

HYDRUS 2.0 BULK AUSTRALIA

ULTRASONIC METER

DIEHL
Metering



APPLICATION

HYDRUS 2.0 BULK is a static ultrasonic bulk water meter designed for applications of cold water supply enabling accurate measuring with long-term stability under difficult conditions (no measurement of air and insensitive to sedimentation). Developed within the framework of the MID, it complies with the European regulations and holds sanitary conformity certificates (UBA, ACS, WRAS and others). The integrated communication function supports meter data provision via mobile reading (walk-by/drive-by/passive drive-by) or fixed network (upgrade without on-site configuration). In combination with Diehl Metering's IZAR fixed network system, which stands out with extra high coverage and strong performance to reach hard-to-read locations, high data granularity and timeliness will be maintained. This is what makes it a high responsive infrastructure to take actions immediately.

FEATURES

- ▶ DN 50 to 200
- ▶ NMI approved with dynamic range up to R 800
- ▶ IP 68 suitable for outdoor installations
- ▶ Integrated radio communication based on Open Metering telegram (OMS Generation 3 or 4, Profile B)
- ▶ Interfaces: Wired M-Bus / Pulse / Pulse or wireless M-Bus / L-Bus / Pulse
- ▶ Display with alarm codes and status symbols
- ▶ Battery lifetime up to 16 years
- ▶ U0 / D0, no need for calming sections

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TECHNICAL DATA

HYDRUS 2.0 BULK Australia			
Medium temperature range	°C	+0.1 ... +50 (T50)	
Accuracy		Accuracy class 2 acc. to ISO 4064:2014 / OIML R49:2013	
Ambient operating temperature	°C	-10 ... +55	
Ambient storage temperature	°C	-10 ... +70 (>35 °C max. 4 weeks)	
Environmental class		O (Outdoors)	
Mechanical environmental class		M2	
Electromagnetic environmental class		E2	
Flow profile sensitivity class		U0/D0 (no calming sections required)	
Installation position		Horizontal, inclined 45°, inclined 90°, vertical	
Nominal pressure	PN	bar	16
Minimum operating pressure		bar	0.3
Pressure loss class	Δp	bar	0.16
Power supply		3.6 V lithium battery (D-cell)	
Battery lifetime ¹		Up to 16 years (all communication interfaces)	
Communication interfaces		Optical, OMS wireless M-Bus 434 or 868 MHz, M-Bus, L-Bus and Pulse	
Data storage		For errors, alarms and measuring values, data logging capabilities to record up to 512 daily +32 monthly values	
Protection class		IP 68	

¹ Depends on the sending interval of the radio telegram, the telegram length and the ambient temperature at the installation

TECHNICAL DATA - DISPLAY

HYDRUS 2.0 BULK Australia	
Display indication	LCD, 9-digit, additional symbols / display counter / unit
Units displayed DN 50 - 100	Volume (m ³ + 2 decimal places) and flow rate (m ³ /h + 3 decimal places)
Units displayed DN 125 - 200	Volume (m ³ + 1 decimal place) and flow rate (m ³ /h + 3 decimal places)
Values displayed	Display test - volume - battery lifetime - firmware version - software checksum - flow - current/continuous/historical error - alarm status - high resolution volume - due date - due date volume - reverse volume - display counter - low battery indication - leakage indication - metrological log access - radio signal ON/OFF - alarm indication - meter lock ON/OFF

INTERFACES - OVERVIEW

HYDRUS 2.0 BULK Australia	
Optical	For switching the display loop
Radio	434 Open Metering Standard radio frame (R3) for mobile reading sent every 14 seconds, long range radio frame (R4) for fixed network sent every 5 minutes, extra long range radio frame (R4+) for fixed network sent every 15 minutes
M-Bus	2400 baud, cable length 1.5 m, power supply only via built-in battery - is combined with two Pulse outputs
L-Bus	In combination with radio, cable length 1.5 m (only one interface communicating at the same time)
Pulse (Open drain)	Two Pulse outputs, or one Pulse and one L-Bus output, Pulse cable length 5 m

SECURITY

HYDRUS 2.0 BULK Australia	
Versions	OMS Generation 3 or OMS Generation 4, Profile B, selectable

PRIVACY

The HYDRUS 2.0 BULK saves daily 512 consumption values. This data can be read locally and accessed only by using the IZAR@MOBILE 2. As a second logging, a small amount of 32 monthly consumption values can be stored. The HYDRUS 2.0 BULK has a minimal sending interval of about 14 seconds and uses the OMS Generation 3 or 4, Profile B security level. Both, the radio protocol and the optical interface are encrypted by default.

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VOLUME / PULSE OPEN DRAIN

HYDRUS 2.0 BULK Australia		
Max. input voltage	V	30
Max. input current	mA	27
Max. voltage drop at active output	V/mA	2/27
Max. current through inactive output	µA/V	5/30
Max. reverse voltage without destroying outputs	V	6 (in case current does not exceed 27 mA)
Pulse rates DN 50	l/pulse	1 / 10 / 100 / 1000
Pulse rates DN 65 - 150	l/pulse	10 / 100 / 1000
Pulse rates DN 200	l/pulse	100 / 1000
Pulse output 1 variants	Total volume or forward volume	
Pulse output 2 variants	Flow direction or error, reverse volume	
Pulse frequency	Max. frequency 10 Hz	
Pulse width	50 ms	

POSSIBLE COMMUNICATION INTERFACES

HYDRUS 2.0 BULK Australia	
Wireless M-Bus/Pulse/L-Bus	3 wire
Wireless M-Bus only	wireless
M-Bus/Pulse/Pulse	5 wire
IZAR BE PULSE	4 wire

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PERFORMANCE DATA - HORIZONTAL

Nominal diameter	DN	mm	CW 50	CW 80	CW 100	CW 150	CW 150	CW 200	CW 200
Meter Length (Without Flange Kit)	L	mm	311	413	483	300	500	350	520
Permanent flow rate	Q ₃	m ³ /h	25	63	100	250	250	400	400
Dynamic (Q ₃ /Q ₁)	R		800H 250V	800H 250V	800H 250V	800H 250V	800H 250V	800H 250V	800H 250V
Overload flow rate	Q ₄	m ³ /h	31.25	78.75	125	312.5	312.5	500	500
Transitional flow rate	Q ₂	l/h	50	126	200	500	500	800	800
Minimum flow rate	Q ₁	l/h	31.25	78.75	125	312.5	312.5	500	500
Starting flow rate		l/h	15	35	45	140	140	200	200
Pressure loss at Q ₃		bar	0.16	0.16	0.13	0.11	0.11	0.12	0.12
Pressure loss at Q ₄		bar	0.25	0.25	0.2	0.18	0.18	0.19	0.19
Maximum flow rate ²	Q _{high}	m ³ /h	54	134	250	625	625	1000	1000
Flow coefficient	K _v	m ³ /h	63	158	280	747	747	1140	1140

² Outlet pressure minimum 3 bar, maximum 100 hours per year, closed pipeline network

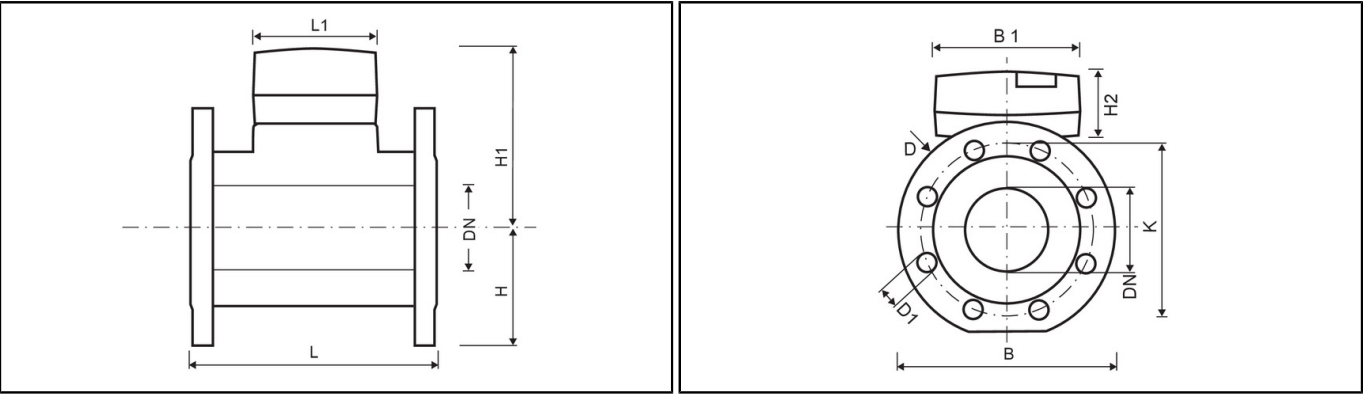
APPROVAL

HYDRUS 2.0 BULK Australia	
Metrological class	NMI 14/3/66
WaterMark Certificate	GM-WM-040207
Standards	ISO 4064, OIML R49, AS 3565
Sanitary conformity	UBA, ACS, WRAS

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DIMENSIONS

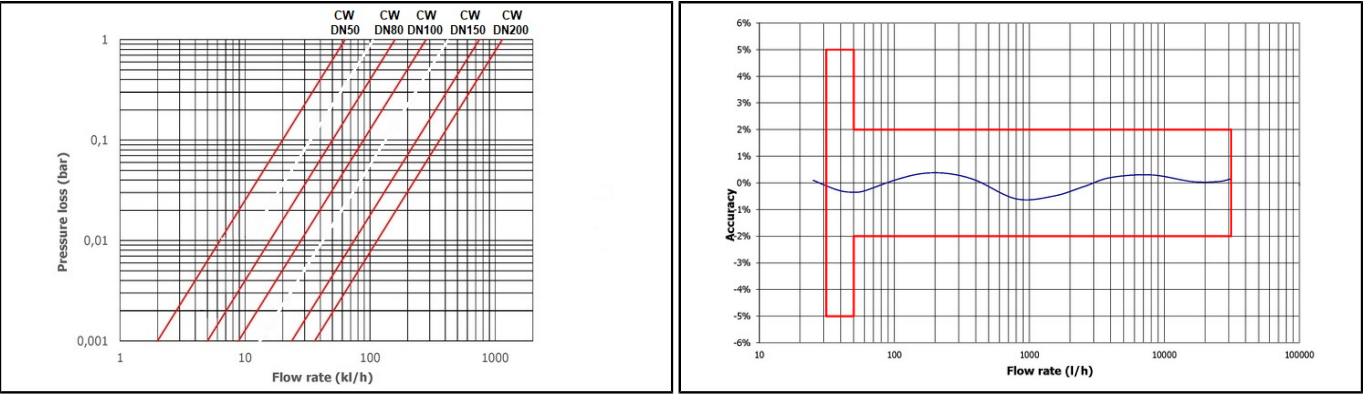


Nominal diameter	DN	mm	CW 50	CW 80	CW 100	CW 150	CW 150	CW 200	CW 200
Overall length	L	mm	311	413	483	300	500	350	520
Flange diameter	D	mm	150	185	215	285	285	340	335
Hole circle diameter ³	K	mm	114	146	178	235	235	292	292
Number of screwholes ³		pcs	4	4	4	8	8	12	8
Screwhole diameter ³	D1	mm	18	18	18	18	18	18	18
Height	H	mm	70	84	102	135	135	161	160
Height	H1	mm	121	147	165	185	185	215	215
Height	H2	mm	61	61	61	61	61	61	61
Counter length	L1	mm	98	98	98	98	98	98	98
Meter width	B	mm	150	340	215	285	285	285	280
Counter width	B1	mm	139	139	139	139	139	139	139
Overall weight (approx.)		kg	10	16	22	38	45	51	55

³ According to AS4087 PN16, other drilling schemes on request

⁴ Rotatable flange

PRESSURE LOSS GRAPH / TYPICAL ERROR GRAPH



Pressure loss graph

Typical error graph - Q₃ 25 m³/h