SIELCO SISTEMI srl
via Roma, 24 - 22070 Guanzate (CO) – Italy
Tel: +39 031899671 – Fax: +39 031976966
e-mail: info@sielcosistemi.com
website: http://www.sielcosistemi.com

Modbus TCP/IP server
4 isolated outputs for mA and Volt

SS 8024

FEATURES

- Interface Ethernet 10/100 Base-T, Modbus TCP Server
- 4 isolated output channels
- Configurable Analog Outputs for mA and Volt
- Isolated power source for each channel to power passive loads
- Integrated web server to set the analog outputs via browser
- Remotely programmable
- Connection by removable screw-terminals
- LED signalling for Link/Act Ethernet, power supply
- Galvanic isolation on all the ways
- EMC compliant – CE mark
- In compliance to EN-50022 DIN rail mounting

GENERAL DESCRIPTION

The SS8024 module is a Modbus TCP server unit that can generate up to 4 analog output signals via digital commands.
To the outputs it is possible to connect active or passive loop current up to 20 mA or voltage signals up to 10 V.

The output channels are electrically isolated from each other.
For each channel is provided an isolated power source for powering passive loop current.
The device guarantees high accuracy and a stable measure versus time and temperature.
In order to ensure the safety plant, the device is provided with a Watch-Dog Timer system.
The Ethernet interface allows reading and writing in real time the values of the internal registers of the device.
The LEDs of signalling of Ethernet activity and power supply allow a direct monitoring of the system functionality.
The built-in Web Server of SS8024 allows the remote visualization, setting of the analog outputs and the access to the main Ethernet programming parameters.
The connection is made by removable screw-terminals (inputs and power supply) and RJ45 plug (Ethernet).
The device SS8024 realizes a full electrical isolation between the lines, introducing a valid protection against the effects of all ground loops eventually existing in industrial applications.
The device is housed in a rough self-extinguishing plastic enclosure which, thanks to its thin profile of 22.5 mm only, allows a high density mounting on EN-50022 standard DIN rail.

TECHNICAL SPECIFICATIONS (Typical @ 25 °C and in the nominal conditions)

In compliance with Ethernet IEEE 802.3

Network interface	Ethernet 10/100Base-T
Protocol	Modbus TCP
Max. cable length	100 meters
Number of socket	16

ANALOG OUTPUTS

Output Type	Min	Max
Current 20 mA	0 mA	+20 mA
Voltage 10 V	0 V	+10 V

(1) Referred to input Span (difference between max. and min. values)

(**) 4 Operative Auxiliary Supply @20mA

Output Accuracy (1)

mA	± 10 uA
Volt	± 5 uV

Linearity (1)

mA	±0,1 % f.s.
Volt	±0,1 % f.s.

Load Resistance

mA	</= 500 Ω
Volt	>/= 5 KΩ

Thermal drift (1)

Full Scale	± 0,01
%/°C	

Auxiliary Supply (for each channel)
12 Vdc min @ 20 mA

Response Time (from 10% to 90% f.s.)
15 ms

POWER SUPPLY

Power supply voltage	18 .. 30 Vdc
Reverse polarity protection	60 Vdc max
Consumption (Not Operative Aux)	90 mA tip@24Vdc
Consumption (Not Operative Aux)	110 mA max@18Vdc
Consumption (**)	150 mA max @24Vdc
Consumption (**)	180 mA max @18Vdc

ISOLATION

Power Supply / Ethernet	1500 Vac, 50 Hz, 1 min
Inputs / Power supply	1500 Vac, 50 Hz, 1 min
Inputs / Ethernet	1500 Vac, 50 Hz, 1 min
Input / Input	1500 Vac, 50 Hz, 1 min

ENVIRONMENTAL CONDITIONS

Operative Temperature	-10°C .. +60°C
Storage Temperature	-40°C .. +85°C
Humidity (not condensed)	0 .. 90 %
Maximum Altitude	2000 m
Installation	Indoor
Category of installation	II
Pollution Degree	2

CONNENCTIONS

Ethernet	RJ-45 (on terminals side)
Inputs	Removable screw-terminals
Power Supply	Removable screw-terminals

MECHANICAL SPECIFICATIONS

Material	Self-extinguish plastic
IP Code	IP20
Wiring	wires with diameter 0.8÷2.1 mm2 /AWG 14-18
Tightening Torque	0.8 N m
Mounting	in compliance to DIN rail standard EN-50022 and EN-50035
Weight	about 160 gr.

EMC (for industrial environments)

Immunity	EN 61000-6-2
Emission	EN 61000-6-4

INSTALLATION INSTRUCTIONS

The device is suitable for fitting to DIN rails in the vertical position.
It is always a good thing to space the devices together 5mm. Make sure that sufficient air air flow is provided for the device avoiding to place raceways or other objects which could obstruct the ventilation slits. Moreover it is suggested to avoid that devices are mounted above appliances generating heat. Install the device in a place without vibrations. It is also suggested to avoid routing conductors near power signal cables and to use shielded cables for connecting signals.

MODULE CONFIGURATION

To configure the SS8000 series devices, it is necessary to enable the **INIT** mode. This mode allows you to access the device with the following default parameters :

I**P Address:192.168.1.174** (DHCP disabled), or IP provided by DHCP (if enabled)
Modbus Address: 245

To enter the INIT mode follow these steps:
- Turn off the device;
- Connect the INIT terminal to the -V terminal as shown in figure.
- Turn on the device and connect with an internet browser to the device using the default parameters listed above and using the default login credentials:

Username: admin
Password: admin

To exit INIT mode follow these steps:
- Turn off the device;
- Remove the INIT connection;
- Turn on the device and connect with the new parameters.

RESET FUNCTION- "P" BUTTON

If it is necessary to restore the default device parameters, with device powered and not in INIT condition, push the front located "P" button for at least 5 seconds.
The green led PWR will switch-off, the yellow led STS will become orange and the reset of the device will occur. When the reset procedure will be finished, both the leds will set back to the default condition and the following parameters will be loaded :

Ethernet:
- IP Address: 192.168.1.100
- Subnet Mask : 255.255.255.0
- Gateway Mask: 192.168.1.1

Username: admin
Password: admin

Modbus Address: 1

MAPPING MODBUS REGISTERS

Register Position	Winlog Syntax	Description	Access
40007	3:06	Node ID	R/W
40011	3:10	System Flags	R/W
40013	3:12	Watchdog timer	R/W
40031	3:30	Output type (1-0) *	R/W
40032	3:31	Output type (3-4) *	R/W
40041	3:40	Analog Output (0)	R/W
40042	3:41	Analog Output (1)	R/W
40043	3:42	Analog Output (2)	R/W
40044	3:43	Analog Output (3)	R/W
40049	3:48	Power Up (0)	R/W
40050	3:49	Power Up (1)	R/W
40051	3:50	Power Up (2)	R/W
40052	3:51	Power Up (3)	R/W
40057	3:56	Safe (0)	R/W
40058	3:57	Safe (1)	R/W
40059	3:58	Safe (2)	R/W
40060	3:59	Safe (3)	R/W

* Output type Ch(BIT)	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Description	Output type Ch(n)**								Output type Ch(n-1)**							

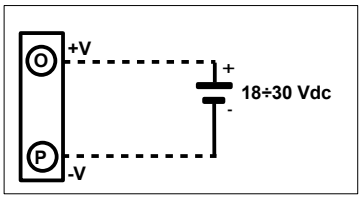
** Output type Ch	Dec
20mA	0
10V	1

LIGHT SIGNALLING

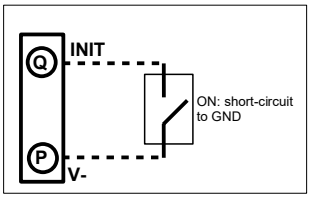
LED	COLOR	STATUS	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
		BLINK	Watchdog alarm
STS	YELLOW	OFF	Device in RUN mode
		BLINK	Device in INIT mode

CONNECTIONS

POWER SUPPLY

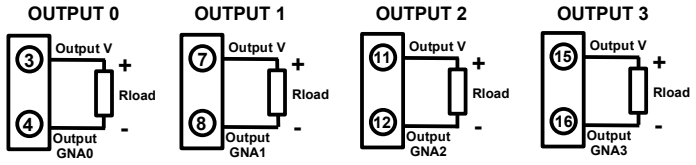


INIT

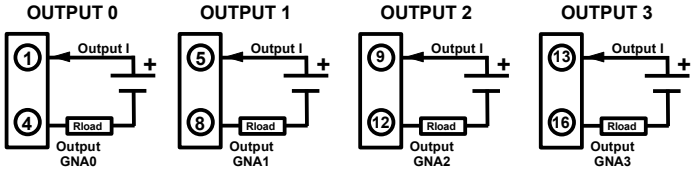


ANALOG OUTPUTS

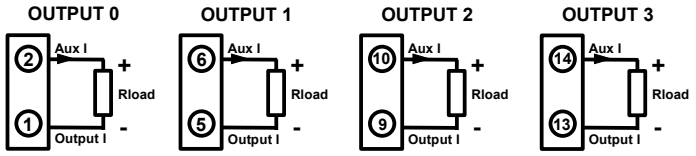
VOLTAGE



PASSIVE mA OUTPUT

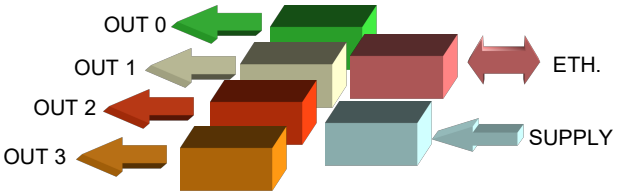


ACTIVE mA OUTPUT

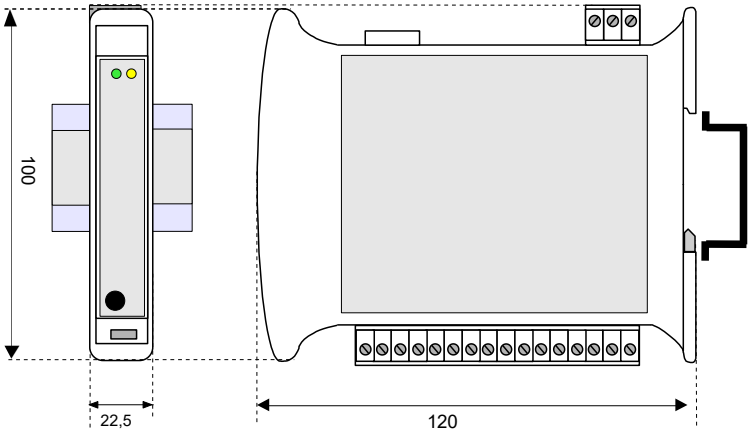


NOTES:
"GNA0", "GNA1", "GNA2" and "GNA3" are isolated between them.

ISOLATIONS STRUCTURE



MECHANICAL DIMENSIONS (mm)



HOW TO ORDER

" SS 8024 "
Note: the device is provided with default configuration as:
IP address : 192.168.1.100
Modbus address: 1

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