

H4000 Woltmann cold water meters

The accurate, robust meter



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The H4000 is a Woltmann-type meter designed for measuring bulk flows of cold potable water for revenue billing in commercial or industrial applications and distribution system monitoring.

Key features

- Inductive register for improved output performance and security
- Extended low and high flow performance
- Suitable for forward and reverse flow metering
- Robust shroud and copper can register for long-life and clear readability
- Longer wear life for optimum accuracy
- Exceeds Class B specification in forward direction and for sizes up to 150mm in reverse direction

Available in ten sizes for flow rates between 0.35 m³/h and 2000 m³/h, the H4000 operates at temperatures up to 50°C and a maximum working pressure of 16 bar. Accuracy is maintained in both forward and reverse flow, and the product offers the benefits of inductive-based pulse communications technology. The meter complies with all relevant international quality standards, substantially exceeding ISO4064 BS5728 Class B specifications for forward flow installations in horizontal, vertical and inclined pipelines.

Reverse flow metering

Available in sizes up to 150mm, reverse flow metering aids network management and ensures accuracy in revenue billing applications.

Robust construction

Like all Elster meters, the H4000 is manufactured from the highest quality materials for maximum resistance to wear and corrosion. Meter body and cover are epoxy powder coated for protection in all environments. Thrust pads and stub spindles are manufactured in tungsten carbide and jewelled rotor bearings are used for maximum wear life. All wetted materials are UK WRAS approved against health risk.

Flexible installation

Installation can be in horizontal, vertical and inclined pipelines. The H4000 also achieves good performance in abnormal installations.

Intelligent metering

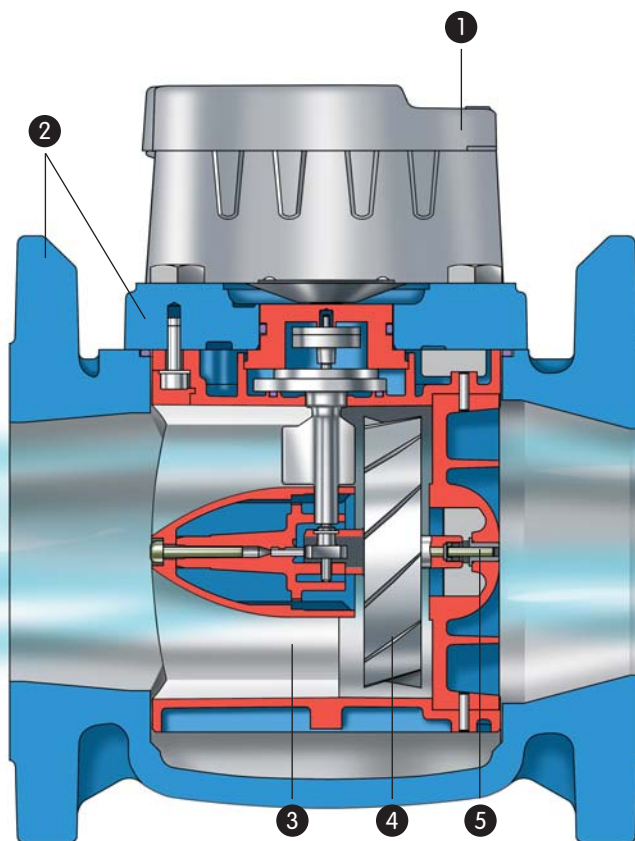
Fully compatible with Elster's Emeris range of intelligent meter reading systems, H4000 can provide even more vital management information to assist with effective distribution management, reduce water losses from leakage and improve customer service. When combined with the Emeris TRC600 unit (pictured below), a range of intelligent features including leakage alarms, datalogging and tariffs enables a complete metering system that addresses the efficiency objectives for water providers.



Reliable connectivity

The H4000 uses an inductive register to deliver enhanced communications performance and tamper proof security, offering protection against fraud. The H4000 is compatible with the Emeris PR7 inductive pulse transmitter, and offers both high and low speed bi-directional pulse capabilities as standard. The PR7 is fully compatible with other common ancillary devices including dataloggers and AMR systems.

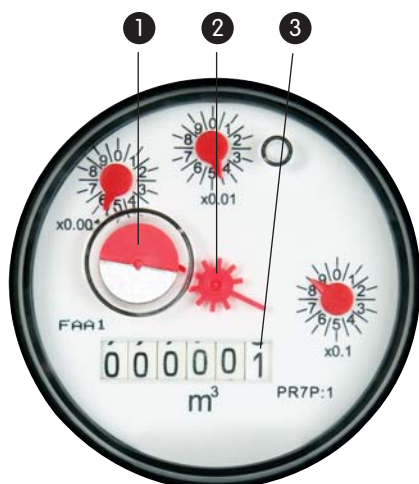
When used in conjunction with H4000's optional integrated pressure port, this allows convenient logging of flow-rate and pressure simultaneously for effective water resource management.



C&I inductive register

- 1 Inductive target for bi-directional pulse communications
- 2 Star tell-tale for easy-to-see flow detection
- 3 Easy to read display – 6 figure display for sizes 40mm to 125mm, 7 figure display for sizes 150mm to 300mm

- 1 Tamperproof shroud and robust lid
- 2 Epoxy powder coated body and cover
- 3 Maximum length flow straightening vanes
- 4 Low mass rotor with hydrodynamic thrust relief
- 5 Hard surface rotor bearings – tungsten carbide and synthetic sapphire

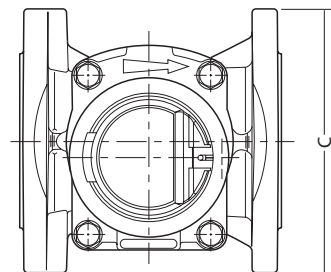
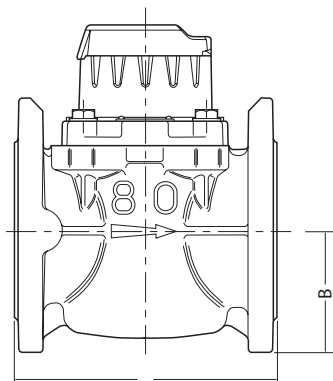
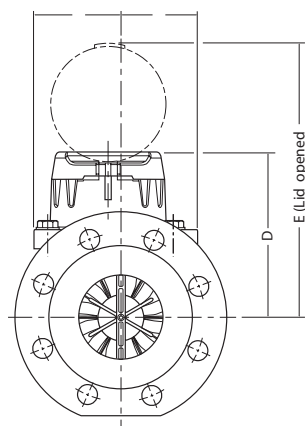


H4000 Performance (forward flow)

Meter size		mm	40	50	65	80	100	125	150	200	250	300
Overload flow	qs±2%	m³/h	90	90	120	200	250	250	600	1000	1600	2000
Permanent flow	qp±2%	m³/h	50	50	65	120	180	180	450	700	1000	1500
Transitional flow	qt±2%	m³/h	1	1	1.5	2	2	2	4	6	11	15
Minimum flow (horizontal)	qmin±5%	m³/h	0.35	0.35	0.4	0.5	0.6	0.6	1.8	4	6	12
Minimum flow (vertical)	qmin±5%	m³/h	0.45	0.45	0.75	1.2	1.2	1.2	4.5	7.5	12	18
Starting flow (approx.)		m³/h	0.15	0.16	0.17	0.22	0.25	0.25	0.90	1.2	1.8	1.8
Headloss at maximum flow		Bar	0.84	0.49	0.69	0.27	0.43	0.58	0.33	0.32	0.37	0.58
Maximum registration		millions of m³	1	1	1	1	1	1	10	10	10	10
Maximum water temperature		°C	50	50	50	50	50	50	50	50	50	50
Maximum working pressure		Bar	16	16	16	16	16	16	16	16	16	16

Standard ISO4064/BS5728/EEC specification Class B

Overload flow	qs±2%	m³/h	–	30	50	80	120	200	300	500	800	1200
Permanent low	qp±2%	m³/h	–	15	25	40	60	100	150	250	400	600
Transitional flow	qt±2%	m³/h	–	3	5	8	12	20	30	50	80	120
Minimum flow	qmin±5%	m³/h	–	0.45	0.75	1.2	1.8	3	4.5	7.5	12	18
Headloss at maximum flow		Bar	–	0.05	0.12	0.04	0.10	0.37	0.10	0.10	0.09	0.21
Headloss class		Bar	–	0.10	0.30	0.10	0.10	0.60	0.10	0.10	0.10	0.30



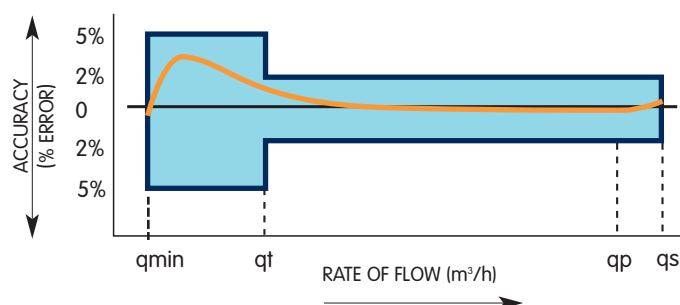
Dimensions and weights

Meter size	mm	40	50	65	80	100	125	150	200	250	300
Overall length (ISO) (A)	mm	300	200/300	200/300	200/350	250/350	250	300/500	350	450	500
Overall length (Kent) (A)	mm	311	311	–	413	483	–	–	520	–	–
Height (B)	mm	78	78	86	94	106	118	135	165	198	225
Height (D)	mm	148	148	148	159	159	159	206	228	246	246
Height (E)	mm	236	236	236	247	247	247	294	316	334	334
Flange Diameter (C)	mm	151	166	186	201	228	251	286	341	409	461
Weight (ISO)	kg	11.8	12.2/13.1	13/14.4	14.1/16.6	19.4/21	20.5	37.5/43.5	47.5	82	104
Weight (Kent)	kg	12	13.3	–	17.6	23.6	–	–	54	–	–

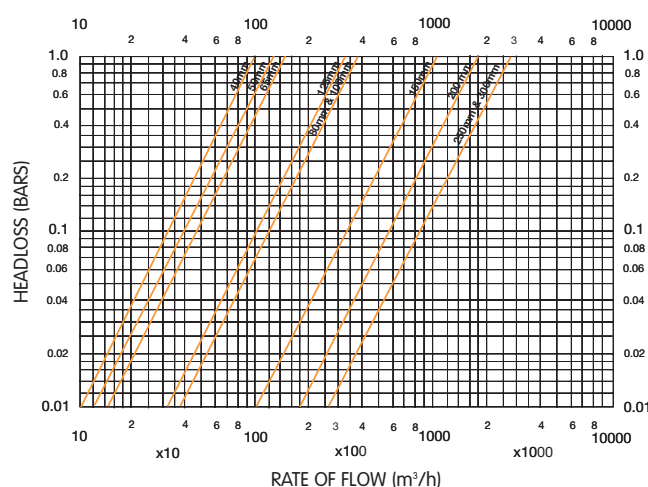
Accuracy Curve, Head Loss Curve and Pulse Connectivity shown overleaf

H4000 Performance to ISO4064, BS5728 Class B

Typical Accuracy Curve



Typical Head Loss Curve



Pulse Connectivity

Calculating Pulse Weights when fitted with PR7 inductive pulser

Pulse Weight is calculated by multiplying the Register 'Pulse Factor' (P) by the PR7 'K-Factor' (K)
 Pulse Weight (Litres per Pulse) = P x K

Size	Pulse Factor	K-Factor			
		K1	K10	K100	K1000
40mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
50mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
65mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
80mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
100mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
125mm	P:1	1 ltr	10 ltrs	100 ltrs	1,000 ltrs
150mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs
200mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs
250mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs
300mm	P:10	10 ltrs	100 ltrs	1,000 ltrs	10,000 ltrs

PR7 is an Open Collector pulse transmitter suitable for datalogging, AMR and telemetry equipment. Check with your equipment supplier for full details of compatibility.

Pressure equipment directive 97/23/EC.

This product is applicable in networks for the supply, distribution and discharge of water and associated equipment and is therefore exempt.



- On this example 50mm H4000 register, the user can identify from the dial plate both the:
 - Type of pulser to use ie PR7
 - Pulse Factor ie P:1



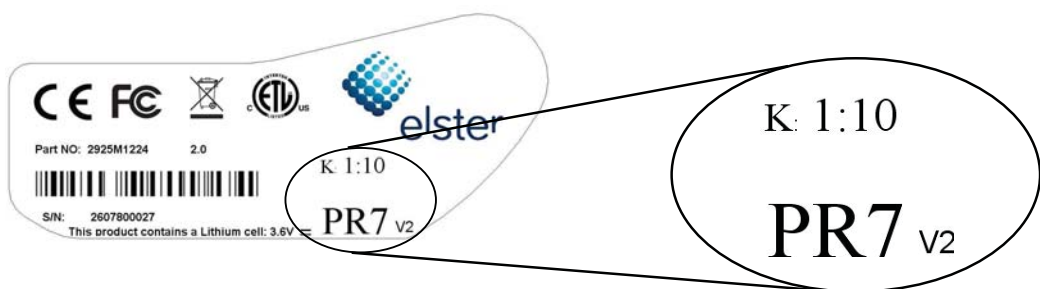
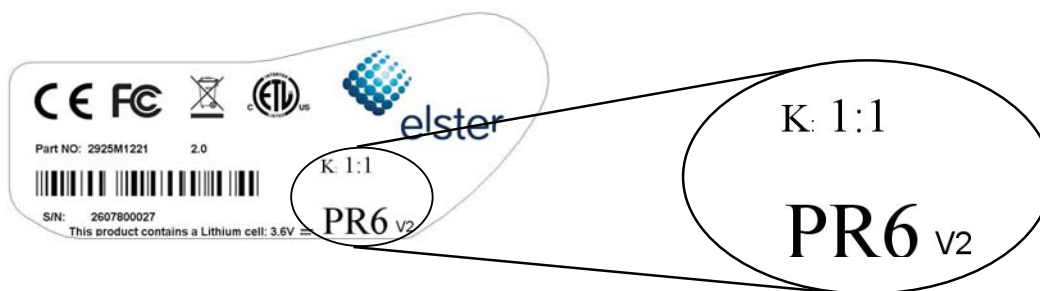
- On the PR7 unit the user can identify from the label the K-Factors for each output channel
- Primary Output K-Factor
- Secondary Output K-Factor

(UK) **IMPORTANT** : These instructions only apply to Falcon V2, and you can differentiate by the V2 on the label (see alternative instructions if there is no V2 on the label)

(DE) **WICHTIG**: Diese Einbauanleitung ist nur für Falcon Impulsmodule Version V2 zu verwenden. Wenn „V2“ nicht auf dem Modul aufgedruckt ist dann handelt es sich um Version V1, hierfür ist eine andere Einbausanweisung verfügbar.

(FR) **IMPORTANT**: Ces instructions sont uniquement valables pour le Falcon V2. Si il n'y a pas le V2 sur l'étiquette merci de vous référer aux instructions adéquates.

(ES) **IMPORTANTE**: Estas instrucciones solo son de aplicación para el Falcon V2, y se pueden diferenciar por la V2 de la etiqueta (ver instrucciones alternativas si no son V2)



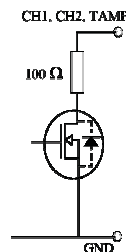
PR6/7 (V2) FITTING INSTRUCTIONS
PR6/7 (V2) EINBAUANLEITUNG
PR6/7 (V2) INSTRUCTIONS D'INSTALLATION
PR6/7 (V2) INSTRUCCIONES DE CONEXIONADO

VI Cable Connections

Anschlussbelegung Le Branchement des Câbles Conexionado de los Cables



PR6/PR7



CH1P = Both forward and reverse direction pulses are output here.
CH1D = D.Flag = Direction flag (High = Forward flow).
CH2P = Forward flow minus reverse flow. This pulse stream compensates for any backflow.
CH2C = Reverse flow Compensation flag. Low while backflow compensation is in process.
TAMP = Activates when the pulse unit is lifted off the meter. Active High. (Also activates when the internal battery is low).
GND = Common

PR7 K 1:- (Part no. 2925M1223 only)



CH1P = Both forward and reverse direction pulses are output here.
CH1D = D.Flag = Direction Flag (High = Forward flow).
VCC = optional Power Supply 3-3.6 V
NC = Not connected.
TAMP = Activates when the pulse unit is lifted off the meter. Active High. (Also activates when the internal battery is low).
GND = Common

All outputs are open collector. Pulse outputs are active low.
The outputs may be connected, via pull-up resistors, to up to 30V. Maximum sink current = 30mA.

* The pulse units can be used with other meters. Check the meter's dial face or shroud for the PR6 or PR7 marking



PR6/PR7



CH1P = Volumenimpulse (unabhängig von der Fließrichtung), aktiv „Low“
CH1D = Richtungs-Flag, „High“ = Vorwärtsfluss
CH2P = korrigierter Volumenimpuls = Vorwärtsfluss minus Rückwärtsfluss, aktiv „Low“
Während eines Rückflusses werden keine Impulse ausgegeben. Bei Vorwärtsfluss wird eine Impulszahl unterdrückt, die dem zuvor erfassten Rückflussvolumen entspricht.
CH2C = Rückwärtsfluss-Kompensations-Flag. Dieses Flag ist „Low“, wenn gerade eine Rückfluss-Kompensation durchgeführt wird.
TAMP = Alarm-Flag, signalisiert die Demontage des Impulsmoduls vom Zählwerk oder niedrigen Batterieladezustand, aktiv „High“
GND = Masse

About Elster Group

A world leader in advanced metering infrastructure, integrated metering, and utilisation solutions to the gas, electricity and water industries, Elster's systems and solutions reflect over 170 years of knowledge and experience in measuring precious resources and energy. Elster provides solutions and advanced technologies to help utilities more easily, efficiently and reliably obtain and use advanced metering intelligence to improve customer service, enhance operational efficiency, and increase customer benefits. Elster's AMI solutions enable utilities to cost-effectively deliver, manage, and conserve the life-essential resources of gas, electricity, and water. Elster has over 7500 staff and operations in 38 countries in North and South America, Europe, and Asia.

For additional information, visit www.elster.com.

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