

The experimental field of Perugia University (Ingegneria delle Acque e di Idraulica Agraria e Forestale) was launched in 2004 as a facility for education, research and consultancy in the field of hydrology and hydraulics agriculture and forestry. It houses the station called HYDROLNET-Perugia that is inserted between the monitoring networks of "International Soil Moisture Network" (ISMN), a monitoring network of the main meteorological quantities and water contents of the soil that captures data in the world and promotes exchanges of high scientific content.

GENERAL FEATURES

System designed to meet the need of the Customer to acquire, by serial communication, data coming from Campbell CR1000 (weather station), Campbell CR1000 (bascule station) and Trase Be (TDR measurement) devices.

The connection with the field acquisition instruments is guaranteed through the RS-232, RS-485 serial communication ports.

The data of the field devices, historicised within a memory support in solid state, from time to time read and subsequently stored within the DB MySql of datalogger.

The same are available through a web interface graphically, tabular and XLS, CSV and TXT files.

SYSTEM BENEFITS

Reduced power consumption and absolute silence.

Communication with Campbell and Trase Well devices is cyclically established from DICA H2O datalogger via their proprietary communication protocols.

DICA H2O system, by monitoring the digital inputs, communicates through email the fall of this switch in the general framework of the cabin.

SINAPSI ROLE

Custom system development

Sinapsi has provided an infrastructure for reading and historicisation of quantities acquired from the measuring instruments of the experimental field.

CUSTOM SYSTEM

- DICA H20 Datalogger is characterized by an embedded hardware fanless with industrial realization standard that is devoid of moving parts
- RS-485 conversion to RS-232 through gateway
- Architecture software characterized by a web server platform developed in PHP language and leaning against a MySql database
- Historicization of the data managed by the accuracy of devices
- Cross graphical representation of the acquired values

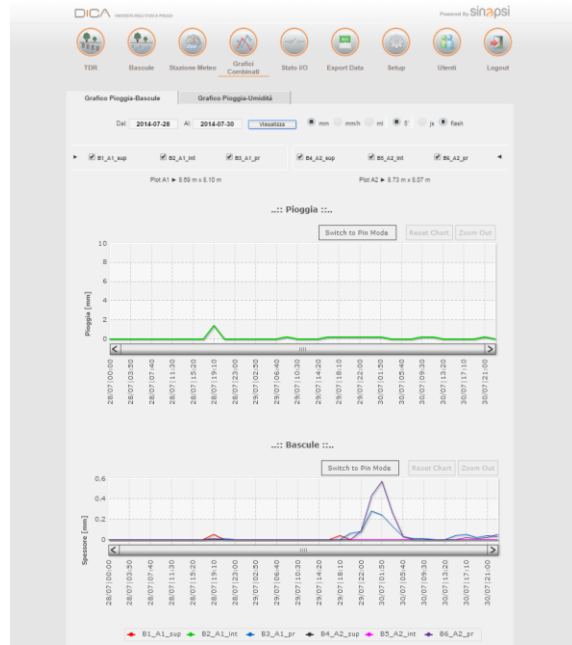
The remote reachability of the system is ensured by an h24/365 connection through a modem router (TIM Mobile Network) connected to the data logger via LAN who takes care to keep constantly aligned the domain name with the public IP address assigned by the operator. The access to the system is protected by authentication credentials.



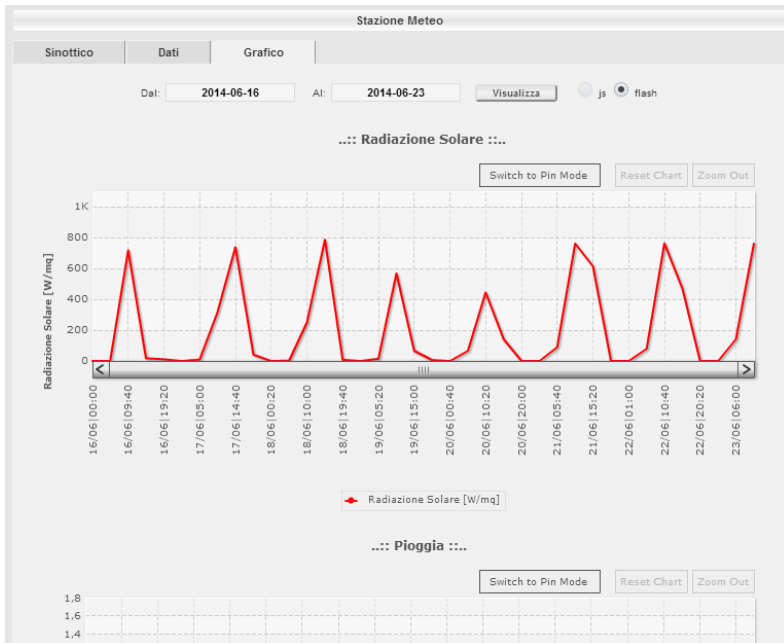
TABELLA CONNESSIONI	
Parte di connessione	<p>1.1 Comunicazione seriale da RS232 (Datalogger)</p> <p>1.1.1 RS232 - Datalogger</p> <p>1.1.2 RS232 - Trase Be</p> <p>1.1.3 RS232 - Campbell CR1000</p> <p>2. RS485 (Datalogger) - Campbell CR1000 - tipo Bascule</p> <p>2.1 RS485 - Datalogger</p> <p>2.2 RS485 - Campbell CR1000</p> <p>2.3 RS485 - Campbell CR1000</p>
Dispositivo	Trase Be (Trase Well)
Condizione operativa	24/7/24
Certificazione	CE



PHOTO GALLERY



Web interface – data exported in graphical form



Data	Ora	Pieggi (mm)	Evaporazione (mm)	Radiazione Solare (W/m²)	T1 5cm	T2 5cm	T3 30cm	T4 30cm
2014-06-23	15:10:00	0.00	108.60	402.20	29.40	30.70	26.27	26.27
2014-06-23	15:05:00	0.00	108.50	406.70	29.37	30.78	26.27	26.19
2014-06-23	15:00:00	0.00	109.60	385.40	29.34	30.76	26.24	26.20
2014-06-23	14:55:00	0.00	109.50	455.70	29.34	30.80	26.18	26.14
2014-06-23	14:50:00	0.00	110.20	281.30	29.34	30.81	26.15	26.11
2014-06-23	14:45:00	0.00	110.20	268.60	29.31	30.79	26.07	26.05
2014-06-23	14:40:00	0.00	110.30	235.10	29.29	30.79	26.06	26.03
2014-06-23	14:35:00	0.00	110.10	570.10	29.25	30.78	26.04	25.97
2014-06-23	14:30:00	0.00	109.50	502.80	29.25	30.75	25.96	25.96
2014-06-23	14:25:00	0.00	110.20	322.50	29.22	30.70	25.92	25.94
2014-06-23	14:20:00	0.00	109.80	529.20	29.17	30.69	25.89	25.87
2014-06-23	14:15:00	0.00	108.80	795.00	29.16	30.74	25.85	25.83
2014-06-23	14:10:00	0.00	109.30	404.80	29.15	30.73	25.79	25.77
2014-06-23	14:05:00	0.00	109.20	494.30	29.13	30.74	25.75	25.75
2014-06-23	14:00:00	0.00	109.60	500.40	29.08	30.76	25.72	25.67
2014-06-23	13:55:00	0.00	110.10	385.10	29.05	30.77	25.62	25.65
2014-06-23	13:50:00	0.00	110.70	358.10	28.96	30.75	25.60	25.61
2014-06-23	13:45:00	0.00	111.70	296.90	28.94	30.74	25.54	25.54
2014-06-23	13:40:00	0.00	110.80	444.70	28.88	30.72	25.53	25.49
2014-06-23	13:35:00	0.00	110.80	276.10	28.78	30.63	25.46	25.46

Web interface – data exported in tabular form