



IRRIGATION

HYDROPASS TYPE HNS

Precision metering for irrigation network

S.I.S. Smart Irrigation System



ACMO

HYDROPASS
AH1000054

DN100

Q3 10m3/h

R250

LP 10

PN10

10000



CE

DROLTRA-100-00

ACMO S.p.A.

VIA TORRELLICCI 24 40024 S. MARCO
BOLOGNA (BO) ITALIA

ACMO

VALVES AND TECHNOLOGIES FOR WATER WORLD



HYDROPASS HNS
ULTRASONIC METERS FOR IRRIGATION

The HYDROPASS HNS offer the most accurate measurement to monitor efficiency in large irrigation networks at the lowest cost.

With a robust design suitable for working in hard environments conditions and no moving parts, the HYDROPASS HNS is a very reliable maintenance free solution and provides consistent measurements during the product lifetime.

The HYDROPASS HNS distinguish itself for new capabilities, thanks to its wireless network or pulse interfaces. In this way, the user can create flexible intelligent irrigation network monitoring systems to reduce their operating costs.

With a cost effective design, HYDROPASS HNS product line will open new perspectives for a smarter management of irrigation networks.

The HYDROPASS HNS is composed of:

- Flanged hydrometer
- Integrated ultrasonic meter
- Diaphragm hydraulic valve
- Solenoid valve
- Integrated flow limiter
- Robust stainless steel cover
- Fittings for connection to the field
- Stand alone electronic unit
- Electronic cards
- Communication interface

ADVANTAGES OF HYDROPASS HNS COMPARED TO SIMILAR HYDRANTS BUT WITH MACHANICAL METER (WALTMANN TYPE)

“No-revenue water” total recovery and immediate investment recovery.

No influence from external magnetic fields.

No maintenance for the meter (no moving parts).

Certified Metrology by European official laboratory according to ISO 16399 (specific for irrigation).

Elimination of any possible controversy with the user regarding the measure.

Sensors specially designed for irrigation water (no clean water).

No sedimentation of suspended solid material that can limit or exclude the sensor transmission inside the hydrant.

PRODUCT LINE FEATURES

MAIN CHARACTERISTICS

- Nominal diameter: DN 50, 80, 100, and 150
- Maximum admissible pressure: 16 bar
- Temperature Class: T50
- Flow profile sensitivity: U0D0
- Precision Class: 2 , R 500/250
- Position: H or V

PHYSICAL

- No mechanical movement
- Flange interface
- Epoxy coated Cast Iron
- Rugged mechanical design IP68
- Battery powered: 10 years Life expectancy

ENVIRONMENTAL

- Environmental class: C (fixed meters outdoors)
- Electromagnetic class: E1, Mechanical class M1 (according to OIML R49-1)
- Submersible design: IP68

COMMUNICATION INTERFACE

- Wireless: Sigfox, NGC, Lora, GPRS

CERTIFICATIONS

- Standards: ISO 16399 (based on OIML R49:2013, ISO4064:2014, EN 141554:2005)
- ISO 9001

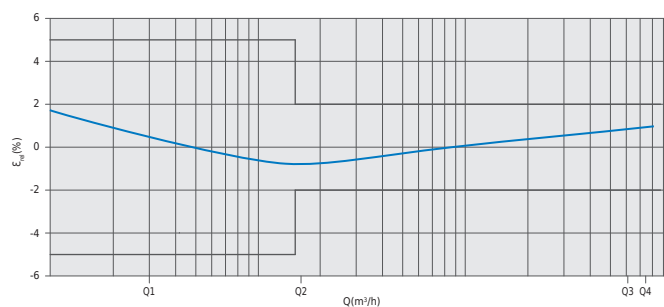
HYDROPASS TYPE HNS



PERFORMANCE DATA - ACCURACY

DN	Q4 [m3/h] Maximum flowrate	Q3 [m3/h] Nominal flowrate	Q2 [m3/h] Transitional flowrate	Q1 [m3/h] Minimal flowrate	Ratio (Q3/Q1)
80	80	63	0.40	0.25	250
100	125	100	0.63	0.40	250

Max pressure: PN16



THE HYDROMETER

Flanged Hydrometer one-piece body PN16 with integrated ultrasonic meter.

Diaphragm hydraulic valve with special design for irrigation use, tested for 5.000 cycles.

Range of pressure: 0,5 bar - 16 bar.

INTEGRATED FLOW LIMITER

High performance construction with self-modulating rubber washer and low pressure lost. Free bore and totally integrated in the fitting with tampering system.

DN	RANGE Q _n [l/sec]
80	3 - 5 - 8 - 10
100	3 - 5 - 8 - 10 - 12 - 15 - 20

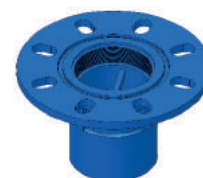
3 fixed connection options:



ELBOW



STRAIGHT



FLANGED



THE ELECTRONIC CARDS (HYDROKEY)

Are tools provided to the user and the operator, are made of integrated customizable graphic display and four buttons (user friendly). There are three types of electronic cards provided to user and managers:

- Standard
- Hybrid
- Contact less

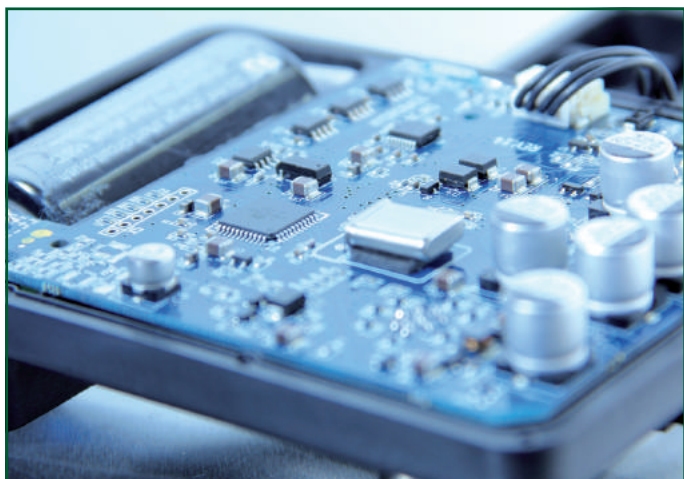
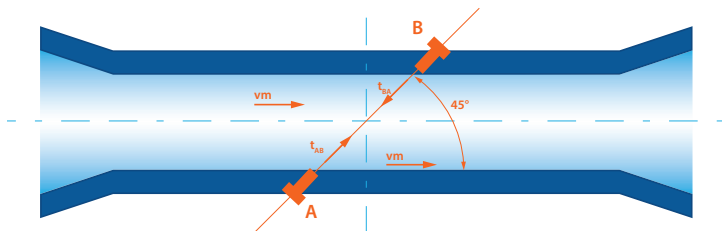
For user: hydrant opening/closing irrigation, Shifts, credits, etc..
For the operator: Control/Maintenance



MODE OF OPERATION (Transit Time)

The ultrasonic meter for irrigation uses four ultrasonic transducer that can both send any receive sound. These are two parallel channels in the body, each channel has two face-to-face transducers. The sound is transmitted from one transducer to the other across the moving water.

The sound goes faster following the flow direction because water carries it; while counterflow, it is slowed by water. Measuring the time of flight in both directions, flow velocity is deduced without any contact or moving parts. The flow rate can be calculated thanks to the section of the body.



ELECTRONIC UNIT (STAND ALONE) ULTRA LOW POWER TECHNOLOGY

Embedded inside the stainless steel box totally devoid of any components that can be damaged (no display or buttons) protecting class IP68 with his own battery, replaceable and with 10 years of autonomy.

The unit can be configured in:

- Standard
- Hybrid
- Contact Less

HYDROPASS TYPE HNS

COMMUNICATION INTERFACE (Ultra Low Power Technology)

Hydrometer radio device (TRANSMITTER)

- Metering data acquisition and transmission to the Gateway.
- Able to receive working parameter and gateway status.
- Robust plastic cover, insulation grade IP68.
- Data protection crypted protocol with checksum.
- Long life battery guaranteeing at least 10 years.



GPRS

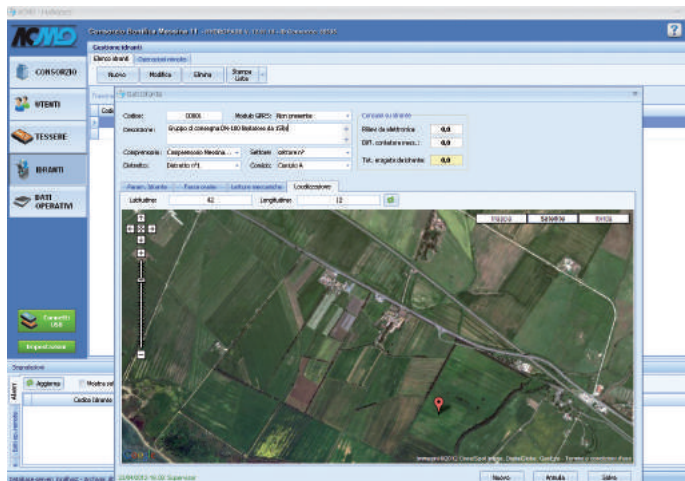


LoRaWAN™



SIGFOX

- Low power consumption.
- Better reception of data (direct view transmission 15 km, thanks to the Long Range technology).
- Costs optimization using ISM frequency bands.
- High efficiency data transmission.
- Every Gateway can manage more than 10.000 in- field units.
- Bidirectional communication with the in-field units.

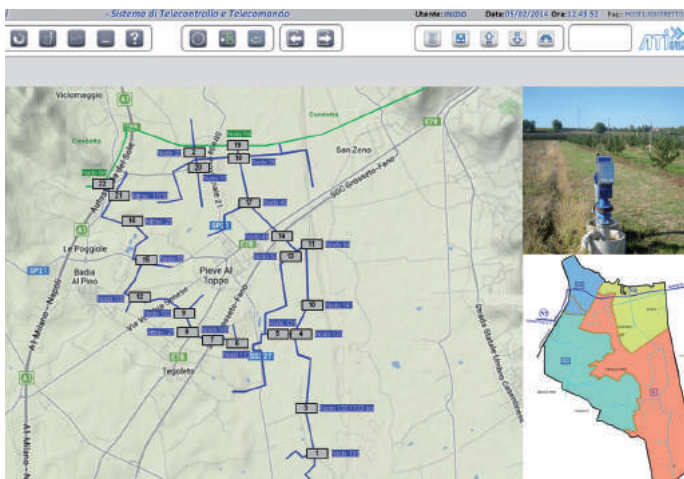


THE MANAGEMENT SOFTWARE

Allows the management of the whole system, is built with the most modern Microsoft platform, this grant complete compatibility with Microsoft systems. User friendly interfaces with a modern graphics technology make the software intuitive, simple and enjoyable. The system allows to enter the geographic location of the single hydrant and integrates access to Google Maps for the georeferenced representation of the hydrants. The software is equipped with an advanced management and can provide customized prints and reports. The management software (Hydrosoft) is integrable with any S.C.A.D.A. systems and with S.I.S. (Smart Irrigation System).

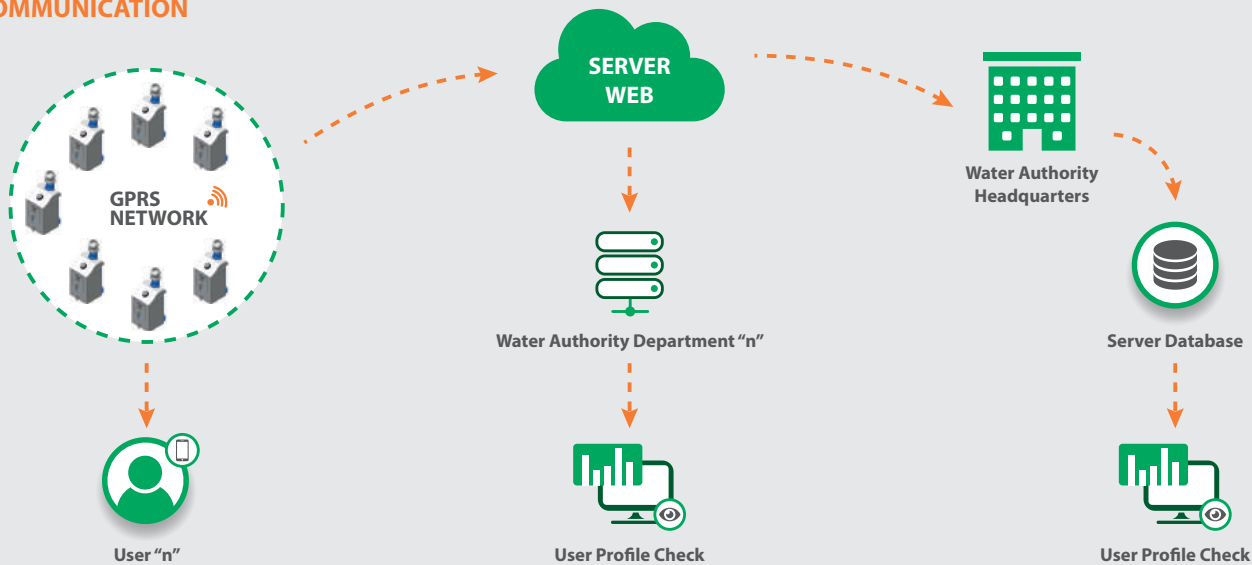
The Hydropass software allows the management of the irrigation system including DMA or areas, user management with specific land data, crops, water distribution optimization, and single-user volumes.

Technologies and software upgrades are always available.

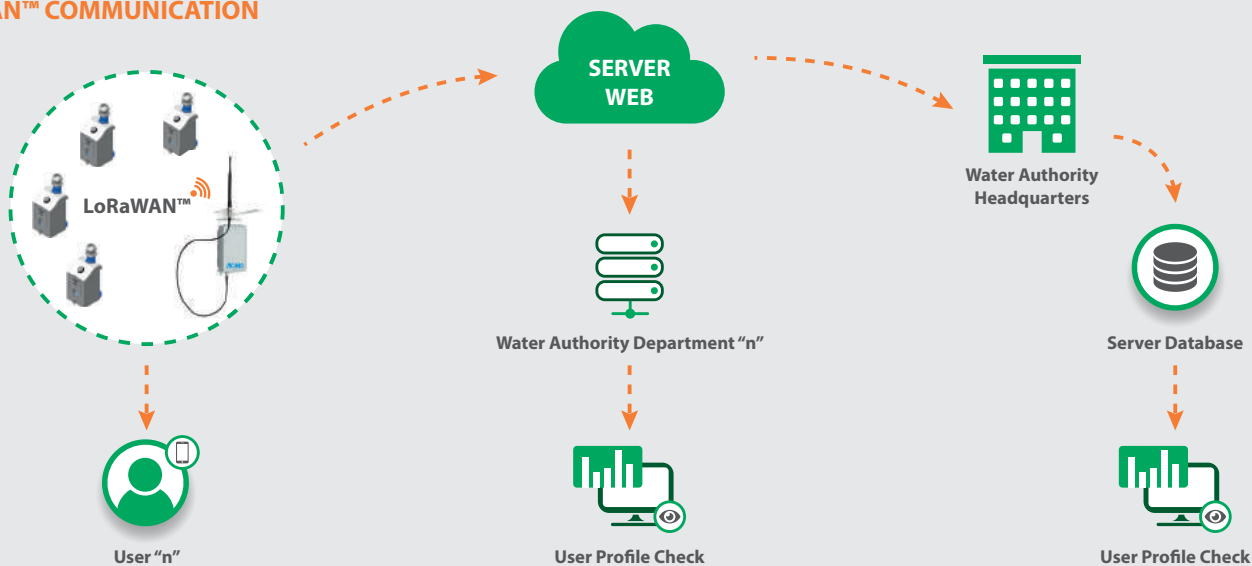


MONITORING

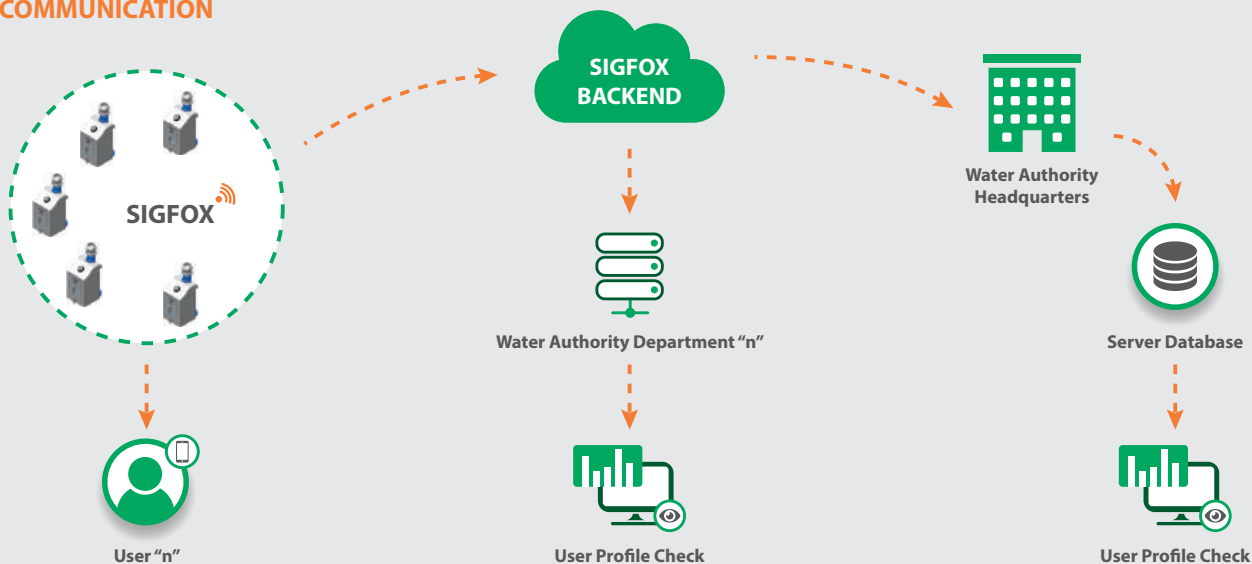
GPRS COMMUNICATION



LoRaWAN™ COMMUNICATION



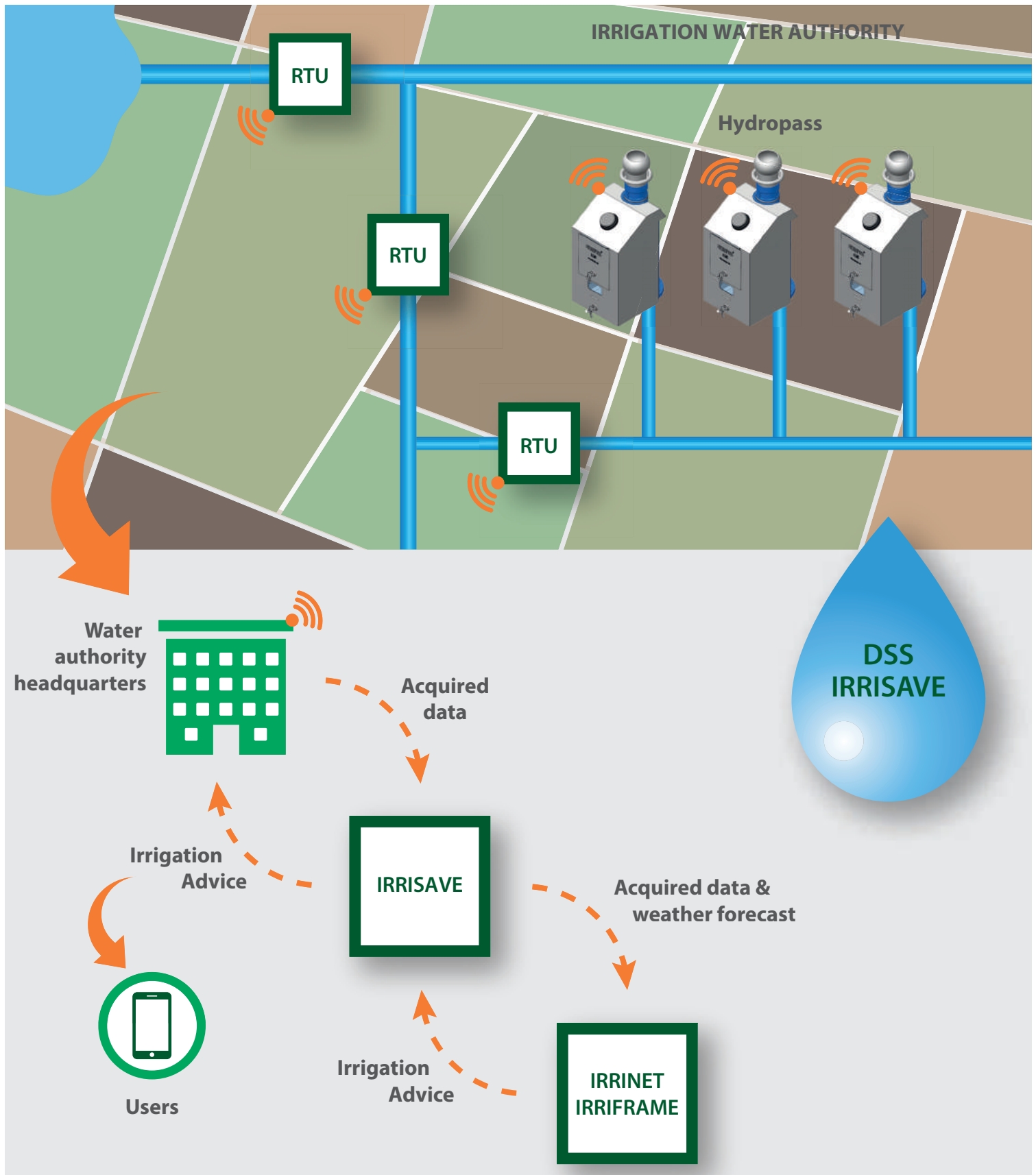
SIGFOX COMMUNICATION



HYDROPASS TYPE HNS

INTEGRATION WITH S.I.S. AND WITH THE IRRIFRAME PLATFORM (IRRISAVE MODULE)

The SIS - HYDROPASS system can be coupled with the national databases with weather and soil data to forecast the most sustainable irrigation scheduling. This forecasted scheduling leads to immediate and clear improvement of the irrigation operations with consequent economic, management and environmental benefits.



ACMO

Member of the **AVR** group

Headquarters:

31056 Roncade (TV) - Italy - Via T. da Modena, 28 - Z.I.
tel +390422840220 r.a. - fax +390422840923
info@acmospa.com

Legal Office:

00136 Roma - Italy - Via Franco Michelini Tocci, 93
tel +39066628238 - fax +39066628335
inforoma@acmospa.com

www.acmosrl.com