of their meter

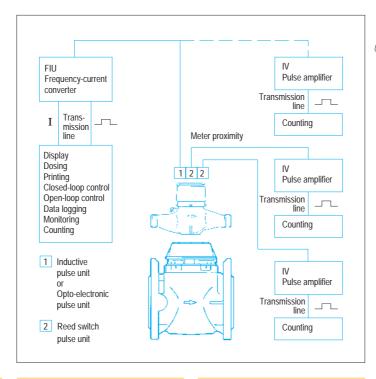
Added value

No matter whether there is a TDD or a MULTI-PULSE register, both of them offer simultaneous transmission of three different flow-proportional pulse sequences. This capability has been built in as a standard feature.

Opting for our pulse units will definitely be worthwhile. Either with your original order for the meters, or later on at need.

Added utility

Displaying, dosing, printing, closed-loop and open-loop control, data logging, monitoring, counting, and lots of other options into the bargain.



Pulse units

Quick connection – immediate retrofit

Astoundingly simple, reliable and secure. Just plug in, and that's it. And you don't have to interrupt the water supply or break the calibration seal.

Forward and reverse flow measurements

- The function-added version with two reed switches for our Woltmann meter H 4000 WP.
- May be used to tap one pulse sequence as well.

Reed switch pulse unit MULTI-PULS / TDD / MULTI-PULS-TROPIC

T 160 REED

- Volume-dependent pulse sequence for remote registration, recording, dosing.
- Working in conjunction with pulse amplifiers.
- ☐ Simultaneous connection of two reed switch pulse units enables the tapping of two pulse sequences.

T 161 Double REED

- ☐ Bi-directional: forward and reverse flow measuring.
- Overlapping pulses.

Opto-electronic pulse unit MULTI-PULS / TDD

T 180 PV 14

- ☐ Flow-proportional frequency for transmitting analog and digital flow rate values to: pen recorders, indicators, controllers.
- Working in conjunction with frequency-current converters.

Inductive pulse unit MULTI-PULS / TDD

T 170 PV 13-3

- ☐ Flow-proportional frequency for transmitting analog and digital flow rate values to: pen recorders, indicators, controllers.
- Working in conjunction with frequency-current converters.

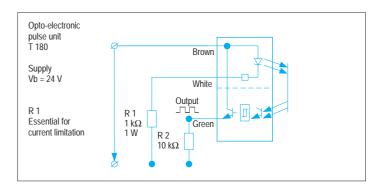
T 171 PV 13-3 LC

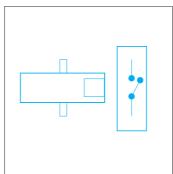
- Low capacity.
- Explosion-protected, usable in intrinsically safe circuits Zone 1.

The detailed engineering

Pulse amplifiers Frequency-current converters

We recommend using pulse amplifiers and frequencycurrent converters from our range. Otherwise, please study the schematics.





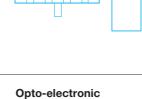




- Contact loading 24 V/100 mA with suitable spark suppression.
- ➤ Pulse/interval sequence 20/80.
- X Protective resistor 100 Ohm.
- Mean lifetime
 10⁷ operating cycles.
- X Two-wire design.
- ✗ Cables 2 x 0.25 mm², 2 m.
- X Protected to IP 68.
- Explosion-protected, usable in intrinsically safe circuits Zone 1.
- **x** 25 x 20 x 10 mm.
- X Temperature range -10 °C ... +90 °C.
- X Any desired connections.

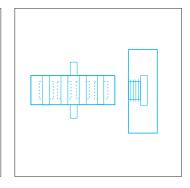
T 161 Double REED

- ✗ Bi-directional: forward and reverse flow measuring.
- Overlapping pulses.
- X Three-wire design.



T 180 PV 14

- Infrared optical sensor with OP amplifier.
- 12 V/15 ... 25 mA,24 V with 1 kOhm.
- ➤ Pulse/interval sequence 50/50.
- Line resistance < 15 Ohm/core.</p>
- X Three-wire design.
- **✗** Cables 3 x 0.25 mm², 2 m.
- X Protected to IP 68.
- **x** 25 x 20 x 10 mm.
- X Temperature range -10 °C ... +70 °C.
- **X** Connections
 - White
 - + Brown
 - _ Green.



Inductive pulse unit MULTI-PULS / TDD

T 170 PV 13-3

- Connection circuitry: NAMUR DIN 19 234.
- **X** U₀ 8 ... 12 V, R₁ 1 kOhm.
- ✗ Pulse range approx. 9 ms, closed-circuit current < 0.7 mA, operating current > 3 mA.
- ✗ Output frequency < 60 Hz.</p>
- Line resistance < 50 Ohm/core.</p>
- Two-wire design.
- ✗ Cables 2 x 0.25 mm², 2 m.
- X Protected to IP 68.
- **x** 25 x 20 x 10 mm.
- **X** Temperature range 0 °C ... +70 °C.
- Connections
 - White
 - + Brown.

T 171 PV 13-3 LC

Explosion-protected, usable in intrinsically safe circuits Zone 1.

Ordering information and pulse sequences

Pulse unit		Register Type	Original package Order No.	Spare part Order No.
T 160 REED	Reed switch	TDD MULTI-PULS MULTI-PULS-TROPIC	*0522237 1020869 1020869	1020869 1020869 1020869
T 161	Bi-directional	MULTI-PULS	1129097	1129097
Double REED		MULTI-PULS-TROPIC	1129097	1129097
T 180	Opto-electronic	TDD	*0524816	0601558
PV 14		MULTI-PULS	0601558	0601558
T 170	Inductive	TDD	*0604545	1124346
PV 13-3		MULTI-PULS	1124346	1124346
T 171	Explosion-protected	TDD	*1161489	1161454
PV 13-3 LC		MULTI-PULS	1161454	1161454

* Kit with cable connection

Pulse sequences Standard							
Nominal size Meter size / nominal flow rate	DN mm Q _n m³/h	15 40 1 10	50 125 15 100	150 300 150 600	400 500 1 000 1 500		
T 160 / T 161	Litres/pulse	100/1 1 000/1	100/1 1 000/1	1 000/1 10 000/1	10 000/1 100 000/1		
T 180	Litres/pulse	0.1/1	1/1	10/1	100/1		
T 170 / T 171	Litres/pulse	0.1/1	1/1	10/1	100/1		

Installation example MULTI-PULSE register

- 1. Swing open lid.
- 2. Unscrew two slotted screws and press the front and rear together to take off the shroud.
- 3. Push the pulse unit as far as it will go into the appropriate guide groove. First read the sign on the lid!
- ☐ Reed switch pulse units: any position OK.
- Opto-electronic and inductive pulse units: slide in dovetail with cable facing downwards.
- 4. Lead out cable through recess in lid ring.
- 5. Click the shroud into place again, and secure with two slotted screws.
- 6. Close the lid.



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