

Low frequency pulsed output Type REED-01/02

The REED-01/02 is a 2-wire low frequency volt-free contact closure pulse for use with WPKD or WSDK cold water meters. The REED-02 is used with the WPDH or WSDH hot water meters.

This type of pulse is used as the standard input to Building/Energy Management Systems and Heat Meters. A REED switch is encapsulated within the counter and is switched by permanent magnets fitted within the counter mechanism.

Continuous contact can occur when the water flow stops and connected devices must be suitably protected.

Technical specification type REED - 01/02			
Switching element	reed switch - m ³ /pulse, max. voltage 48 <V.d.c./a.c.		
Max.current	0.2Amp		
Max. capacity	4 Watts		
Ambient Temperature REED-01	70°C		
Ambient Temperature REED-02	200°C		
Cable length	3.0m		
Cable type	unshielded		
Pulse duration	variable		
Protection	IP 68		
Pulse value index:			
DN	50...125	K = 1	1 m ³ /pulse
		K = 4	0.25 m ³ /pulse
		K = 10	0.1 m ³ /pulse
DN	150...250	K = 1	10 m ³ /pulse
		K = 4	2.5 m ³ /pulse
		K = 10	1 m ³ /pulse
DN	300...500	K = 1	100 m ³ /pulse
		K = 4	25 m ³ /pulse
		K = 10	10 m ³ /pulse
K value is the number of pulses per revolution of the main indicator on the dial of the meter			

High frequency pulsed output Type OPTO-01/02/03/04

The OPTO-01 is a 2-wire current switching device for use with the WPKD or WSDK cold water meters. The OPTO-02 is for use with the WPDH or WSDH hot water meters.

This type of pulse is normally used for conversion to analogue signals, (4-20 mA) or inputs to high definition dosing/batching units. Light pulses are transmitted by an IR light diode onto a reflector wheel. The reflections are picked up by two detectors in the sensor head and processed electronically. The micro-electronics are located in a capsule in the cable.

The OPTO-03/04 are the same as the OPTO-01/02 except they have a different K value (number of pulses per revolution).

Technical specification type OPTO - 01/02/03/04			
Switching element	an IR reflex light barrier acting as a plug-in sensor		
Supply voltage	8.2V.d.c.		
Current pick-up with reflection	1.2 mA		
Current pick-up without reflection	2.1 mA		
Integrated with the sensor, via an additional current level is the forward and reverse characteristic			
Ambient temperature:	OPTO-01/02	40°C	
	OPTO-03/04	130°C	
Cable length	3.0m		
Cable type	unshielded		
Pulse value index:			
DN	50...125	K = 1000	0.001 m ³ /pulse
		K = 10000	0.01 m ³ /pulse
DN	150...250	K = 1000	0.01 m ³ /pulse
		K = 100	0.1 m ³ /pulse
DN	300...500	K = 1000	0.1 m ³ /pulse
		K = 100	1.0 m ³ /pulse
OPTO-01	K = 1000		
OPTO-02	K = 10000		
OPTO-03	K = 100		
OPTO-04	K = 100		
K value is the number of pulses per revolution of the main indicator on the dial of the meter			

Switch2 Energy Solutions Limited
High Mill, Mill Street, Cullingworth
Bradford, West Yorkshire, BD13 5HA, UK

Contact us on +44 (0)870 999 6030
Fax: +44 (0)870 999 6031
E-mail: sales@switch2.com

Visit our websites:
www.switch2.com
www.metersdirect.co.uk

FLNG05-RV0

Flanged Water Meters

Cold or Hot water Meters



- High precision
- Low differential pressure
- Long life time
- Simple mounting
- PTB approval

The Flanged turbine meter range

Large scale water meters have been around since the turn of the beginning of the last century. Flanged meters have been continually improved and developed in line with the latest state of the art technology. They still enjoy an excellent reputation and in the future will continue to offer the water supply industry and industrial users a reasonable priced, reliable and robust meter. The measuring range of the meters has been extended, reaction times have been improved and durability has been maximised. The range of Woltman meters can provide you with a suitable meter for almost any application.

The new series of Woltman meters has undergone continuous improvement. Components that are placed in the water such as the impeller wheel and meter element remain unchanged. The meters have retained their excellent

measuring qualities, for which they are renowned. Changes have been made to the counter mechanism, which is in a watertight casing. A vacuum has been created resulting in a major improvement in its ability to keep out dirt and damp. The new design means the meter can be rotated to any position without breaking the calibration seal. The redesigned dial is easier to read in poor light conditions. The new series has improved Reed and Opto pulse generators.

Qualities common to WSD and WPD series'

Measuring elements in all Woltman meter are interchangeable. The measuring element can be removed from the housing for maintenance and/or cleaning purposes or replaced by a new one. The meter housing remains in the pipework. This means the cost of storing complete meters can be minimised, a single trip to the meter location is all that is required.

Magnetic clutch

The rotary movement of the impeller wheel is transmitted by a magnetic clutch. There is no direct connection between the impeller wheel and the meter mechanism.

The transmission and counter mechanisms are in a watertight pressurised casing. This seal is backed by a vacuum in the counter mechanism. Therefore deposits are unable to settle inside the meter. The meter dial can be rotated.

All meters are designed to take pulse generators if required. Pulse generators can be inserted or replaced without breaking the main calibration seal.

There are three plug-in points; two for REED contact plugs and one for and OPTO plug (see specification on page 4).

Housings are coated with a high quality anti-corrosion epoxy paint layer.



Brief description of the WSD series of horizontal meters

The impeller wheel is vertical to the pipe axis and supported on a single WSD bearing. Therefore the WSD meter can only be mounted in a horizontal position with the dial facing upwards.

The housing is specifically designed to ensure an even flow of water as it flows into the meter. The water flows in a radial direction which results in an axially symmetrical distribution of forces on the impeller wheel and to a large extent counteracts the axial thrust.

Features

Horizontal installation only (dial must face upwards).
Minimum reaction time.
Suitable for forward and reverse flow.

Models to suit temperatures up to 40, 130 and 180°C on special orders.

Brief description of the WPD universal series meters

The impeller wheel is positioned parallel to the pipe axis and is mounted on two bearings. The water flows directly through the meter without any detour thus reducing pressure loss.

Features

Universal installation (dial must face upwards or to the side).

Models to suit temperatures up to 40 and 130°C.

Installation requirements

The WSD series can only be mounted horizontally. The dial must face upwards.

The WPD series can be mounted universally and must have the dial facing upwards or the side.

The meter must be full of water. If

air is partly present in the flow an incorrect reading will result along with increased meter wear and ultimate failure.

If there is any possibility of particles in the flow then a suitable strainer must be fitted upstream of the meter (beyond the straight length requirements) and the complete meter package should be provided with isolating valves and a bypass if necessary.

The meters all have high grade plastic internals and the cast iron body is covered with epoxy paint.

Clear intake section

Immediately in front of the meter there must be an unobstructed straight section of pipe of the same diameter as the meter:

For DN 50-300mm 3 x DN
For DN 400-500mm 5 x DN

For spiral flows a flow straightener must be placed prior to the meter.

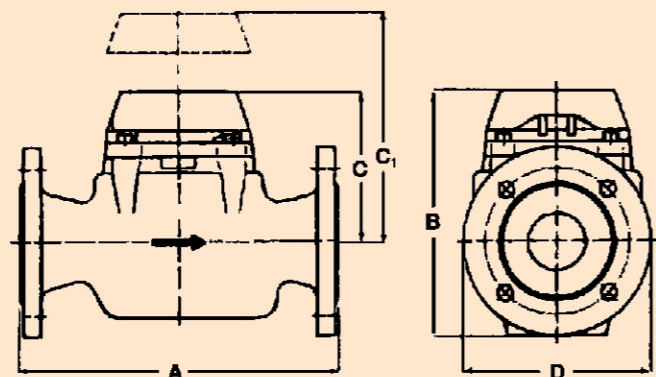
Technical data for WSDK and WSDH horizontal cold or hot water meters

Nominal width DN	mm	50	65	80	100	150
Performance for WSDK(40°C)						
Maximum continuous flow	Q_n m ³ /h	20	40	55	90	250
Maximum peak flow	Q_{max} m ³ /h	35	70	110	180	350
Min flow @±2%	Q_t m ³ /h	1	2.5	2.5	3	5
Min flow @±5%	Q_{min} m ³ /h	0.15	0.2	0.2	0.3	0.8
Startup flow (approx.)	m ³ /h	0.05	0.07	0.1	0.11	0.5
Performance for WPDH(130°C)						
Maximum continuous flow	Q_n m ³ /h	15	25	40	60	150
Maximum peak flow	Q_{max} m ³ /h	30	60	85	125	300
Min flow @±2%	Q_t m ³ /h	1.5	2.5	2.5	4	12
Min flow @±5%	Q_{min} m ³ /h	0.25	0.3	0.3	0.5	0.8
Startup flow (approx.)	m ³ /h	0.06	0.07	0.1	0.15	0.5
Performance for WSDH(180°C)						
Maximum continuous flow	Q_n m ³ /h	15	25	40	60	150
Maximum peak flow	Q_{max} m ³ /h	30	60	85	125	300
Min flow @±2%	Q_t m ³ /h	2.25	3.75	6	9	12
Min flow @±5%	Q_{min} m ³ /h	0.6	1	1.6	2.4	0.8
Startup flow (approx.)	m ³ /h	0.15	0.25	0.25	0.4	0.50
Smallest readable unit	lt	1	1	1	1	10
Metering capacity millions	m ³	1	1	1	1	10
Dimensions						
A length	mm	270	300	300	360	500
B overall height	mm	231	261	261	301	481
C height from centreline	mm	140	150	150	180	290
C ₁ height for servicing	mm	270	290	290	330	570
D width	mm	170	200	200	260	320
Weight	kg	14	18	20	33	101

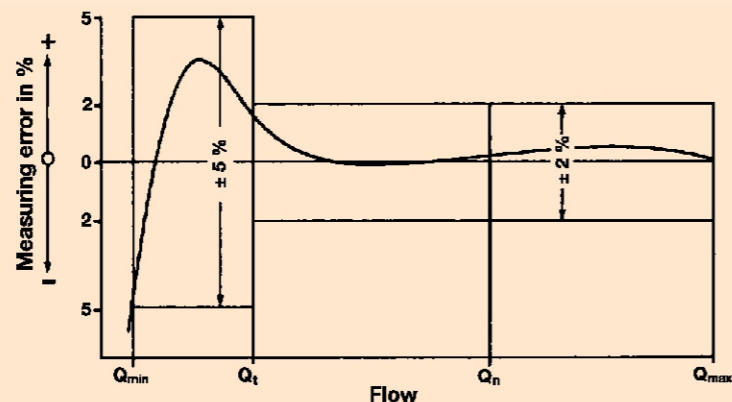
Technical data for WPKD and WPDH universal cold or hot water meters

Nominal width DN	mm	50	65	80	100	125	150	200	250	300
Performance for WPKD (40°C)										
Maximum continuous flow	Q_n m ³ /h	50	70	120	230	250	450	800	1250	1400
Class B Max. continuous flow	Q_n m ³ /h	15	25	40	60	100	150	250	400	600
Class B Max. peak flow	Q_{max} m ³ /h	30	50	80	120	200	300	500	800	1200
Min flow @±2%	Q_t m ³ /h	3	5	8	12	20	30	50	80	120
Min flow @±5%	Q_{min} m ³ /h	0.55	0.6	0.7	1.2	2.5	3	5	10	12
Performance for WPDH (130°C)										
Maximum continuous flow	Q_n m ³ /h	15	25	45	70	100	150	250	500	600
Maximum peak flow	Q_{max} m ³ /h	30	60	90	140	200	300	500	1000	1200
Min flow @±2%	Q_t m ³ /h	1.8	2	3.2	4.8	8	12	20	45	50
Min flow @±5%	Q_{min} m ³ /h	0.6	1	1.4	2	3.5	4.5	8	25	30
Startup flow (approx.)	m ³ /h	0.25	0.30	0.35	0.6	1.1	1.7	2	10	15
Smallest readable unit	lt	1	1	1	1	1	10	10	10	10
Metering capacity millions	m ³	1	1	1	1	1	10	10	10	10
Dimensions										
A length	mm	200	200	225	250	250	300	350	450	500
B overall height	mm	258	268	275	285	300	368	395	515	540
C height from centreline	mm	175	175	175	175	175	225	225	313	313
C ₁ height from servicing	mm	360	360	360	360	360	470	470	680	680
D width	mm	182	192	200	220	250	285	340	405	460

Dimensions



Typical accuracy curve



Approval number:

D 86
6.132.21

Cold water
Horizontal installation

D 86
6.132.22

Cold water
Vertical installation,
increasing and decreasing flow

22.16
84.01

Hot water
Horizontal installation

22.16
87.01

Hot water
Vertical installation,
increasing and decreasing flow