


100% Made & Designed in Italy

SMART DATALOGGER



 **SENECA**
www.seneca.it

SMART DATALOGGER



OVERVIEW



The advanced MYALARM SEAL, Z-GPRS3, Z-LOGGER3, Z-LTE dataloggers are solutions designed to meet the increasing demands for data collection, real-time analysis, and integration with IT systems in automation and plant monitoring, in line with the new productivity and communication models of Industry 4.0 and the Internet of Things.

Designed for alarm, telemetry, and datalogging functions, these devices come with an integrated UPS, built-in I/O channels, dedicated programming and visualization software, support for serial and Ethernet communication, MQTT protocol, and in most models, 2G or 4G modems with GNSS/GPS/GLONASS receiver.

The dataloggers can be linked to third-party IoT/Cloud platforms to centralize data, manage remote connections, and create customizable multi-user supervision pages.

MODELS	MYAALARM SEAL	Z-LOGGER3	Z-GPRS3	Z-LTE-WW
HARDWARE				
Integrated UPS	x	x	x	x
Modem	2G	-	2G	4GWW
Flash Memory	8 MB	8 MB	8 MB	8 MB
Micro SD	Max 32 GB	Max 32 GB	Max 32 GB	Max 32 GB
GPS/GNSS/GLONASS	x	-	-	x
I/O	4DI, 2AI, 2DO (optional)	4DI, 2AI, 2DO	4DI, 2AI, 2DO	4DI, 2AI, 2DO
Communication Interfaces	1 Micro USB	1 Ethernet 10/100, 1 RS232/RS485, 1 RS485, 1 Micro USB	1 Ethernet 10/100, 1 RS232/RS485, 1 RS485, 1 Micro USB	1 Ethernet 10/100, 1 RS232/RS485, 1 RS485, 1 Micro USB
Integrated NTC sensor	x	-	-	-
DATA/ALARMS				
Synchronous, asynchronous datalogger, on trigger	x	x	x	x
Alarm and email management	SMS / App / FTP / DTMF	FTP	SMS / App / FTP / DTMF	SMS / App / FTP / DTMF
Vocal alarms/DTMF commands	x		x	x
COMMUNICATION / IoT				
Protocols	http(s), MQTT(s), http(s) post	http(s), Ftp, ModBUS RTU/TCP-IP, MQTT(s), http(s) post	http(s), Ftp, ModBUS RTU/TCP-IP, MQTT(s), http(s) post, Rest	http(s), Ftp, ModBUS RTU/TCP-IP, MQTT(s), http(s) post, Rest
Routing	Public IP SIM, private APN	-	Public IP SIM, private APN, DDNS, ModBUS Pass Through	Public IP SIM, private APN, DDNS, ModBUS Pass Through
Transparent gateway ModBUS RTU – TCP-IP	-	x	x	x

PROGRAMMING

The advanced SENECA dataloggers ensure open and flexible programming thanks to a dedicated environment for developing control logics (SEAL), an integrated Web Server, an app for direct management of commands via SMS, and a data import and visualization tool (Log Factory). The HMI interface of the Cloud BOX' system completes the data management capability through customizable web supervision pages with widgets. They are also integrable with third-party Scada, Cloud, database, and web portal systems already available at the plants or managed by end-users.



SEAL
SYSTEM CONFIGURATIONS AND LOGICAL-MATHEMATICAL FUNCTIONS



WEB SERVER
MONITORING AND SETTING PARAMETERS



LOG FACTORY
STORAGE AND VISUALIZATION HISTORICAL FILES



SENECA SMS
ANDROID / IOS APP FOR SENDING AND CUSTOMIZING SMS COMMANDS



THIRD-PARTY SYSTEMS
SCADA SYSTEMS, CLOUD, DATABASES AND THIRD-PARTY WEB PORTALS



	MYALARM SEAL	Z-LOGGER3	Z-GPRS3	Z-LTE
SEAL	X	X	X	X
WEB SERVER	-	X	X	X
LOG FACTORY	X	X	X	X
SENECA SMS (mobile app)	X	-	X	X

SEAL, BLOCK PROGRAMMING ENVIRONMENT



SEAL is software designed for advanced management of automation and remote communication projects.

SEAL allows intuitive management of variables, commands, automations, alarms, thresholds, reporting, communication network with remote configuration and update capabilities via SIM or Ethernet.

Among the key features managed by SEAL are the monitoring of alarms and events associated with I/O channels, operations on bits, comparators, triggers, and timers.

SEAL allows for the setting of function blocks, threshold command blocks, and complete management of the ModBUS variables of the devices to be programmed.

MAIN FEATURES



DATA & EVENT LOGGING

There are three types of logs: events, data, and on trigger. When activated, the logger saves the data on an internal Flash, which can then be sent to an email server, ftp server, http server, mqtt broker, or MicroSD card.



MQTT BROKER DATA SENDING

Data can be sent in real-time to an MQTT broker. The data is JSON-encoded and contains **measurements and identifiers that trace back to the specific instrument that measured them and the variable measured.**

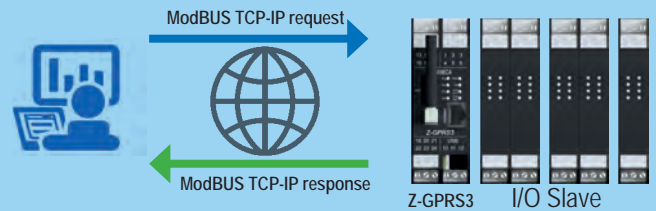


AUDIO COMMAND SENDING

The dataloggers can receive audio calls for command execution through DTMF codes. Upon call, the device responds with an audio file from the SD card.

MODBUS PASS THROUGH

The devices can be used to convert Modbus TCP-IP to Modbus RTU from Ethernet or 2G/3G/4G connection in real-time.



DDNS

Dynamic DNS (DDNS or DynDNS) is a method to automatically link the server name with a dynamic IP. It relies on the fact that in a modem connection, the IP can change without changing the name.



ACTIONS AND COMMANDS

Actions (commands) and messages must be executed by the device in response to a state change. Messages can be sent via EMAIL, SMS, AUDIO CALL, HTTP POST, and MQTT broker.



EMERGENCY MODE

It is possible to disable the execution of the SEAL program by setting all the dip switches to ON at startup. This emergency mode is useful if a SEAL program prevents connection to the SEAL itself (e.g., if the board is continuously rebooting).



THIRD-PARTY PLATFORMS

Thanks to the support of http(s) post/Rest and MQTT(s) protocols, SENECA dataloggers can connect industrial machines and **thousands of I/Os in the field to third-party Cloud Computing platforms.**



REMOTE UPDATING

It is possible to update a program developed in **the SEAL environment and/or a configuration** from the datalogger's webserver through a simple procedure via PPP modem connection or IP/Ethernet address.



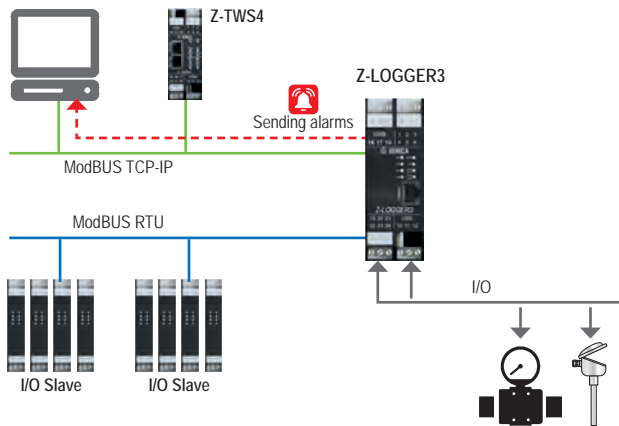
POWER CALCULATION FOR PHOTOVOLTAIC PLANTS

Using a Modbus TCP-IP client connection with the Z-GPRSS datalogger (Modbus TCP-IP Server), it is possible to estimate the average total typical power for use with solar panels.

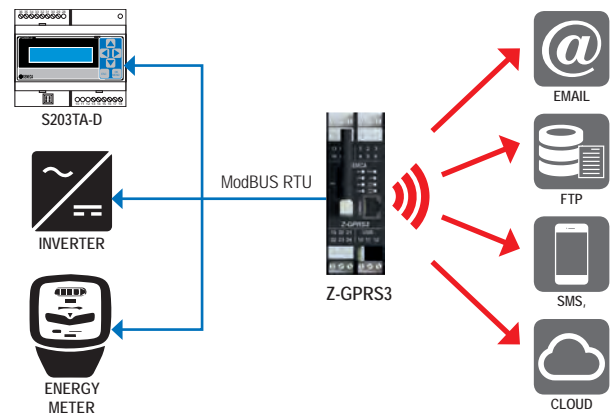
SMART DATALOGGER

APPLICATION DIAGRAMS

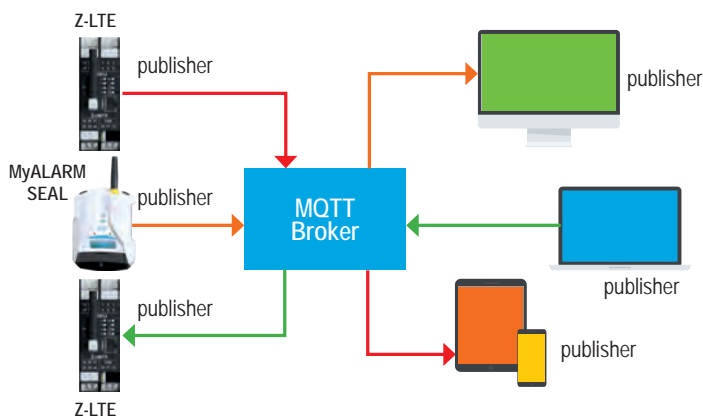
DATA ACQUISITION AND RETRANSMISSION



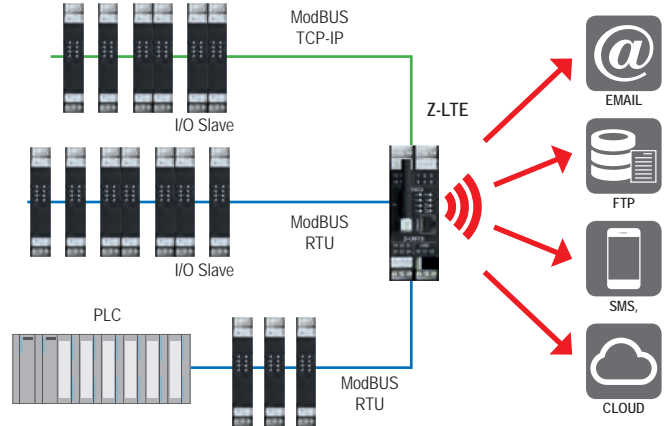
SUPERVISION AND CONTROL ENERGY MEASURES



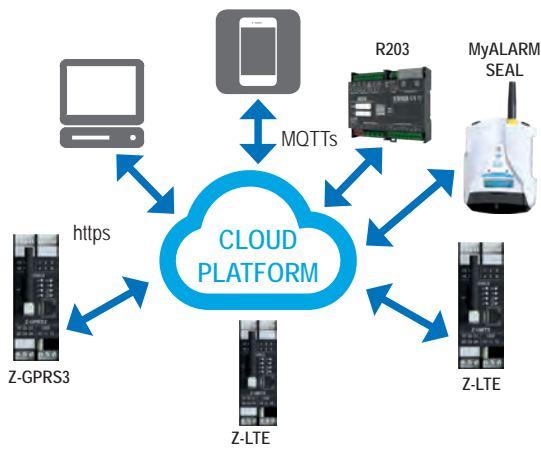
MQTT / MQTTS ARCHITECTURE



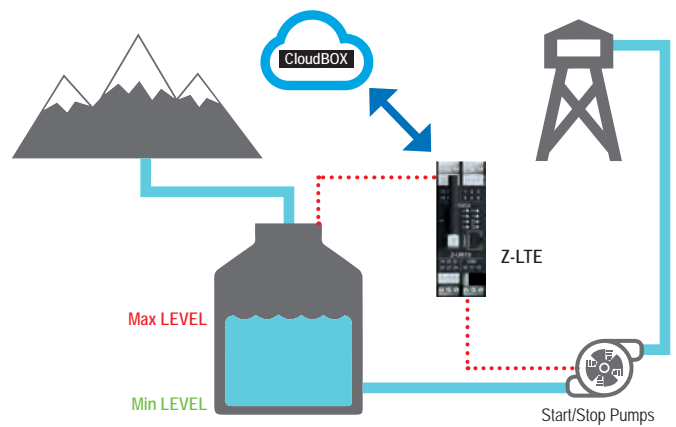
DATA LOGGING AND DATA RETRANSMISSION



DATA EXCHANGE ARCHITECTURE











REMOTE MONITORING PUMPS



ORDER CODES

Code	Description
MY-SEAL-0-0-0-B	Remote datalogger with SEAL programmable logic, blue color
MY-SEAL-0-0-0-G	Remote datalogger with SEAL programmable logic, gray color
MY-SEAL-0-0-0-G-B	Remote datalogger with SEAL programmable logic, GPS module, blue color
MY-SEAL-0-0-0-G-G	Remote datalogger with SEAL programmable logic, GPS module, gray color
MY-SEAL-R-0-0-B	Remote datalogger with SEAL programmable logic, relay board, blue color
MY-SEAL-R-0-0-G	Remote datalogger with SEAL programmable logic, relay board, gray color
MY-SEAL-R-0-0-G-B	Remote datalogger with SEAL programmable logic, relay board, GPS module, blue color
MY-SEAL-R-0-0-G-G	Remote datalogger with SEAL programmable logic, relay board, GPS module, gray color
Z-GPRS3	Advanced GSM/GPRS datalogger, integrated I/O, vocal alerts
Z-LOGGER3	Advanced alarm management module, datalogger, webservice
Z-LTE-WW	4G worldwide datalogger with integrated I/O, remote control functions, and vocal commands

SMART DATALOGGER

	MYALARM SEAL	Z-LOGGER3	Z-GPRS3	Z-LTE
	  <p>Remote Datalogger with Programmable Logic</p>	  <p>Datalogger with integrated I/O and alarm management functions</p>	  <p>GSM/GPRS datalogger with integrated I/O, remote control functions, and vocal alarms</p>	  <p>4G/LTE WW datalogger with integrated I/O, remote control functions, and vocal alarms</p>
GENERAL DATA				
Power Supply	6..15 Vdc	11..40 Vdc/ 19..28 Vac		19..40 Vdc/ 19..28 Vac
Power supply for transducers	No	Yes		
Max isolation	-	1,500 Vac	1,500 Vac	1,500 Vac
Integrated UPS/Battery	Backup battery LiOn 3.7 V - 1.000 mAh	Yes (max autonomy 60 minutes)		
Connections	Spring-loaded terminals, 3.5 mm pitch	3-way screw terminals (5 mm pitch for cable up to 2.5 mm ²)		
Vocal Alarms and DTMF	Yes	No	Yes	
Commands		IP20		
Protection class		IP20		
SIM	Push-push slot for mini SIM 15x25 mm	-	Push-push slot for mini SIM 15x25 mm	
Display	LCD 128x32 dots with visible area 39x8,6 mm	-		
OPERATING TEMPERATURE	-20..+55°C (0..45°C recommended)	-10..+50°C		
Built-in temperature sensor	Yes	No	No	No
Weight	150 g	250 g	280 g	
Dimensions (wxhxd)	80x105x30 mm	100x112x35 mm		
Installation	DIN rail or wall	35 mm DIN rail IEC EN60715		
Enclosure	ABS Polycarbonate	PBT, black		
Certifications		CE		
I/O CHANNELS				
Digital Inputs	#4 channels Reed, contact, PNP, Pulscap (photodiode) 30 Hz	#4 channels PNP, NPN (counters @32bit up to 30 Hz)		
Analog Inputs	#2 channels, voltage range (0..30 Vdc); current (0..20 mA); accuracy 0.1% f.s.	#2 channels, range 0..20 mA, 0..30 V, 16 bit		
DIGITAL OUTPUTS	Optional 2Relay board 3 A max - 250V SPST	#2 SPDT relay channels, max 2 A 250 Vac		
Expandability I/O ModBUS	No	Yes		
COMMUNICATION				
Communication Ports	-	#1 Ethernet 10/100 M (RJ45)		
	-	#1 RS232/RS485 switchable (terminal)		
	-	#1 RS485 ModBUS		
		#1 Micro USB B Host		
Protocols	http(s) post, MQTT(s)	FTP, SMTP, HTTP, ModBUS TCP, ModBUS RTU, HTTP post, MQTT	FTP client, SMTP client, HTTP rest (SSL), MQTT (SSL), ModBUS TCP Client/Server, ModBUS RTU Master / Slave, Https, SMTP with SSL/TLS, MQTT with SSL/TLS	
Modem / GPS / Radio	GSM/GPRS Quad band (850 / 900 / 1800 / 1900 MHz)	No	2G - GSM/GPRS Quad Band 850/900/1800/1900 MHz	Multiband M2M/IoT, 4G / LTE World Wide · LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/ B13/B18/ B19/B20/B25/B26/B28 · LTE-TDD: B38/B39/B40/ B41 · WCDMA: B1/B2/B4/B5/B6/B8/B19 · GSM: B2/B3/B5/B · GPS / GLONASS / BeiDou (compass) / Galileo / QZSS
Transparent Gateway	No	Yes		
PROCESSING, MEMORY				
Flash Memory		8 MB		
Expandable memory		Micro SD included, push-push slot for SD and SDHC card up to 32 GB		
Datalogger		Measurements, alarms, events, logging on Micro SD card and on Flash		
Synchronous datalogger		Minimum sampling time 1 minute		
Asynchronous datalogger		Up to 8 trigger events with max input freq. 1 Hz		
PROGRAMMING				
Programming environment		SEAL (SENECA Advanced Language)		
Variable and trend visualization tool		Log Factory		
Max # logical blocks (SEAL)		32		
Max # variables managed per device	91	100		
Mobile app		SENECA SMS		
WEB SERVER	-	Yes		
Character encoding		UTF8/UNICODE		
Firmware update	SD Card, USB Port, external FTP	FTP, Webserver, micro SD		
IoT / Cloud support		Yes via http(s) post, MQTT(s)		

The technical data and diagrams in this document are indicative and not binding.