100% Made & Designed in Italy

MULTIFUNCTION CONTROLLERS



SENECA

www.seneca.it

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

MULTIFUNCTION CONTROL UNITS WITH HIGH CONNECTIVITY

PRODUCT RANGE

SENECA's multifunctional controllers (Z-TWS11, Z-TWS4, Z-PASS2-S, S6001-RTU) are modular / all-in-one devices with high connectivity modular / all-in-one devices. They combine PLC tasks based on the Straton IEC 61131-3, softLPLC platform with web server functionality, with web server, datalogger, remote control, remote maintenance and energy management functions (in accordance with IEC 60870-101/104, IEC 61850). The controllers can be used with different architectures and configurations depending on the complexity of the system and the hardware requirements.

Z-TWS11



Modular automation solution able of managing 100 tags for universal applications. Strong of high connectivity thanks to FTP client, SMTP client, http, ModBUS TCP, ModBUS RTU protocols, the controller also has on board 2 analog inputs at 16 bits configurable in voltage or current and can realize automation systems expandable with ModBUS I/O modules / thernet Z-PC Line.

Z-TWS4



Z-TWS4 is an advanced control system with 4 integrated I/O, 1 CAN port, 4 serial ports, 2 USB ports, dual Ethernet ports. Desigened for plant automation (Straton - Soft PLC IEC 61131-3) and Energy Management applications (thanks to the IEC 60870-5-101, IEC 60870-5-104, IEC 61850 protocols), ZTWS4 is also a Linux-based CPU designed for data acquisition and control applications.

Z-PASS2-S



Z-PASS2-S is a high-performance controller with 6 integrated digital I/Os able of combining PLC functionality with routing and remote access. Routing and remote access. It is in fact based on Straton softPLC with built-in web server, VPN and 4G LTE modem/router with GPS/Glonass.
Z-PASS2-S can support Point-To-Point- Remote Assistance or Single LAN Telecontrol connections.

S6001-RTU



S6001-RTU is a compact all-in-one unit with 31 I/O channels and 1 4G LTE modem on board. With extended connectivity (4G/LTE, Ethernet, ModBUS RTU/TCP, Serial) it is expandable and interfaced with other systems and allows communications to and from central units and remote monitoring of installations. S6001-RTU can also be used as a standalone plant controller.

MULTIFUNCTIONALITY

- Multipurpose Controllers (SoftPLC, telecontrollers, gateways, dataloggers)
- Soft PLC IEC 61131-3
- Ready-to-use technology function libraries
- Universal application areas
- Datalogger
- Advanced alarm management
- Industrial ruggedness
- Opening SCADA and DAQ systems
- Advanced tech support

CONNECTIVITY

- Fieldbus (ModBUS RTU/TCP-IP; MBUS; S7 protocol)
- Energy Protocols IEC 61850, IEC 60870-5-101/104
- IT Protocols (HTTP/HTTPS, FTP/FTPS, SMTP, SNMP)
- Data exchange with OPC UA standard
- IIoT protocols (MQTT, http post)
- Cloud Platform Support

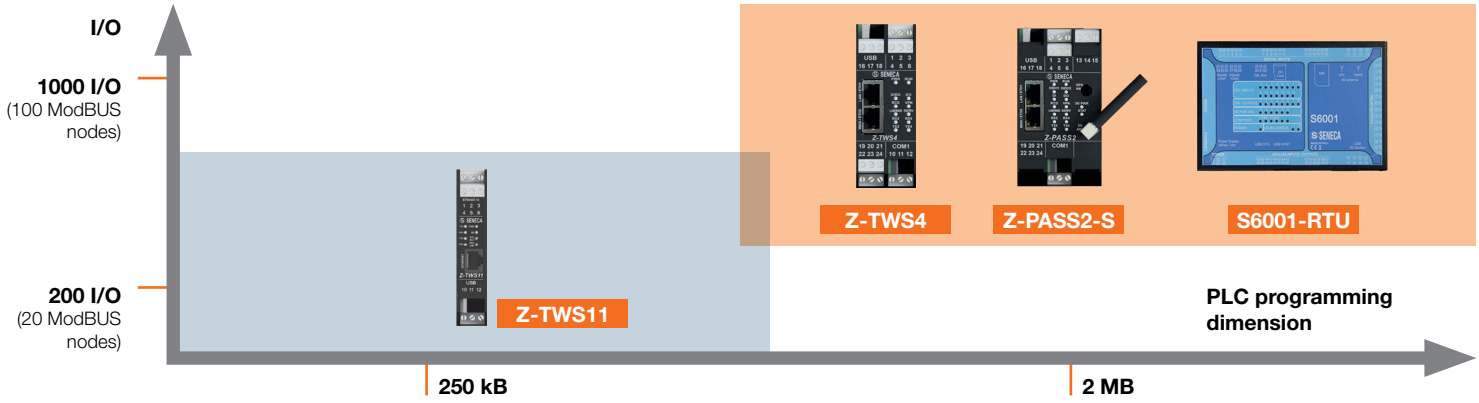
INTEGRATION

- HMI integration
- Integration with communication interfaces
- Radio modules integration
- Integration with IO modules (on-board and external up to 1,000 points)
- Energy meters integration
- Integration with thirdparty devices

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

SELECTION GUIDE

	Z-TWS11	Z-TWS4	Z-PASS2-S	S6001-RTU
SoftPLC	X	X	X	X
Energy Controller		X	X	X
Datalogger	X	X	X	X
Gateway	X	X	X	X
LAN Router	-	X	X	X
4G / LTE Router	-	-	X	X
Remote Assistance Unit		x (with ext. modem)	X	X
Telecontrol Unit		x (with ext. modem)	X	X
LAN / WAN switch			X	X



	Z-TWS11	Z-TWS4	Z-PASS2-S	S6001-RTU
HARDWARE / INTERFACES				
Fast Ethernet ports	1	2	2	1
Serial ports	2	3	3	3
USB ports	1	1	1	1
Built-in I/O	2 AI	1 DI, 2 DO, 1 DI/DO	2 DI, 2 DO, 1 DI/DO	15+2DI, 4AI, 8DO, 3AO
Modem Router	-	-	4G/LTE	4G/LTE
PROGRAMMING AND SOFTWARE				
Configuration Environment	Z-NET4	Z-NET4	Z-NET4	Z-NET4
PLC Programming	IEC 61131-1, Straton	IEC 61131-1, Straton	IEC 61131-1, Straton	IEC 61131-1, Straton
Telecontrol Libraries	-	Yes	Yes	Yes
N° max Variables / Tags	200	1000	1000	1000
Program size	250 kB	2048 kB	2048 kB	2048 kB
Diagnostics	-	Web Server	Web Server	Web Server
Data Logging and Visualization	Data Recorder, Trend Viewer, Web Factory	Data Recorder, Trend Viewer, Web Factory	Data Recorder, Trend Viewer, Web Factory	Data Recorder, Trend Viewer, Web Factory
CONNECTIVITY				
IT Protocols	HTTP, FTP, SMTP, SNMP, SAMBA	FTP server, SFTP server, HTTP server, HTTPS server, SMTP / SMTPS client, SNMP, SAMBA,	FTP server, SFTP server, HTTP server, HTTPS server, SMTP / SMTPS client, SNMP, SAMBA	FTP server, SFTP server, HTTP server, HTTPS server, SMTP / SMTPS client, SNMP, SAMBA
Securty Protocols		Open VPN, SSL/TLS	Open VPN, SSL/TLS	Open VPN, SSL/TLS
Fieldbus	ModBUS RTU, ModBUS TCP-IP	ModBUS RTU, ModBUS TCP-IP, S7 protocol, M-BUS (with Z-MBUS accessory)	ModBUS RTU, ModBUS TCP-IP, S7 protocol, M-BUS (with Z-MBUS accessory)	ModBUS RTU, ModBUS TCP-IP, S7 protocol, M-BUS (with Z-MBUS accessory)
IIoT Protocols	-	OPC UA/DA, MQTT	OPC UA/DA, MQTT	OPC UA/DA, MQTT
Energy Protocols	-	IEC 60870-101 Slave, IEC 60870-104 Master / Slave, IEC 61850 Client / Server	IEC 60870-101 Slave, IEC 60870-104 Master / Slave, IEC 61850 Client / Server	IEC 60870-101 Slave, IEC 60870-104 Master / Slave, IEC 61850 Client / Server
Cloud Support	-	Yes	Yes	Yes
VPN Support	-	Yes	Yes	Yes

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

MANAGEMENT SOFTWARE

The SENECA Package suite includes the IEC 61131-3 configuration environment, Z-NET4, with which 3 integrated applications are installed for the complete management of an automation project. Data export interfaces to the Straton and OPC programming environment are also available.

SENECA PACKAGE

Z-NET4

System configurator: project, CPU, I/O, communication network, variables

DATA RECORDER

Data acquisition and recording software

TREND VIEWER

Historical data visualization and analysis software

WEB FACTORY

Tool for creation and management of Web-HMI monitoring pages

STRATON

Interface for creating, reading and exporting Straton configurations

OPC

Interface for creating and exporting variables in OPC environments

ENGINEERING AND CONFIGURATION



Z-NET4 is a graphical programming environment used to configure Modbus slave modules and to realize data acquisition, automation and remote control projects managed by SENECA controllers and RTUs running on IEC 61131-3 platforms. controllers and RTUs working on IEC 61131-3 platforms. Through Z-NET4 it is possible to generate automatically the configuration files of the controller, modify them when required, download the configuration in the CPU and configure the I/O modules connected to it. ZNET4 also allows you to visualize in real time the values assumed by the modules and the I/O variables, automatically and transparently configuring the management of the variables managed by the controllers.

PROJECT MANAGEMENT

A Z-NET4/Straton automation project is based on configuration files generated by Z-NET4 which include: the variables related to I/O modules, user defined PLC variables, Modbus RTU Master tasks for reading/writing I/O variables, definition of PLC variables accessible via ModBUS TCP Server and/or ModBUS, RTU Slave. definition of PLC variables accessible through ModBUS TCP Server and/or ModBUS RTU Slave.

HARDWARE CONFIGURATION

Through Z-NET4 it is possible to define the type of controller used and configure its functional characteristics: serial ports, Modbus parameters, modem communication parameters, etc. After configuring the CPU, it is possible to configure the I/O modules or other connected devices via Ethernet communication.

VARIABLES MANAGEMENT

Z-NET4 allows you to declare field I/O variables, ModBUS variables and PLC variables for use in embedded applications (Web Editor, Trend Viewer) or export to the Stratron environment or via OPC technology applications (Web Editor, Trend Viewer) or export them to the Stratron environment or via OPC technology. In Z-NET4 is carried out the setting of data acquisition and recording parameters in the application DAQ ModBUS integrated “Data Recorder”.

TECHNOLOGY FUNCTION LIBRARIES

- SMS management (receiving commands from max 5 enabled numbers)
- Management of Alarm Events from digital signals or thresholds on analog values
- Sending of Alarm Notifications via SMS and/or Email (max 8 notification groups each with 10 SMS contacts or 10 email addresses recipients)
- Alarm History Log with possibility of local storage on microSD card (not included), sending via FTP or Email as an attachment
- Variable Datalogging Management (max 1000) to be divided on 4 independent log groups with periodic log operation or on variable on variable trigger
- Sending of data logs with possibility of local storage on microSD card (not included), sending via FTP or Email as attachment

IEC 61131-3 PROGRAMMING



An evolution of IEC 1131 published in 1992, IEC 61131 represents the most successful effort to standardize industrial control technologies and bring them back to an international standardization system. international standardization system. The third part of the standard, IEC61131-3, deals with the programming languages used in industrial controllers. The standard defines text-based programming languages (instruction list, structured text) and graphical programming languages (contact diagram, function block diagram, sequential functional function diagram). According to the IEC 61131-3 standard, PLC programs consist of by a number of software elements, implemented in different languages.

PACKAGE

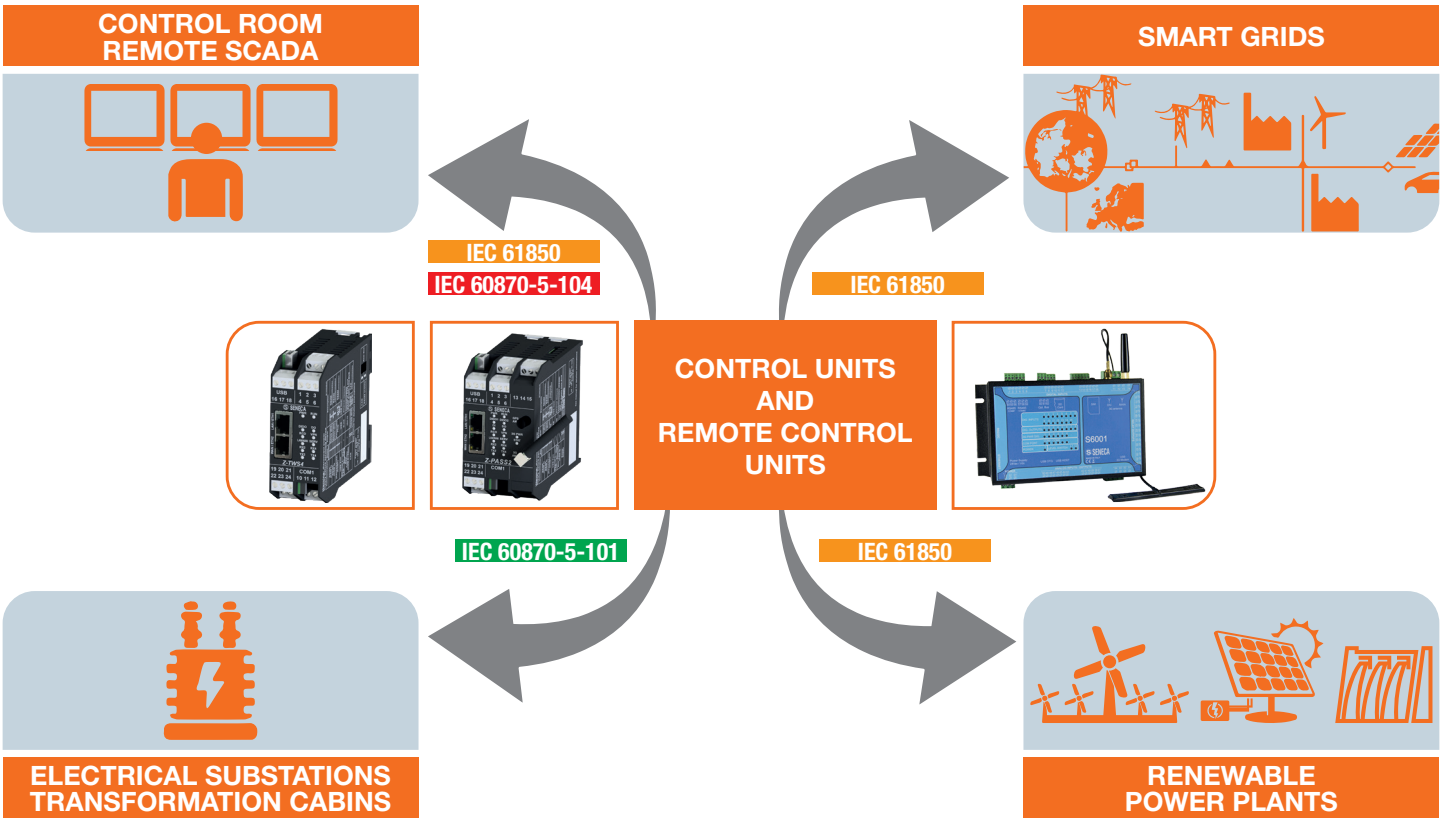
SENECA Straton Package is a platform-independent SoftPLC suite of software required to operate SENECA’s Straton CPUs such as Z-TWS11, Z-TWS4, Z-PASS2-S and S6001-RTU. The purpose of this suite is to assist the user in installing all the necessary software packages through a single installer.

IDE

SENECA Straton IDE (Integrated Development Environment) is available in demo version or with 256, 512 and unlimited tags. It acts as a design, programming and testing interface with support for IEC 61131-3 standard languages (ST, IL, FBD, SFC, LD). Includes I/O and fieldbus configuration tools, language conversion, data export, and data exchange and telecontrol libraries.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

CONTROL AND COMMUNICATION FOR ELECTRICAL NETWORKS



ENERGY CONTROLLERS AND REMOTE CONTROLLERS

For Energy Management applications SENECA offers different types of controllers, Z-TWS4-E, Z-PASS2-S-E, S6001-RTU-E with the support of IEC 60870-101/104 and IEC 61850 communication protocols. These units can be used as redundant controllers for plant automation, energy management, management of renewable energy systems (biomass, photovoltaic, etc.). renewable energy systems (biomass, photovoltaic, wind, etc..), development of smart grids, etc. They are also configurable as web servers and TCP-IP nodes and can be integrated with SCADA, EMS and Web supervision platforms.

IEC 60870

IEC 60870 - REMOTE CONTROL

In the field of electrical engineering and automation of power plants, the international standard IEC 60870 allows interoperability between equipment from different manufacturers and is divided into six parts that define the general information operating conditions, electrical interfaces, performance requirements and standard transmission protocols. The stack (data type) used in Straton supports in particular:

- IEC 60870-5-101 (serial communication)
- IEC 60870-5-104 Slave (communication via TCP/IP).

IEC 61850

IEC 61850 & GOOSE - ELECTRICAL NETWORKS

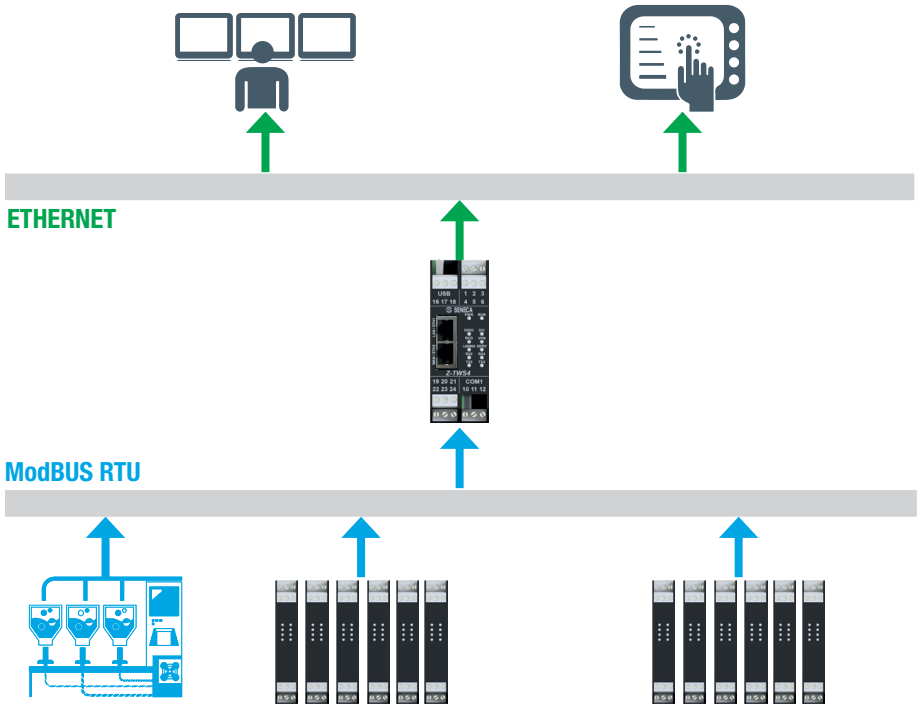
IEC 61850 is designed to send messages between sender and receiver in an optimal manner, making communication as direct as possible to avoid loss of performance and functionality. The SENECA stack for the IEC 61850 server includes the source, configurator, compiler and runtime. The abstract data model defined IEC 61850 can be mapped to a number of different protocols such as GOOSE (Generic Object Oriented Substation Events).
Oriented Substation Events, a mechanism that allows the sending of any data grouped in a data set in a time less than a few milliseconds. time of less than a few milliseconds.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

MULTIFUNCTION CONTROL UNITS WITH HIGH CONNECTIVITY

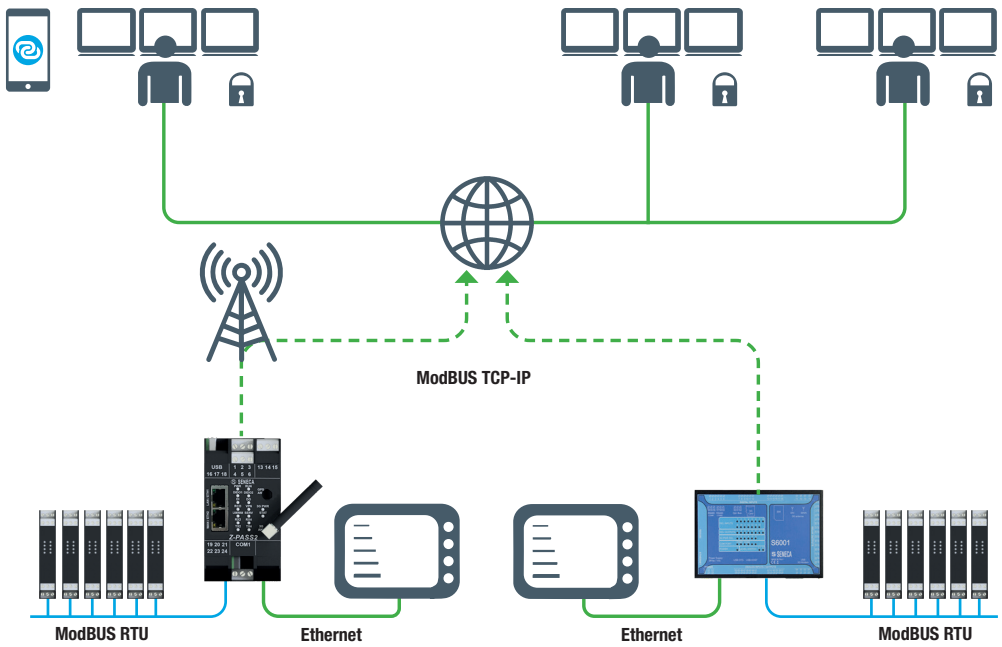
DISTRIBUTED AUTOMATION

- Fieldbus integration for multi-sector and distributed applications
- ModBUS RTU/ TCP-IP support over RS232/RS485 serial line or Ethernet
- RS485 / ModBUS RTU serial management on bus or terminal up to 64 nodes without repeater and speeds up to 115 kbps
- Master-Slave architectures and physical access based on half-duplex serial transmission
- High-speed (100 Mbps) Ethernet LAN interfaces



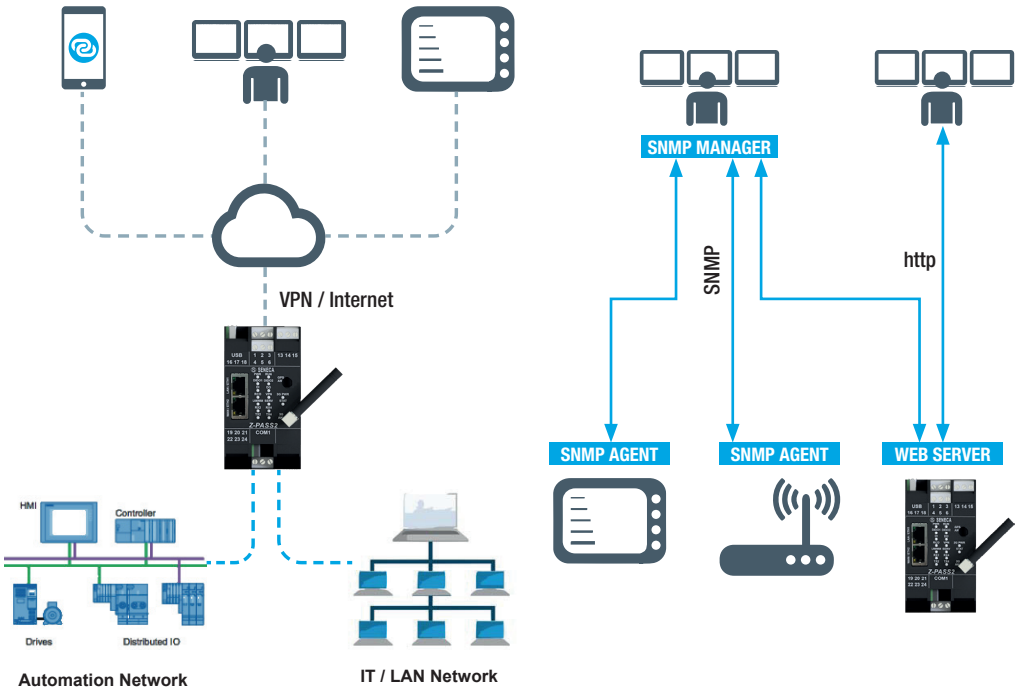
TELECONTROL AND REMOTE ASSISTANCE

- Operation as CPU Client on VPN network (LET'S platform)
- Integration of remote access and programmable automation functions
- Complex VPN/ IoT architectures
- Safety critical applications with tunnelling, LAN / 3G+ or 4G switching functions
- Telecontrol mode / Single LAN (always on connection) with simultaneous communication between remote sites, servers and subnets
- Remote-assistance / Point-to-Point mode (connection on demand) with coexistence of multiple types of users for point-to-point pointto-point communications between PCs (or mobile devices) and machines / plants



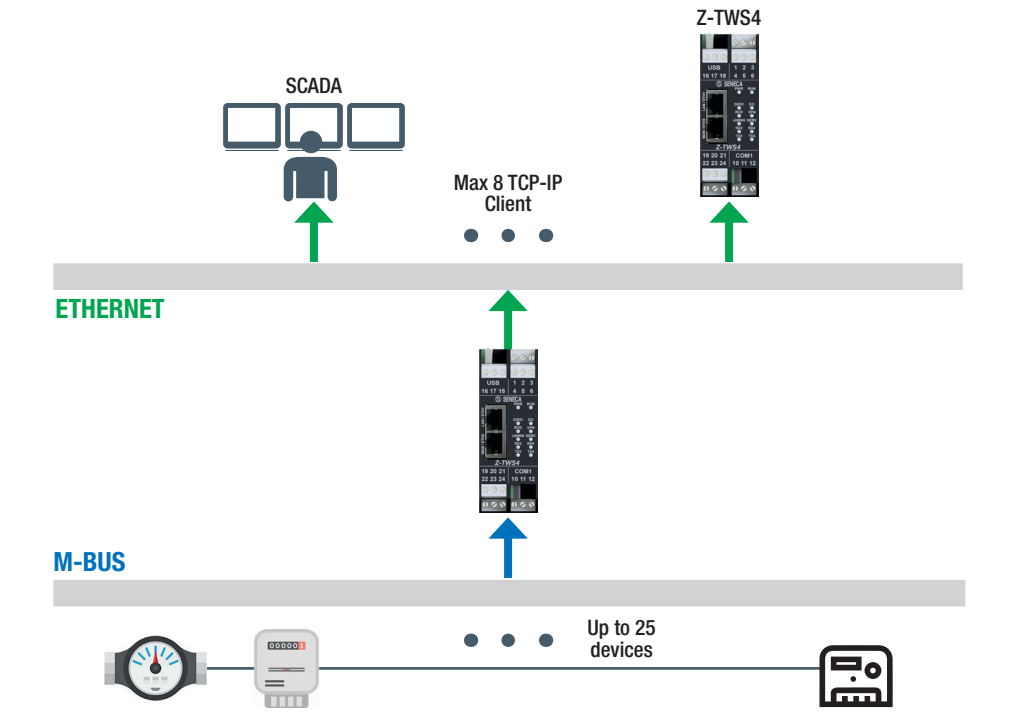
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

NETWORKING



- IT Protocols: FTP / SFTP server, HTTP / HTTPS Server, SMTP / SMTPS Client, SNMP, OpenVPN,TLS, SSL X-509
- Enterprise network and automation network simultaneously accessible via remote Point-to-Point/Single LAN connection
- Ethernet ports configured independently in LAN/ WAN mode (support static addresses)
- Ethernet ports configured with static or DHCP addressing in “Switch” mode
- Network management via SNMP protocol for monitoring and remote configuration of network devices, recognition and notification of faults

SMART METERING

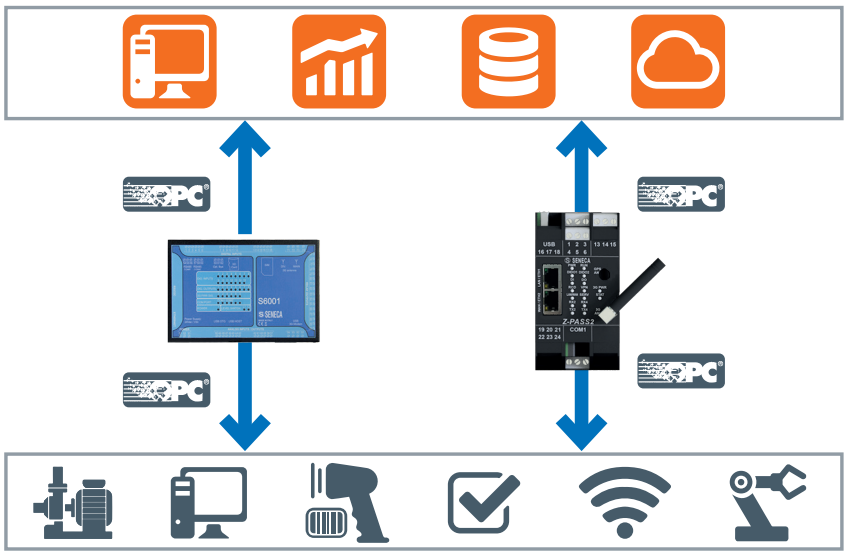


- Built-in control with metering and remote measurements
- Smart meter management for separate recording of heat, water, electricity, gas consumption
- M-Bus network support via Z-MBUS adapter or Z-KEYMBUS gateway connected to serial or Ethernet port
- M-Bus device management via web server and function
- IEC 61131 Straton read/write block

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

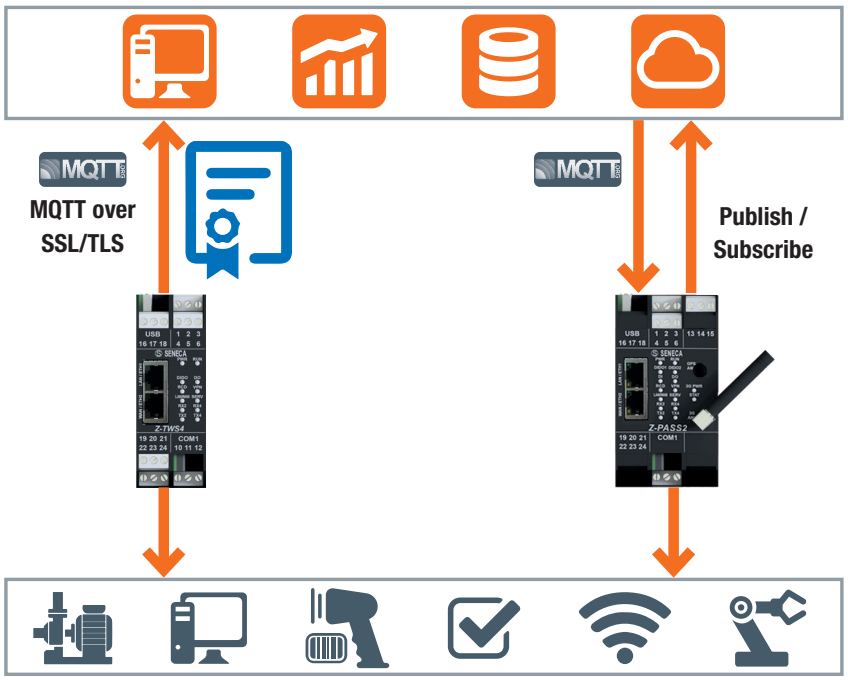
CONTROL WITH OPC UA/DA

- OPC UA (Unified Architecture) open communication platform for client-server cross communications
- OPC Data Access (DA) support for real-time data communication from I/O, PLC, HMI, SCADA and DAQ systems
- Automation applications with OPC UA client / server from other vendors
- SSL/TLS and X.509 security protocols



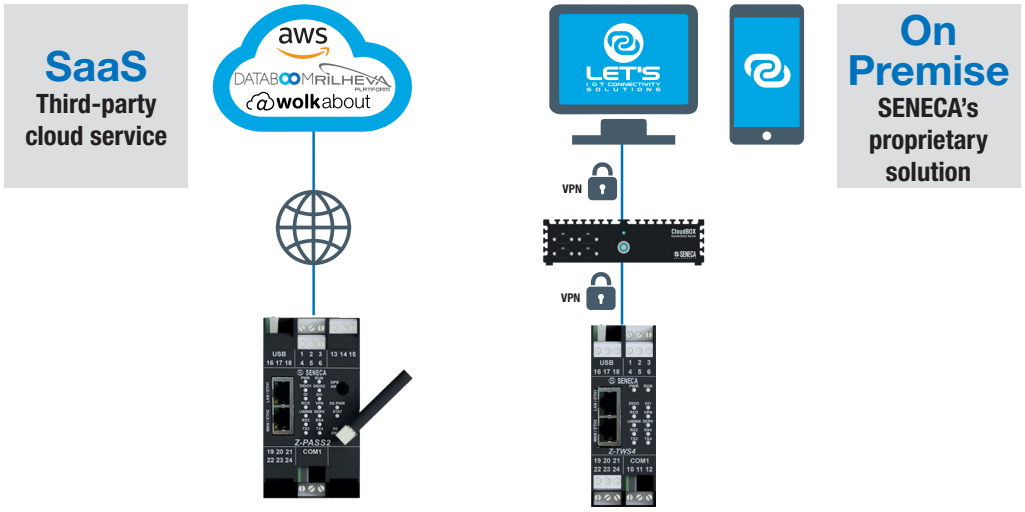
CONTROL WITH MQTT

- Message Queue Telemetry Transport (MQTT) support for transmitting data generated by IoT devices and for Machine-To-Machine (M2M) connections
- Optimization of data exchange and asynchronous transfer of data in “publish” / “subscribe” mode
- MQTT parameterization via Web Server, SofPLC Straton or file system override
- Authentication of SSL/ TLS security connections with digital certificates uploaded via FTP Server



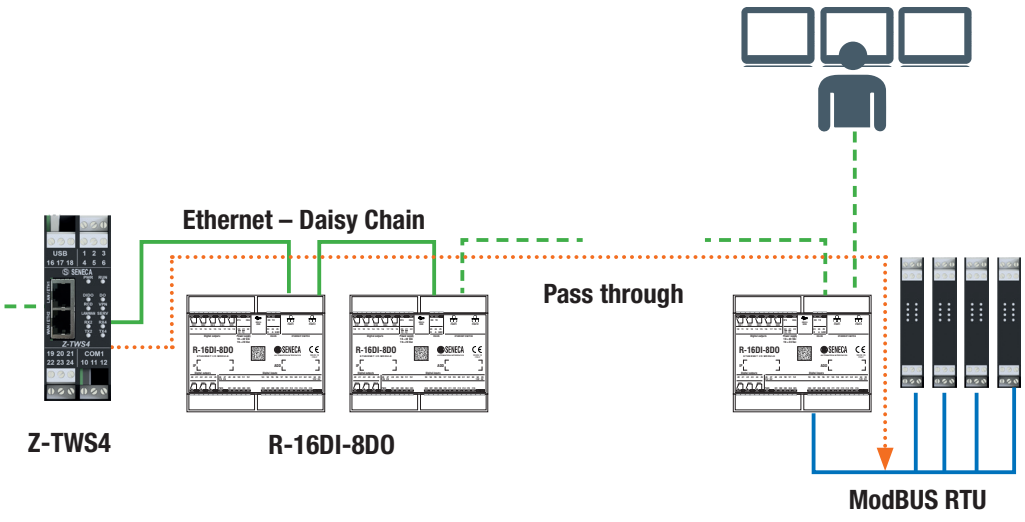
Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

CLOUD PLATFORMS INTEGRATION



- Connection of machines, plants and I/O in the field, with third party Cloud platforms via http/Mqtt protocols
- Native interpretation of the content of messages sent by SENECA controllers
- Customization of messages to optimize the compatibility of data transmission with the destination Cloud
- SENECA "VPN BOX" on premise solution (data are kept in possession of the user)

MODBUS PASS THROUGH SUPPORT



- Connection of machines, plants and I/O in the field with third party Cloud platforms via http/ Mqtt protocols
- Native interpretation of the content of messages sent by SENECA controllers
- Customization of messages to optimize data transmission compatibility with the destination Cloud
- SENECA "VPN BOX" on premise solution (data remain in possession of the user)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

PRE AND AFTER-SALES SERVICES



SUPPORT

- Sales Support- Multifunction Controller
- Troubleshooting- Personalized pre- and postsales support
- Solution Partner Program Management
- Technical training planning and delivery
- IoT Mobile, Pre-Sale, Test&Software Engineering- Management of reserved internet area
- Ticketing and knowledge base management
- Online and telephone consulting
- Technical assistance via email within 48h
- On-demand support services



www.seneca.it/supporto-e-assistenza/



TRAINING

- Training program with practical tools to understand, maintain, manage and program your IEC 61131-3 controllers
- Reporting to meet the actual needs of the participants
- Educational support consisting of manuals, system diagrams and software packages
- On-demand training and consulting services tailored to the customer's real needs
- SENECA Digital Academy: virtual space dedicated to training events, webinars and tutorials on automation, control and measurement solutions



www.seneca.it/supporto-e-assistenza
www.seneca.it/academy



PARTNERSHIP

- Qualified Partnership Program for System Integrators and Solution Providers
- Identification of Z-PC Line based solutions
- Publish applications online and in reference books
- System Integrator support for strategic activities with end customers
- Continuous contact between System Integrator and SENECA technicians to exchange experiences and solutions
- Enabling each integrator to satisfy any request in a reliable and effective way



www.seneca.it/dove-acquistare

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

APPLICATIONS CASES

SENECA control solutions are adopted in the majority of industrial sectors by thousands of customers in the international market. SENECA is present both in the industrial process and manufacturing sectors. and batch. The SENECA proposal guarantees openness, scalability and maximum connectivity in the transmission of the data to and from the supervision centres, reducing maintenance costs and helping to increase performance and the efficiency of machines and plants. By way of example we report some significant applications.

PROCESS CONTROL



Customer: Beverages and spirits producer
System: Batch control and real-time recipes management
Controllers: Z-TWS4
Managed I/O: Over 500
Communication network: ModBUS, CANopen

MACHINE AUTOMATION



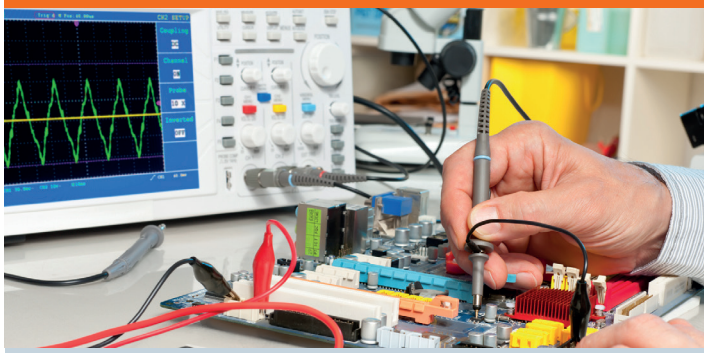
Customer: Packaging machine manufacturer
System: Remote assistance packaging machines
Controllers: Z-PASS2-S
Managed I/O: Over 50,000
Communication network: VPN, 3G, ADSL

ENERGY MANAGEMENT



Customer: IT company
System: Energy monitoring and remote control of users
Controllers: Z-TWS4-E
Managed I/O: Over 1,000
Communication network: ModBUS, Ethernet, 3G+, IEC 60870-5-101, IEC 60870-5-104, IEC 61850

LABORATORIES AND TESTING



Customer: Chiller manufacturer
System: End of line testing system
Controllers: Z-TWS4, Z-TWS11
Managed I/O: Over 500
Communication : ModBUS, Ethernet, OPC UA

TELECONTROL AND UTILITIES



Customer: Water Service Operator
System: Remote control of lifting systems
Controllers: Z-TWS4
Managed I/O: Over 5,000
Communication network: UHF 869 MHz and NBMF 169,4 MHz, ModBUS

INFRASTRUCTURES AND TRANSPORTS



Customer: Public Administration
System: Control of underpasses and viaducts
Controllers: Z-PASS2-S
Managed I/O: Over 500
Communication network: ModBUS, 3G+, VPN, Ethernet, MQTT, OPC UA

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

CONTACT AND INFORMATION

Address

Headquarter: Via Austria 26 - 35127 Padova (I)
Tel. +39 049 8705 359 (408)
Fax +39 049 8706287

Web

Automation Products: www.seneca.it
Tech Suppport: www.seneca.it/supporto

E-mail

General information: info@seneca.it
Sales Office: sales@seneca.it
Quality Management: qualita@seneca.it
Product technical support: support@seneca.it

Follow us on Social Media

SENECA

No liability for the contents of this documents can be accepted. Use the concepts, examples and other content at your own risk. There may be errors and inaccuracies in this document, that may of course be damaging to your system. Proceed with caution, and although this is highly unlikely, the author(s) do not take any responsibility for that. Prices indicative only & subject to change without notice.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

21C0189_MULTIFUNCTION CONTROLLERS_2104EN – April 2021