Honeywell | Water Metering

(T)PR 6/7/11 Falcon communication modules

High data quality and flexibility for remote metering

- For ELSTER water meters with communication interface
- Pulse modules with two outputs (PR 6/7)
- Radio module TPR 11/7
- M-Bus module acc. to EN13757 (PR 6/7 M)
- Integrated forward and backflow detection
- Non-reactive and tamper-resistant

PR7

TPR11

Falcon communication modules are designed for use in domestic water meters and Woltman meters. Tried and proven over 30 years, the contact scanning technology offers excellent safety, performance and reliability for the transmission of meter readings, independent from any need of pulse, radio or MBus signals.

The mode of operation relies on the principle of electrical oscillating circuit. This information displays the number of electrical oscillations that exceeds a fixed treshold value. Once the rotating resonant target of the water meter register is located under one of the 3 coils of the Falcon module, the vibration is dampened. As a result of the dampening effect, only a small number of amplitudes exceeds the fixed treshold value. This change is measured and processed by a processor.

By using 3 coils there is a detection of forward and revers motion, as well as a redundancy, that improves the data quality and reliablity. A compliance of the transmitted meter readings with the mechanical water meter register is ensured. The installation is very simply and can be retrofitted at any time without reconstruction or damage of the parameters relevant to calibrating.

Falcon pulse module PR6/7 Technical Data

Range of application

Meter type water meter	V200	V200P	V210	V210P	C4000 bypass meter	H4000	H4200	S2000	C4000 main meter	C3100 main meter
PR6	X	X	X	X	X	–	–	–	–	–
PR7	–	–	–	–	–	X	X	X	X	X

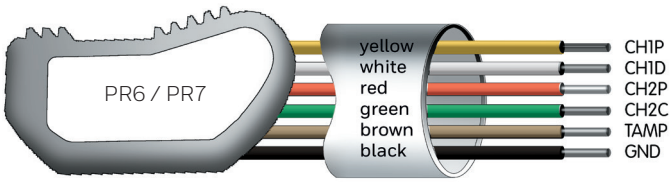
Pulse values

Nominal size of water meter		PR6			PR7					
	DN (mm)	15 - 40		DN (mm)	40 - 125		150 - 300		400 + 500	
Pulse output		CH 1 P	CH 2 P		CH 1 P	CH 2 P	CH 1 P	CH 2 P	CH 1 P	CH 2 P
	Order No.	l/pulse	l/pulse	Order No.	l/pulse	l/pulse	l/pulse	l/pulse	l/pulse	l/pulse
	2925M1221	1	1	–	–	–	–	–	–	–
	2925M1265	1	10	2925M1224	1	10	10	100	100	1.000
	2925M1261	1	100	2925M1263	1	100	10	1000	100	10.000
	2925M1262	1	1,000	2925M1264	1	1,000	10	10,000	100	100,000
	–	–	–	2925M1222	10	10	100	100	1,000	1,000
	–	–	–	2925M1283	25	50	250	500	2,500	5,000

Pin assignment

CH1P	Volume pulses (independent of flow direction), active „low“
CH1D	Direction flag, „high“ = forward flow
CH2P	Adjusted volume pulse = forward flow minus backflow, active „low“. During a backward flow no pulses are send to the output. After renewed forward first the pulse numbers which are stored in the memory will be deleted. This pulse numbers are generated from the previous backward flow. After deleting the memory forward pulses will be send to the output only.
CH2C	Backflow compensations flag. This flag is „low“, if currently a backflow compensation is in progress.
TAMP	Alarm flag, signalizes the removal of the pulse module from the register or low charge of battery, active „high“.
GND	Ground

Pin assignment



Technical data

Contact load		max. 30 V DC max. 30 mA
Frequency		max. 50 Hz
Battery liftetime		10 years (at 25°C environmental temperature)
Operating temperature		-15 °C to +65 °C
Protection class		IP68
Connecting cable	PR6	2 m
	PR7	5 m

Pulse width

actual version V2			old version V1*		
PR6	K = 1	80 ms	PR6	CH 1 P**	min. 50 ms
	K = rest	100 ms		CH 2 P**	min. 50 ms
PR7	K = 1	10 ms	PR7	CH 1 P	5 ms
	K = rest	100 ms		CH 2 P**	min. 50 ms

* without labelling on module
** pulse-break ratio 1:1

Falcon M-Bus module PR6/7 M Technical Data

Range of application

Meter type water meter	V200	V200P	V210	V210P	C4000 bypass meter	H4000	H4200	S2000	C4000 main meter	C3100 main meter
PR6 M	X	X	X	X	X	–	–	–	–	–
PR7 M	–	–	–	–	–	X	X	X	X	X

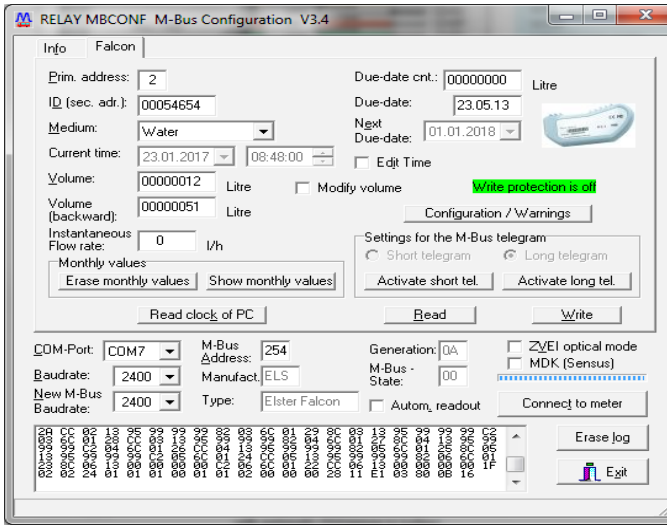
M-Bus protocol content

Protocol content	13 monthly volume values with date
	13 flow rate maximum values with date
	13 leckage alarm
	Due date volume
	Date and time
	Alarm signal – battery – manipulation with date – backflow with date
	Pulse value
	Current flow rate l/h or m^3/h with flow rate calculation 1 min – 60 min
	Backflow volume
Long and short telegram	Switchable
Write protection	On / Off
Programming	via MB Conf-Software
Primary/secondary addressing	with wildcard
Supported functions	FCB-Bit, SND_NKE, REQ_UD2, SND_UD,
Conformity	DIN EN 13757

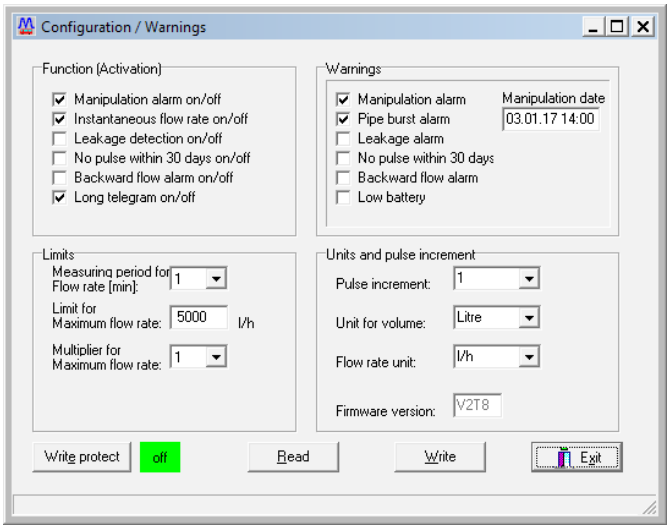
Technical data

Protection class	IP68
Environmental conditions	
Operating temperature	-15 to +65 °C
Storage temperature	-20 to 70 °C
Humidity	up to 100% humidity
M-Bus cable	
Cable type	UL2405, 24AWG /2C with 2 insulated conductor sleeves. No polarity
	Length PR6: 2 m; PR7: 5 m.
Power consumption	
Principle	Remote supply from the M-Bus with automatic changeover to battery operation in case of Bus failure
Bus operation	max. 1.5 mA (1 standard load)
Battery	Lithium Thionyl Chloride 3.6V, 1200mAh
Battery lifetime	typical 10 years in battery-only operation (at 25°C environmental temperature)
M-Bus: physical characteristics	
Rest current	M-Bus typ. 1.4 mA, maximum 1.5 mA (1 standard load)
Space(0-Bit) Strom	Standby current + typ. 13 mA
M-Bus interface	TI TSS721 with 2 x 215 W protective resistor

Example register



Falcon register



Configuration/alerts register

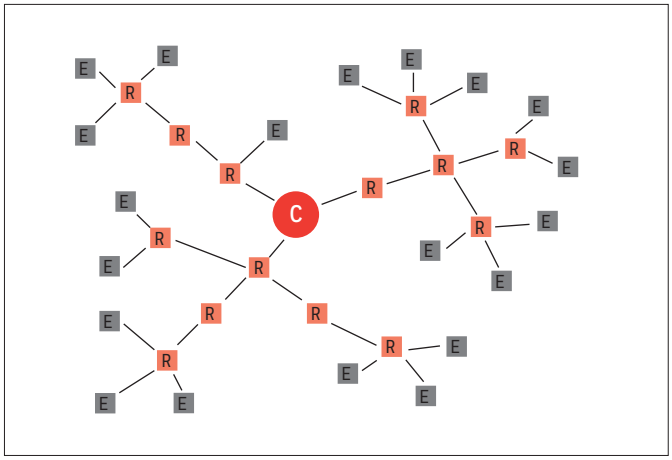
Radio module TPR11/7 Technical Data

Range of application

Meter type water meter	V200	V200P	V210	V210P	C4000 bypass meter	H4000	H4200	S2000	C4000 main meter	C3100 main meter
TPR11	X	X	X	X	X	–	–	–	–	–
TPR7	–	–	–	–	–	X	X	X	X	X

TPR11

Diagram wireless network



- E: End point (TPR7/11 with consumption meter)
- R: Repeater (TRC601 or TRC603)
- C: Central (Receiver: Handheld, antenna)

Radio protocol content (wavenis)

Protocol content	
Standard	Initial meter value
	Pulse value
Data storage	24 values (extended data memory with 2,100 values) pgrogrammable to: – monthly values – weekly values – daily values – free intervall (1 min - 31 h)
Alarm message	Battery
	Cable break
	Pipe burst
	Backflow
	Manipulation
Time management	Day/night shut-off
	On / Off during weekend

Technical data

Protocol		Wavenis
Frequency technology		FHSS (15 radio channels) (Frequency Hopping Spread Spectrum)
Frequency		868 MHz, ISM-Band
Transmission type		Bi-directional
Transmission power	mW	25
Distance	m	up to 600 (depending on local circumstances)
Transmission		up to 9.6 kbits/s
ERP		8 dBi
Reference standard		CE (EN300-683)
Certification		ART (EN300-220-1)
Conformity		RTTE 99/5/EC
Operating temperature		-15 °C bis +55 °C
Protection class		IP68
Battery liftetime		up to 15 years (at 25°C ambient temperature)

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