S6001
Pump Controller

PUMP CONTROLLER WITH 7" HMI, QUADBAND MODEM AND BUILT-IN I/O

Highlights

- **Configuration via HMI touch screen 7"**
- **Nr. 16+2DI, 8 DO, 4 AI, 2 AO built-in I/O channels**
- **Nr.1 Modem/Router 3G+**
- **Nr.1 Fast Ethernet Port**
- **Nr.3 Serial Ports**
- **Nr.2 USB Ports**
- **Pumps regulation, starting, stopping and acceleration**
- **Suppression of water hammer (extending pumps lifetime)**
- **Pressures, levels, flow rates adjustment**
- **No high level programming skills are needed**
- **Energy Efficiency**
- **VPN Support for telecontrol and remote maintenance**
- **Software portability**

S6001 Pump Controller is a controller for pumping units and pressurization systems managing from 2 to 6 pumps (with Z-D-IO expansion I/O modules), supporting three different operating modes: flow rate adjustment, level dependent control and pressure dependent control.

This unit offers both telecontrol and remote maintenance features supporting VPN and SSL technology (SENECA LET'S) besides fast commands using SMS such as "on/off commands" and "auto/manual functions".

S6001-PC supports 31 built-in I/O's; inverter changeover technology (for water hammer suppression, lifetime pump extension and cost maintenance reduction); calculation of the estimated flow range according to the characteristic curve of the pumps. Setting is made by 7" HMI resistive touchscreen through wizard software in few steps.

Through HMI is also possible to configure different user profiles able to manage set points, historical alarms or datalogger trends.

100% Made & Designed in Italy

SENECA

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S6001-PUMP CONTROLLER

REGULATION MODE

S6001-PC is an automatic control system based on accurate regulation depending on input signal type: pressure, flow, level. Level regulation for filling and lifting can be performed with gauges and / or level probes. The system is configured in hardware level (electric) and software (HMI) mode according on the type of regulation and number of pumps for a total of 8 possible configurations.

N.	Regulation type	Nr Pumps
1	Pressure	2..6
2	Flow	2..6
3	Level gauges (water lifting)	2..6
4	Level gauges (water filling)	2..6
5	Level probe (water lifting)	2..6
6	Level probe (water filling)	2..6
7	Level gauges and probe water lifting)	2..6
8	Level gauges and probe (water filling)	2..6
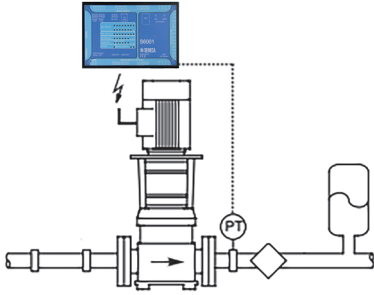
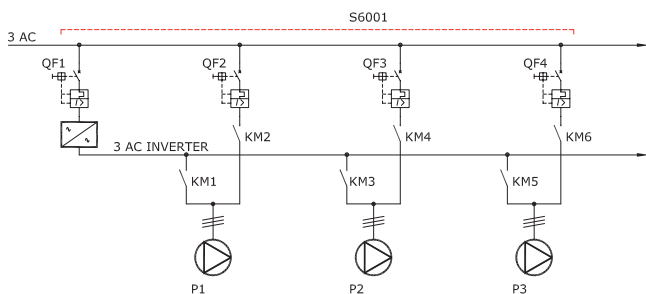**Pumps regulation diagram based on pressure measurement**
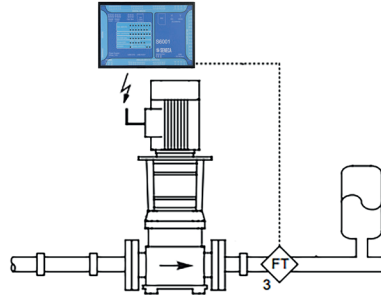
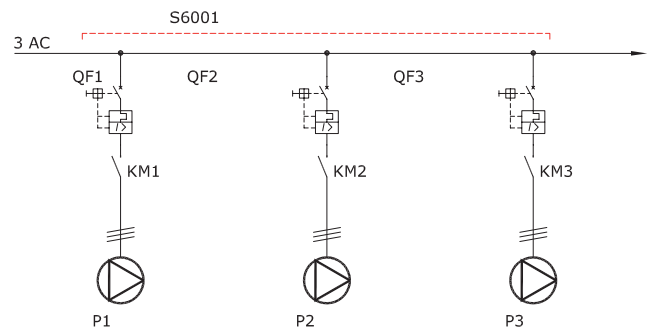**Pumps regulation diagram based on flow measurement**
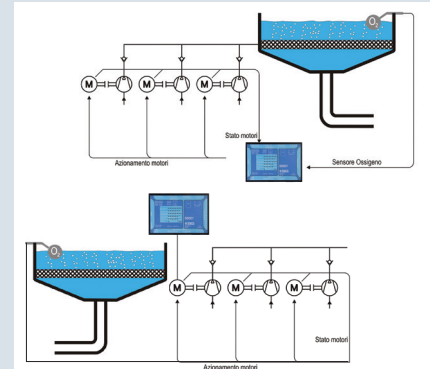
Pumps regulation diagram based on level measurement

PUMPS PILOTING DIAGRAMS

WITH INVERTER

DIRECT

I/O EXPANDIBILITY

- **BUILT-IN I/O UP TO 3 PUMPS**
- **MIXED I/O MODULES (I.E. Z-D-IO) IN CASE OF 4, 5, 6 PUMPS STATIONS**

ALARM MANAGEMENT AND REMOTE CONTROL VIA SMS

SMS

NOTIFICATION

SMS

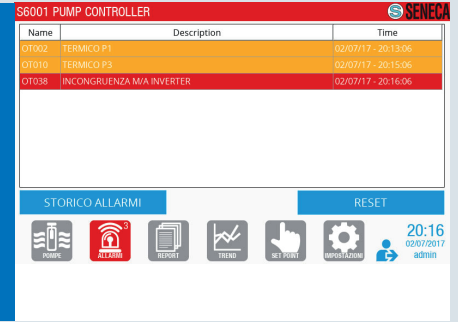**STATUS REQUEST / REMOTE COMMAND**

HMI SETTING

PUMPS MANAGEMENT
- Pumps status visualization
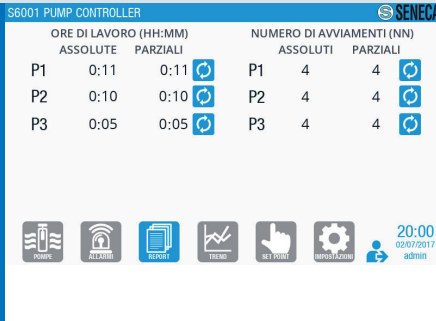- Operating mode selection
- Start / Stop

ALARMS
- Alarm acquisition
- Alarm reset
- Alarm log archiving
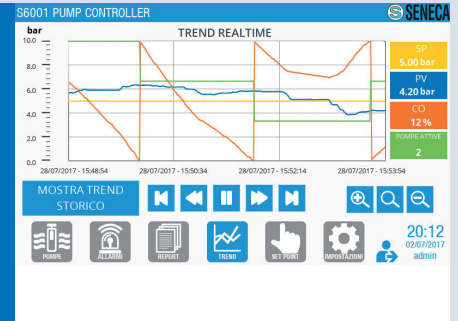- Remote alarm notification

REPORT
- Working hours visualization
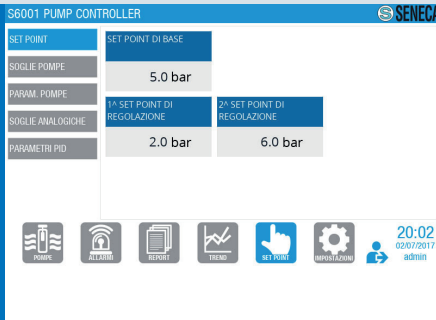- Number of starts visualization

TREND
- Variables trend visualization
- Historical trend
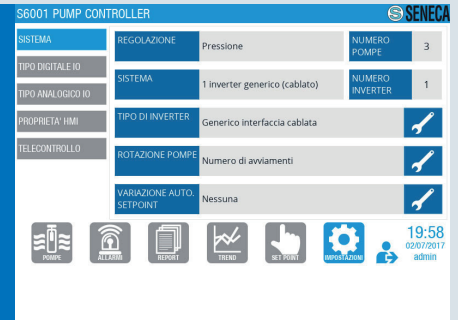- Time series data visualization

SET-POINT
- Process variables setpoint
- Pumps and alarms thresholds
- Working / Stop time
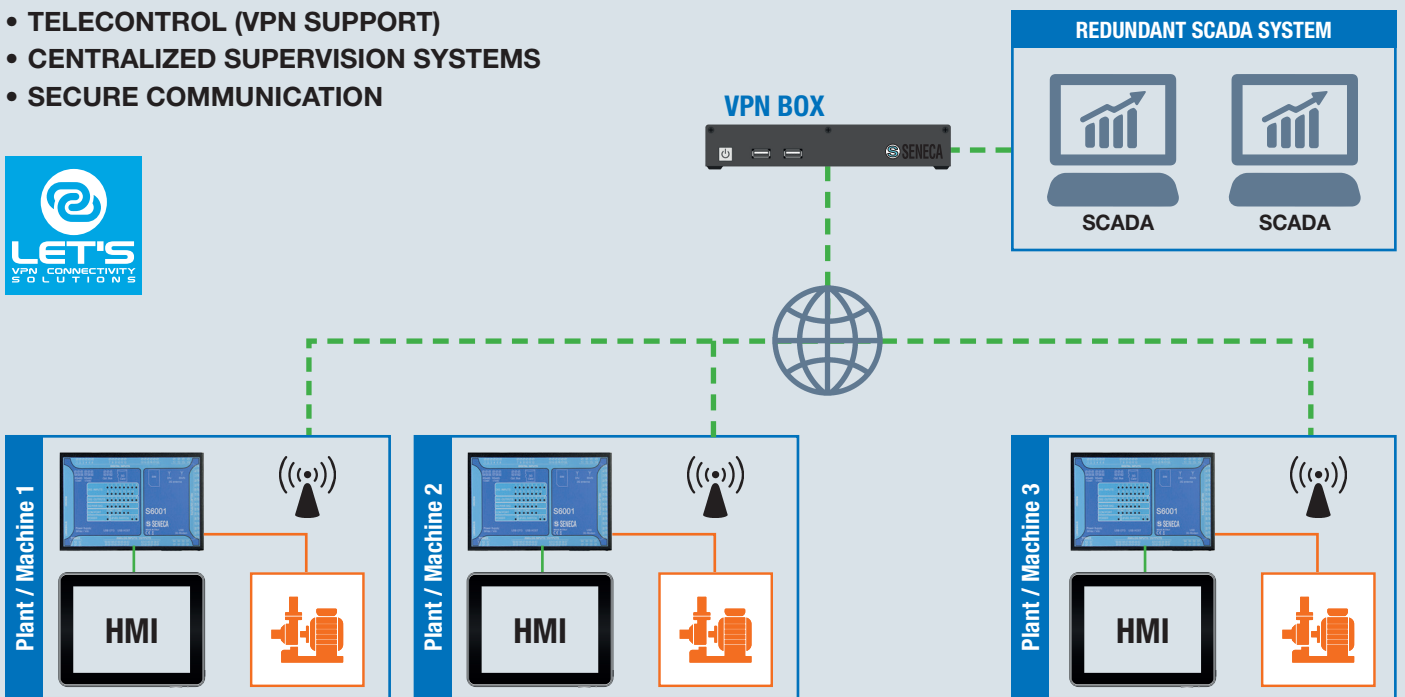- Number of working pumps
- PID regulation parameters

GENERAL PARAMETERS
- Plants info
- I/O setting
- HMI parameters
- Communication network parameters
- Multi-level user accounting
- Date and time Phone numbers

VPN REMOTE ACCESS

- **TELECONTROL (VPN SUPPORT)**
- **CENTRALIZED SUPERVISION SYSTEMS**
- **SECURE COMMUNICATION**

S6001-PUMP CONTROLLER

PUMP CONTROLLER WITH 7" HMI, QUADBAND MODEM AND BUILT-IN I/O

RTU TECHNICAL DATA

GENERAL DATA

Power Supply	24 Vac/dc ± 15% @50/60 Hz
Power Consumption	10 VA max, 6 VA (typical)
Removable terminals section	0,2..2,5 mm2 (AWG 24-12)
Isolation	1500 Vac
LED status indicators	Power Supply Serial communication Ethernet Gsm/Umts signal level I/O digital status
Protection degree	IP20
Operating temperature	-10..+50°C
Dimension (wxhxd)	190x105x60 mm
Enclosure	Nylon 6 with 30% glass fiber, V0 self-extinguished class
Connections	Removable ter3 ways, pitch 5 mm
Mounting	35 mm DIN rail (IEC EN 60715)
Montaggio	Guida DIN 35 mm (IEC EN 60715)

COMMUNICATION

Ethernet	Nr 1 Ethernet 10/100 Mbps (RJ45) port
Serial	Nr 2 RS485; Nr 1 RS232
USB	Nr 1 USB host port; Nr 1 USB micro USB
Modem	GSM/GPRS/EDGE Quad-band: GSM 850 GSM 900, DCS 1800, PCS 1900 UMTS/HSPA+Dual-Band: WCDMA 2100/900, 2100/850, 1900/850
SIM card	Mini SIM type @ 3V
Supported protocols	ModBUS RTU/TCP(Slave), http, ftp, smtp, ppp, Open VPN

INPUT DATA

Channels / Type	Nr 15 Digital Inputs PNP optoisolated Nr.4 Analog Inputs 0..20mA@12bit, 0,3% f.s. accuracy, impedance 50 Ohm Nr. 2 Digital Inputs for conductive swtich level control

OUTPUT DATA

Channels / Type	Nr 8 Digital Output SPDT 5A - 250Vac Nr 1 Analog Output 0..20 mA (@12bit, 0,3% f.s. accuracy, impedance 50 Ohm) + Nr.1 Analog Output 0-10 V

PROCESSING / MEMORY

CPU	ARM 32 bit @400 MHz
Flash Memory (data)	1 GB
RAM	64 MB
FeRAM	8 kB
Slot Micro SD	Yes
Micro SD card (ext. memory)	Max 32 GB

SETTING

Software	HMI App: level / flow / pressure regulation (gauges/probes) from 2 to 6 pumps

STANDARD

Approlvas	CE
Norms	EN61000-6-4, EN 61000-6-2, EN 60950
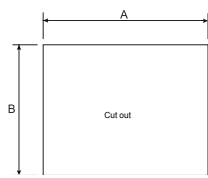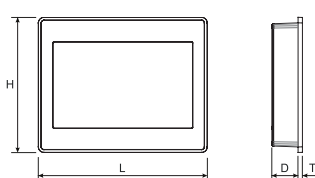
HMI TECHNICAL DATA

DISPLAY

Display	24 Vdc
Screen technology	Resistive touchscreen
Colors	6k
Resolution	800x480
Diagonal screen	7"
Dimming	Yes
Durate retroilluminiazioe	>20.000 hrs
Front foil	10 years @25°C (air temperature)
UV resistance	Indoor application, after 300 test cycles yellowing may appear

GENERAL DATA

User memory	30 MB Flash
RAM	512 MB DDR
Serial port	RS232
Ethernet port	10/100 Mbps
USB port	Host 2.0 interface max 500 mA
Hardware clock	Clock/calendar with backup battery
Time zone	Automatic
Clock accuracy	<100 ppm
Voltage	18-32 Vdc
Rated current	0,3A

RTU DIMENSION
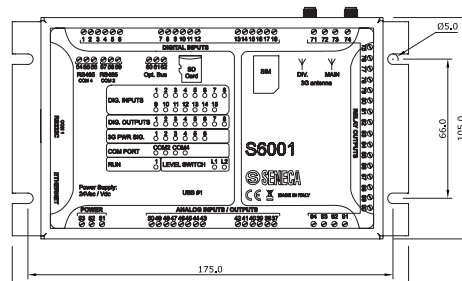
ORDER CODES

Code	Description
S6001-PC	Advanced Pump Controller with 7" HMI
ACCESSORIES	
CE-RJ45-RJ45-C	Crossover Ethernet cable (RJ45-RJ45)
CE-RJ45-RJ45-R	Straight-thru Ethernet cable (RJ45-RJ45)
A-GSM	Dual band swing GSM external antenna, cable 3,2 m, SMA
A-GSM-DIR-5M	GSM-DECT-UMTS directive compact antenna
A-GSM-OMNIDIR	GSM-UMTS-WIFI Omnidirectional Antenna
A-GSM-OMNIDIR-10	GSM-UMTS-WIFI Omnidirectional Antenna, L=10 m
A-GSM-QUAD-N	4G/WiFi omnidirectional antenna, FME, L=3mt
MSD	Micro SD memory card with adapter
Z-D-IO	8-CH, 6 digital input - 2 digital outputs control module

HMI DIMENSION