

hidroconta
metering technology

WHEN WATER COUNTS



IoT

DEMETER 4H

Hecho en España Made in Spain

hidroconta.com

Demeter 4H is a remote management and monitoring system for hydrants and metering equipment related to water consumption and distribution.

Control of **4 hydrants**

Charging options: **12VDC/5W solar panel and/or battery charger**



Although it has been designed with the needs of irrigation communities in mind, it is easily adaptable to other uses (reservoirs, dataloggers, etc.).

Data storage of **20,000** records

Communication **Radio / GPRS**

Adaptable and scalable

This equipment is modular and adjustable to most installations. Can be adapted to the needs of the installation situation thanks to the different installation possibilities. GPRS, RADIO, MIXED (GPRS, RADIO).

Remote control software

Hidroconta has provided its system with the flexibility to work with all mobile telephone operators. It includes a Scada-Web interface that allows the equipment to be operated from any device with an internet connection. The software allows: detecting alarms, controlling quotas, generating records and managing users, among others.

Technical specifications

- ✓ It can communicate with a central server via GPRS technology, or free band radio, and can operate without interruption for 6 months in the absence of communications without any loss of information.
- ✓ It is a totally self-sufficient equipment. It is powered by batteries and, as additional support, it can manage its charge by using a small solar panel.
- ✓ Possibility of wireless firmware reprogramming.
- ✓ The most basic unit is capable of controlling up to four hydrants, one digital input and output and two analogue inputs, although this number can be increased through the use of expansions.
- ✓ It can operate as a GPRS or radio end-point and as a mixed GPRS/Radio communications concentrator. It collects and concentrates communications from a radio sub-network and relays them via GPRS.

Assembly



Battery

PCB

Cable Glands

BOx

Antenna

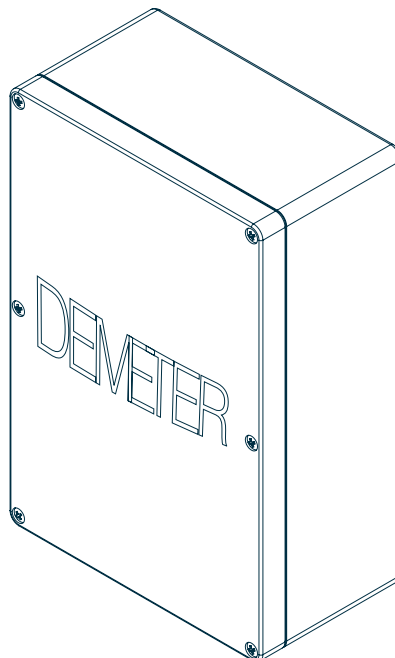
REV8

Dimensions



PHYSICAL CHARACTERISTICS

IP	65
Enclosure material	Polycarbonate
Dimensions	24,5 x 16,5 x 10 cm



**Possibility of connection
 SP21 IP68**

3

CONSUMO

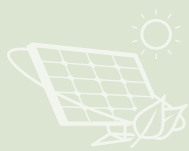
126uA in low power mode (without communications)

42uA additional per expansion

19 mA with GPRS connection

TBD mA with Radio connection

TBD mA with mixed GPRS/Radio connection



Charging options:

- 12VDC/5W solar panel.
- Charger for 220VAC lead acid batteries input at 6VDC/1A output.



Power options:

- 6VDC/12Ah rechargeable lead acid battery.
- Power supply 220VAC input to 6VDC/2A output.

Input and output

➔ Analogue Inputs

- 2 Analogue inputs of 0-20/4-20 mA with 10 bits resolution.
- The equipment has a 15Vdc terminal to supply the probes.

➔ Meter inputs

- Demeter 4H has 4 counter inputs.
- Designed for reed type potential free contact. Consumption of 30uA with closed contact.
- They can also be used with “open collector” type pulse emitters (respecting polarity).

➔ Digital input

- Potential free contact. Similar to that described for the counter inputs.
- Useful for use with intrusion detectors, digital pressure switches, etc.

← Solenoid valve outputs

- Demeter 4H has 4 outputs for 12V latching solenoid valves.
- Triggering is done using the energy stored in a 4700uF capacitor charged to a voltage of 15V. More than enough for most manufacturers.

← Relay outputs

- Digital output of potential free contact by means of a 220V/2A relay.

Comunicaciones

GPRS MODEM

Quadband 850/900/1800/1900 MHz.

Compatible with GPRS frequencies worldwide.

Low consumption.

Temperature range from -40 to + 85 ° C

MODEM RADIO BANDA LIBRE

Frequency 433 Mhz

It allows modulation: FSK, GFSK, MSK, GMSK and LoRA.

Sensitivity up to -148 dBm.

Excellent immunity to noise.

Operating temperature range -20 to + 70 ° C.

GPRS ANTENNA

Frequency AMPS (824-894 MHz)
ISM (868 MHz)
GSM (900 MHz)
DCS (1800 MHz)
PCS (1900 MHz)
3G (UMTS 2.1 GHz)
WIFI / BLUETOOTH (2.4 GHz)

Impedance (Ohm) 50

Polarisation Lineal

Gain 0dBi

VSWR <2:1

Operating Temperature -40°C to +85°C

ANTENNA RADIO

2 types of antenna available

ISM frequency 433MHz

Impedance 50 Ohms

Linear polarisation

Internal installation Gain 0 dBi

VSWR <2:1

Operating temperature -40°C to +85°C

TETRA frequency (380 - 500 MHz)

Impedance 50 Ohms

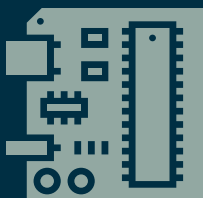
External installation on mast Vertical Polarisation

Gain 5 dBi Max

VSWR <2:1

Operating Temperature -40°C to +85°C

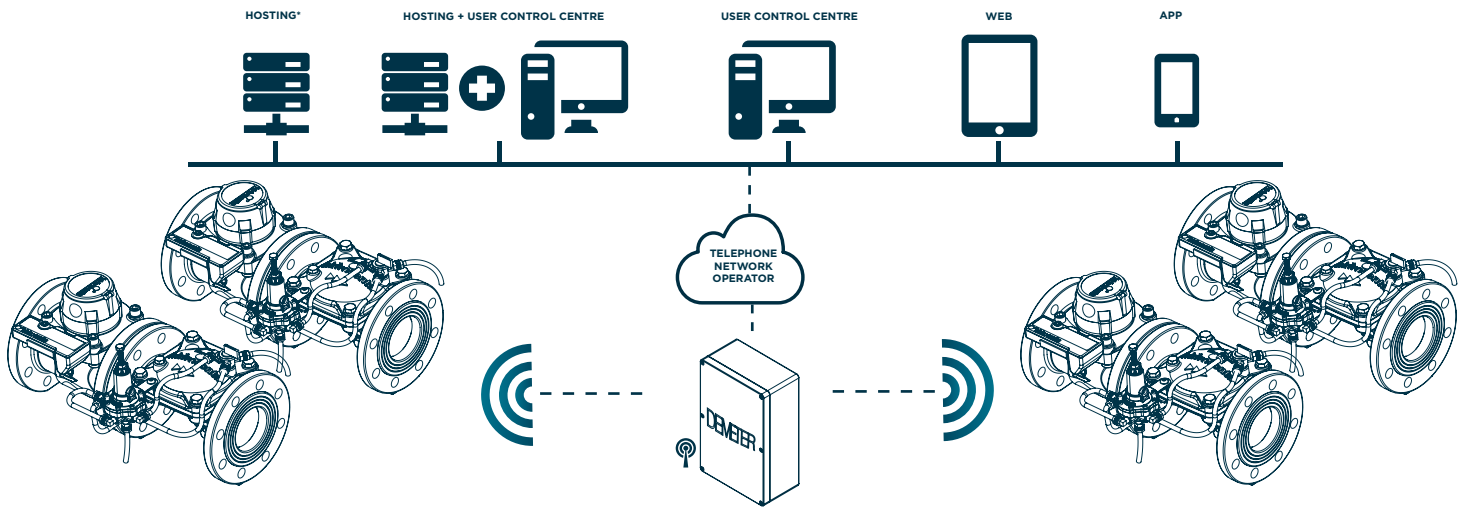
Memory



Demeter 4H is operated by a microcontroller with 256 KB of storage for firmware and 96 KB of volatile memory for program data.

Additionally there is an external non-volatile memory with 244 KB for history and configuration storage. Sufficient to store more than 20,000 records.

GPRS topology

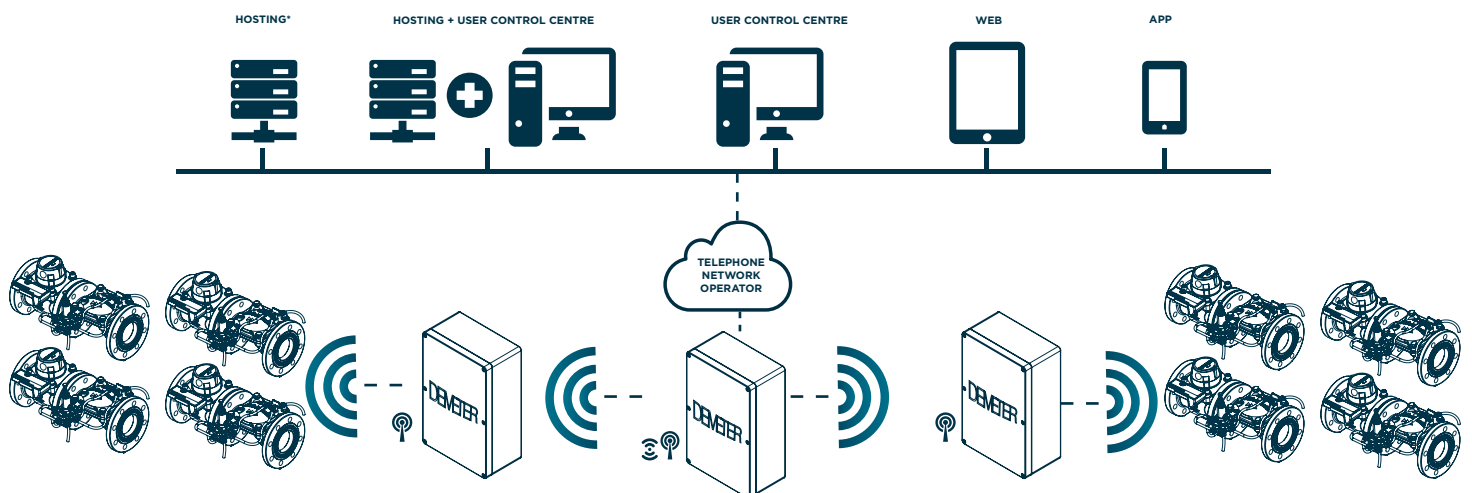


The Demeter GPRS model consists of Remote Units equipped with GPRS modems.

The Units automatically transmit all data directly to the Cloud, and the information can be directly available at the same time on any smart device (computer, Tablet, Smartphone, etc.).

GPRS technology allows for a much simpler and lower cost installation compared to other technologies.

Mixta topology



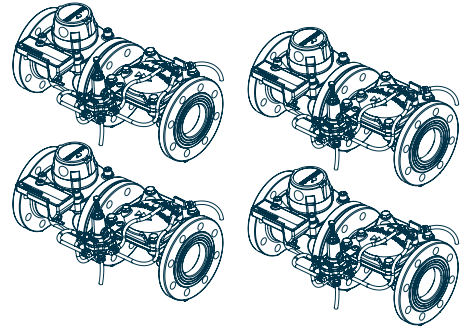
DEMETER Remote System is able to combine GPRS and Radio system to adapt the system to any situation.

The mixed topology consists of remote terminal units equipped with a RADIO modem and GPRS / RADIO concentrator units that receive the data from the RTUs and send it directly to the cloud server.

In this model it is also possible to use GPRS remote terminal units for control points with mobile coverage that are far away from the concentrator units, avoiding the use of repeaters.

RADIO topology

USER CONTROL CENTRE



The DEMETER Remote Radio System has been specifically designed for Irrigation Communities with existing RADIO installations or where GPRS coverage is not available.

The Radio version consists of a Remote terminal unit equipped with a RADIO modem and a unit concentrator that receives the information from the RTUs and sends it to the central server.

The units will periodically (at intervals defined by the administrator) transmit all the information to the Central Server, being available to the users.

REV.8

DEMETER WEB



Project
visualisation overview



Hydrological balance



Deposit level



Pressure



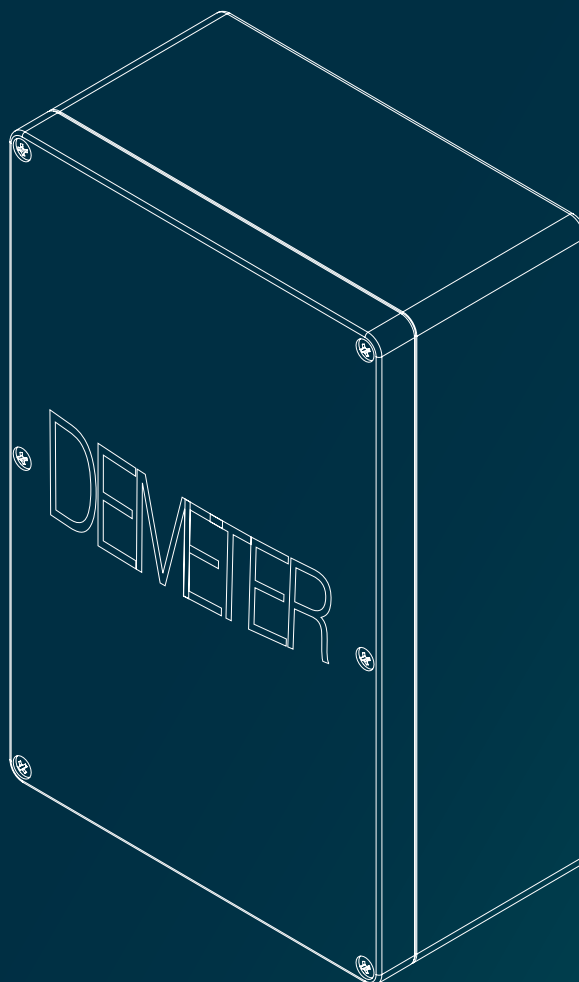
Average consumption



Alarms notification

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