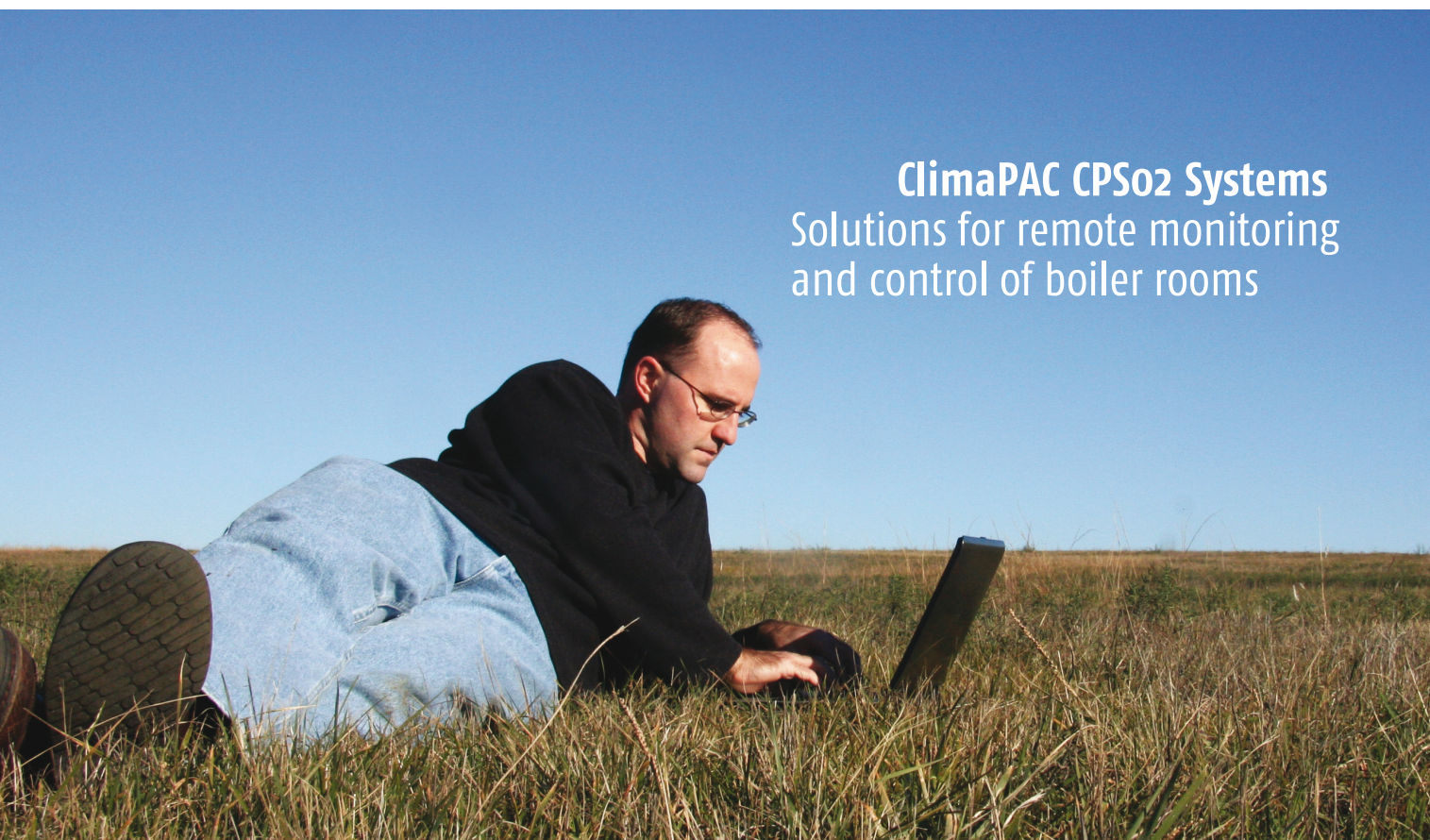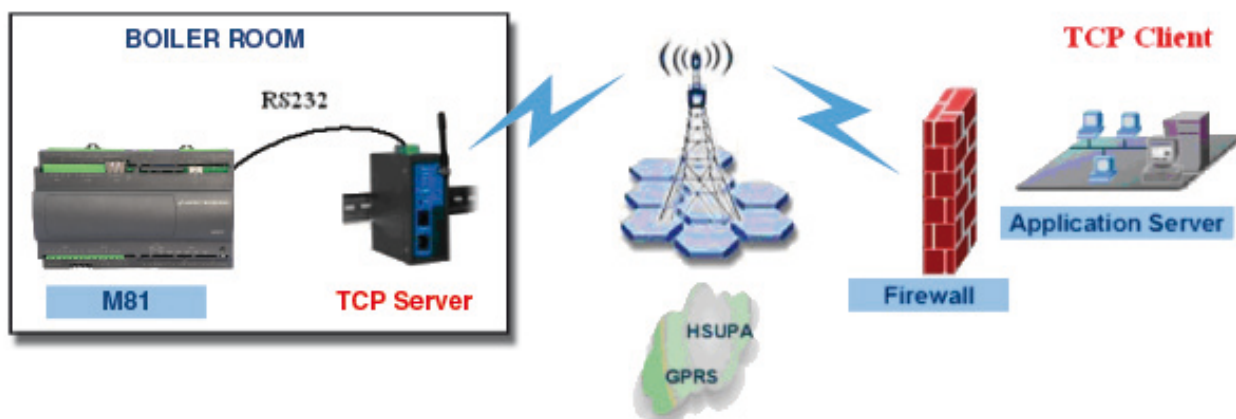# ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL

ClimaPAC CPS02 Systems
Solutions for remote monitoring
and control of boiler rooms

DEDICATED SYSTEMS FOR CONTROL OF BOILER ROOMS
## COMPLETE WITH CLIMAPAC REMOTE MONITORING SERVICE

climaPAC may be applied to boiler rooms for residential heating systems. This system enables the control of all the boiler room elements. It can be supplied with a local operator interface and/or a remote connection via WEB (UMTS/3G). Both are optional.

climaPAC performs the following functions:
- Temperature/power control of the boiler;
- Cascade management of modules for condensation boilers;
- Up to 3 indipendent controls heating systems including climatic curve weekly chrono thermostat and 8 separate time zones for an accurate control 24/7;
- Adjustable domestic hot water (DHW);
- management of the recirculation circuit with programmable time zones;

- anti-legionella function;
- management of thermic solar panels;
- integration capability of energy meters;
- ON CLOUD remote control provides on line monitoring, analysis of logged informations as well as process data. Password protected remote access to the parameters of the plant like chrono-thermostats, climatic curves, etc. is also available.
- For each installation it is possible to record both modifications and the operator who did it. Specific documentation on electronic format can be downloaded to be available for on-line access. Sending of weekly or monthly automatic reports, based on standard or custom structure, can be activated on request.
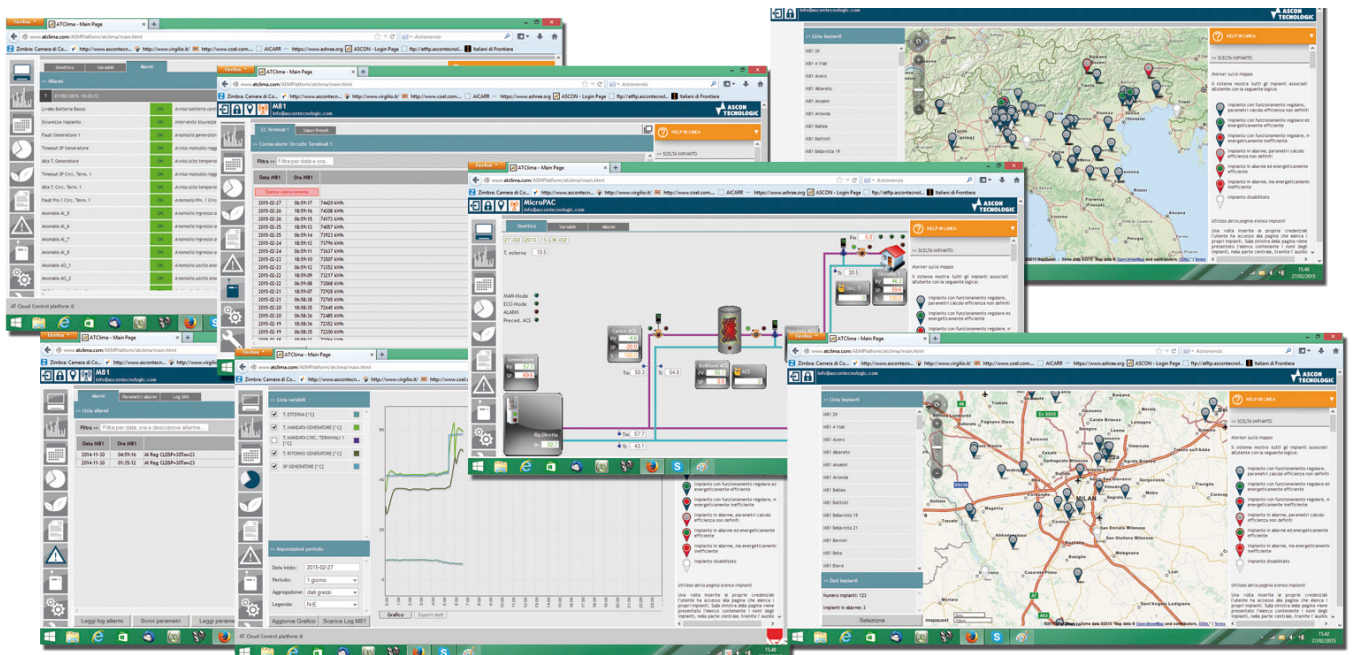
ATClima WEBSCADA

ATClima enables the complete remote access to the controlled installations and keeps them under control 24 hours a day.

Installation of specific software is not required. Access is done with the most known and standard web browser like Explorer, Firefox, Opera, Safari, etc..

Characteristics of basic version:
- Different access levels protected by password;
- Installations list represented on Google Map;
- Plant diagram with interactive synoptic corresponding to the system;
- Alarm pages, real time trend pages with multiple traces, zoom and scroll time basis functions;

- Operating parameters pages with both reading and writing functionalities; (e.g. time table, temperature, climatic curves, etc.);
- Log/Event pages, parameter modification and text notes insertions;
- Parameter configuration pages;
- Operating manual on electronic format.

Options on request:
- Weekly or monthly automatic reports for each installation;
- Energy analysis and heat metering.

Order Code

CPS02 ☐ ☐ ☐ ☐

With no additional Output expansion modules	–
+ Eight 0... 10 V Outputs	8

With no additional Input expansion modules	–
+ Four PT1000 Inputs (for solar thermal racking)	4
+ Four PT1000 Inputs	6
+ Eight PT1000 Inputs	8

Without Modem	–
With UMTS Modem for remote management	U

Without Operator Panel	–
With the Operator Panel integrated in the Cabinet	P

Base System with:
- 8 PT1000 Inputs;
- 4 4... 20 mA Analogue Inputs;
- 12 Dry contact Digital (Logic signals received from the field);
- 4 0... 10 V Analogue Outouts;
- 10 Relays Outputs

Accessories

OPKIT:	Kit HMI touch 7 "laptop with connection cables
Probe:	External PT1000 temperature probe (with box for wall mounting)
Probe PT1000:	PT1000 temperature probe (with 1.5 m cable)
Thermowell:	PT1000 thermowell (Ø6 mm, depth 60 mm)

Analogue Inputs | Analogue Outputs | Digital Inputs | Digital Relay Outputs | Counter (time/calories) Connection BUS
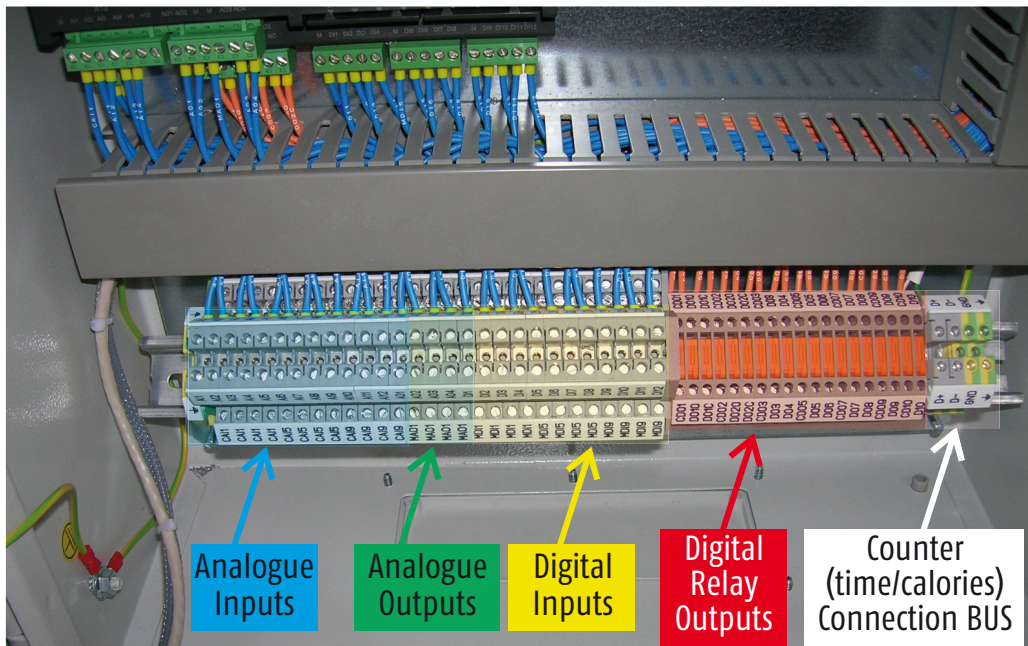
WIRING

The cabinet of climaPAC system is pre-wired to make simple its installation (see the enclosed pictures)
A support terminal strip is availble to connect all the cables from the field like temperature probes, etc..
The list of signals to be connected depends on the configuration of the unit carried out by the operator panel.

Based on hidraulic diagram informations a pre-configured system is provided including the list of associated I/O terminals (see attached example).
Power to utilities in field and manual management system are excluded from the supply of CPS02 cabinet.

Terminal I/O configuration
Description

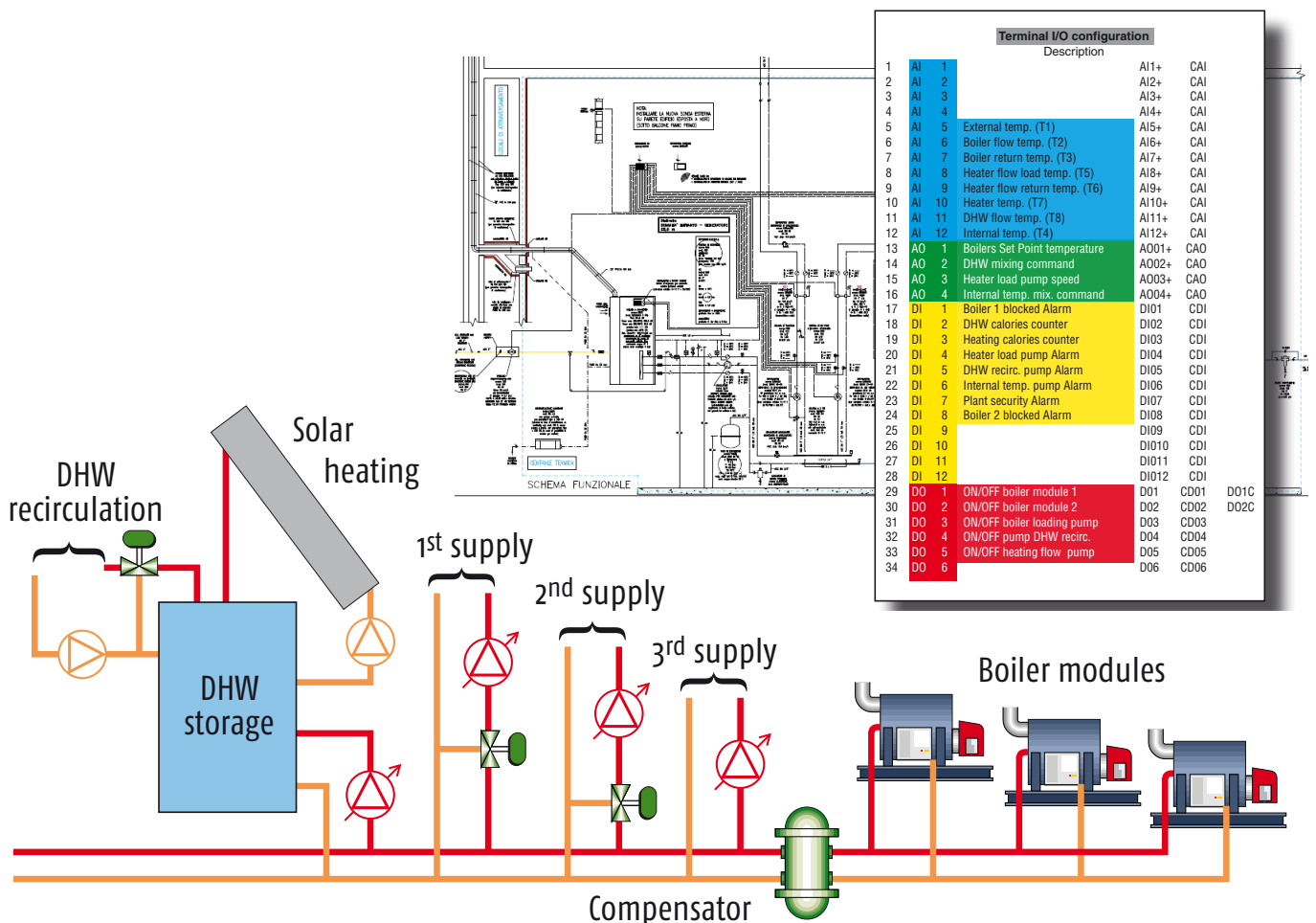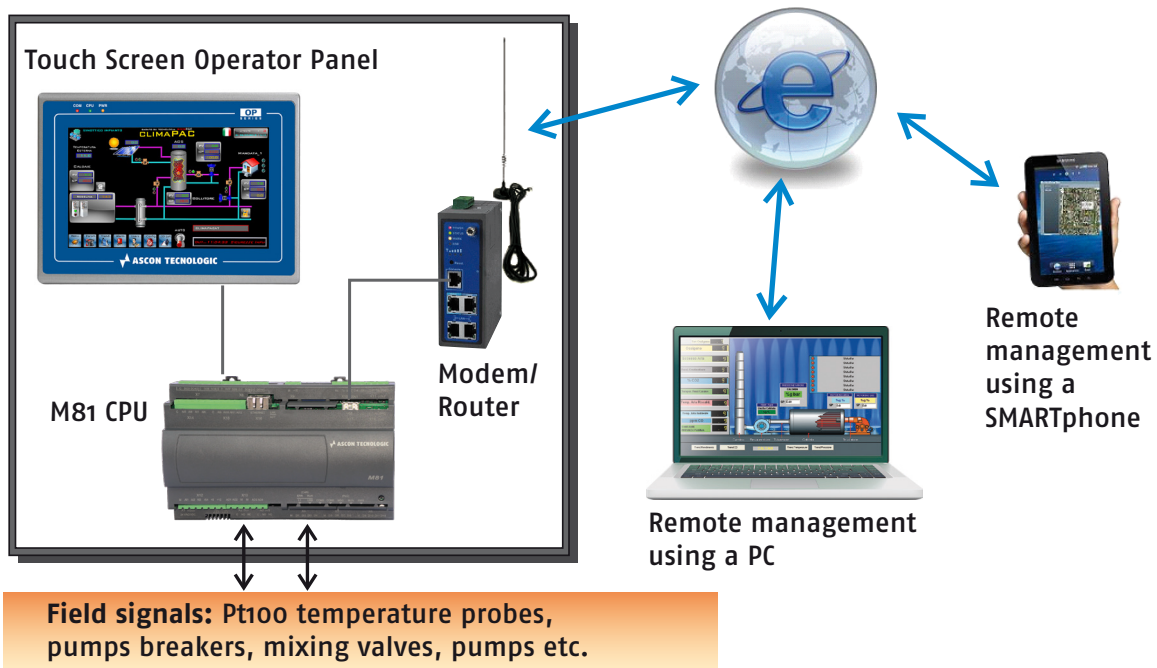| #	Type		Description			
1	AI	1		AI1+	CAI	
2	AI	2		AI2+	CAI	
3	AI	3		AI3+	CAI	
4	AI	4		AI4+	CAI	
5	AI	5	External temp. (T1)	AI5+	CAI	
6	AI	6	Boiler flow temp. (T2)	AI6+	CAI	
7	AI	7	Boiler return temp. (T3)	AI7+	CAI	
8	AI	8	Heater flow load temp. (T5)	AI8+	CAI	
9	AI	9	Heater flow return temp. (T6)	AI9+	CAI	
10	AI	10	Heater temp. (T7)	AI10+	CAI	
11	AI	11	DHW flow temp. (T8)	AI11+	CAI	
12	AI	12	Internal temp. (T4)	AI12+	CAI	
13	AO	1	Boilers Set Point temperature	AO01+	CAO	
14	AO	2	DHW mixing command	AO02+	CAO	
15	AO	3	Heater load pump speed	AO03+	CAO	
16	AO	4	Internal temp. mix. command	AO04+	CAO	
17	DI	1	Boiler 1 blocked Alarm	DI01	CDI	
18	DI	2	DHW calories counter	DI02	CDI	
19	DI	3	Heating calories counter	DI03	CDI	
20	DI	4	Heater load pump Alarm	DI04	CDI	
21	DI	5	DHW recirc. pump Alarm	DI05	CDI	
22	DI	6	Internal temp. pump Alarm	DI06	CDI	
23	DI	7	Plant security Alarm	DI07	CDI	
24	DI	8	Boiler 2 blocked Alarm	DI08	CDI	
25	DI	9		DI09	CDI	
26	DI	10		DI010	CDI	
27	DI	11		DI011	CDI	
28	DI	12		DI012	CDI	
29	DO	1	ON/OFF boiler module 1	DO1	CD01	DO1C
30	DO	2	ON/OFF boiler module 2	DO2	CD02	DO2C
31	DO	3	ON/OFF boiler loading pump	DO3	CD03	
32	DO	4	ON/OFF pump DHW recirc.	DO4	CD04	
33	DO	5	ON/OFF heating flow pump	DO5	CD05	
34	DO	6		DO6	CD06	

DHW recirculation

Solar heating

DHW storage

1st supply

2nd supply

3rd supply

Boiler modules

Compensator

Touch Screen Operator Panel

M81 CPU

Modem/
Router

Remote
management
using a
SMARTphone

Remote management
using a PC

Field signals: Pt100 temperature probes,
pumps breakers, mixing valves, pumps etc.

SYSTEM ARCHITECTURE

Flexibility of the solution enables to combine various features to the available input and output channels. This grants to take full advantage of the system potential by automatically adapting the software to perform the configured functions.
Configuration is done via a 7" HMI, which can be mounted on the front panel of the cabinet

(cod. CPS02 PU--) or to be part of an external configuration kit (cod. KIT OP). This can be used by the installation people to perform operation of configuration and parameterization on site.
A single HMI can be used for different installations since the display automatically adapts the screen pages to the setting of the control unit).

CPS02 CABINET

CPS02 cabinet contains a programmable controller M81 series, an UMTS modem router as well as various accessories. The system can be explanded for more complex installation, adding I/0 modules to increase the inputs and outputs quantity.

M81 standard I/0:
- 8 analog inputs (PT1000);
- 4 analog inputs (4... 20mA) for pressure, humidity and other type of sensors;
- 4 analog outputs (0... 10V) dedicated to boiler control, control valves, variable speed pump remote setpoint
- 12 ditial inputs (voltage free) for alarm signalling:

- 10 digital outputs (relay) for ON/OFF commands of solenoid valves, pumps, condensation boiler modules.

Available expansion modules:
- 1 or 2 I0–MB/AI04RT modules (4 PT1000 inputs each);
- 1 I0–MB/A0–08HL (8 outputs 0... 10V);
- 1 M–Bus gateway for connection to energy meters equipped with bus interface.
- There is the possibility to create customized panels and apply changes to the operation logics according to specifications.
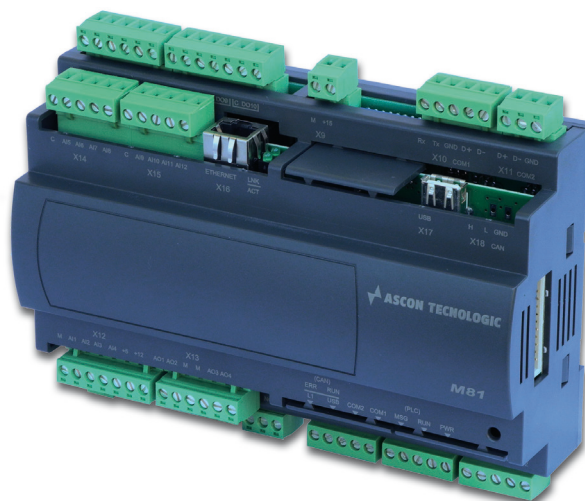
M81

System Configuration using an external Operator Panel

System Configuration using the integrated Operator Panel

CPS02 COMPONENTS

3G–UMTS Technology

ClimaPAC is based on 3G technology of the latest gene–ration and is therefore characterized by a high speed data exchange to and from the server.

Installations are always online with the main server to ensure timely alarm signals and transmit them via SMS to mobile numbers entered in the system.

Download of the data recorded into the main server, is perfomed twice a day in a transparent manner to the user.

UMTS modem routers are configured to automatically restore the connection in case of power failure of the service provider.

To UMTS modem router a data SIM with the contract for a flat data traffic has to be coupled.

Data SIM is not supplied with the system.

Used UMTS V201 Modem router, is pre–configured to connect to the VPN server supervision climaVEM (loaded safety certificates for the connection to the server).

Characteristics:

· 3G/UMTS protocol;
· Four ethernet ports;
· One RS232 port;
· Connection types: OpenVPN, PPTP, L2TP, GPE, IPSec VPN;
· Rail–DIN mounting;
· 24 Vdc power supply;
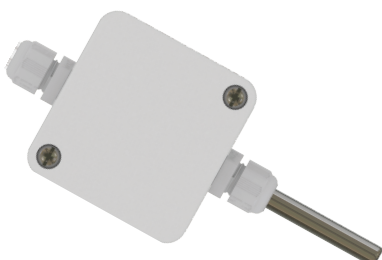· Metal case.

Modem/ Router   Standard Antenna   High gain Antenna (opt.)

Temperature probes

Temperature probes PT1000 type (cod. R2IB126P15NPS) + thermowell cod. 9TUDRC102 (optional).
Wall mounting external temperature probe PT1000 type (cod. R2IA46P015NPSC0)

External Probe

Pt1000 + Thermowell

ASCON TECNOLOGIC

EVERYTHING UNDER CONTROL

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= OHSAS 18001 =

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