Z-SG / Z-SG2

STRAIN GAUGE / RS485 MODBUS RTU CONVERTER MODULES

Highlights

- **Multifunction instruments (converters, meters, stand alone/ third-party integrated systems)**
- **Nr.1 Analog input for reading (and power supply) strain gauge load cells (6-wire isolated measurement)**
- **Nr.1 Analog re-transmitted output of net weight in current (0..20, 4..20 mA) or voltage (0..5, 0..10 V)**
- **Nr. 1 Digital Input/Output for operation settings**
- **Accuracy class 0,01%**
- **ModBUS RTU slave half duplex protocol**
- **Multiple calibration methods (with or without PC, known weight and load cell)**
- **Programmable functions via DIP switches or software: full scale, threshold exceeding, stable weighing**
- **Advanced functions (Z-SG2): configurable resolution, adjustable sampling rate from 5.4 Hz to 1365.3 Hz, adjustable threshold alarm, stabilized measurement by noise filter, "piece counter" function, automatic tare reset**

Z-SG / Z-SG2 are strain gauge load cell converters. The measurement, carried out with 4 or 6-wire technique, is available via ModBUS RTU serial protocol or analog output. The communication is configurable via DIP-switch or via software by connecting to the device with the Micro USB port on the front panel.

Z-SG and Z-SG2 are galvanically isolated 3-way modules up to 1500 Vac. The load cell sensitivity varies from 1 to 64 mV/V. The instruments are configurable via DIP-switch and software (EASY SETUP).

The strain gauge can be directly powered by the instrument. The load cell calibration can be managed through sample weight or software. The Z-SG2 version stands out for new functions (piece counter, automatic tare reset, threshold alarm, firmware upgradeable automatically) and new flexible measurement management modes (measurements available both in full and floating point, measurement stabilized by anti-noise filter, configurable resolution).

Modbus

100% Made & Designed in Italy

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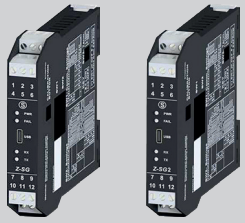
Z-SG / Z-SG2



STRAIN GAUGE / RS485 MODBUS RTU CONVERTER MODULES

Modbus

TECHNICAL DATA

GENERAL DATA

Power supply	10..40 Vdc / 19..28 Vac
Power consumption	1,5 W @ 24Vdc (typical); Max 2 W (max)
Isolation	1,5 kVac
ESD discharge protection	Yes, 4 kV
Power transducers	Yes
LED status indicators	Power supply Error Data Transmission Data Reception
Protection degree	IP20
Operating temperature	-10..+65°C
Dimension	17,5 x 102,5 x 111 mm
Weight	Approx 110 g
Case	PA6, black color
Connections	Removable screw terminals for 2.5 mm^2 conductors IDC10 rear connector for DIN rail 46277 Micro USB front
Mounting	DIN rail 35mm IEC EN60715 in vertical position
Programming	Only for Z-SG System Software (Z-NET4) Plug&play configurator (EASY SETUP) DIP switch (for Z-SG2 only baud rate and address)
Basic functions	Cell calibration with software and sample weight; Stable weighing signaling via digital output/modbus register; Remote writing of the tare in volatile and/or non-volatile memory via digital input/modbus register; Strain gauge directly powered by the instrument; Ratiometric measurement
Advanced functions	Only for Z-SG2: Configurable resolution; Sampling rate adjustable from 5.4 Hz to 1365.3 Hz; Alarm threshold adjustable; Measurement stabilized by noise filter; Measurements available in integer and floating point; “piece counter” function; Firmware upgradeable via software; Min/Max net weight values; Automatic reset tare

COMMUNICATION

Interfaces	RS485 2 wires - RS232 (jack stereo 3.5 mm)
Speed	Up to 115.200 bps
Protocols	MosBUS RTU slave
Communication time	< 10 ms (@38.400 bps)
Max distance	Up to 1.200 m
Connectivity	Max 32 nodes

STANDARD

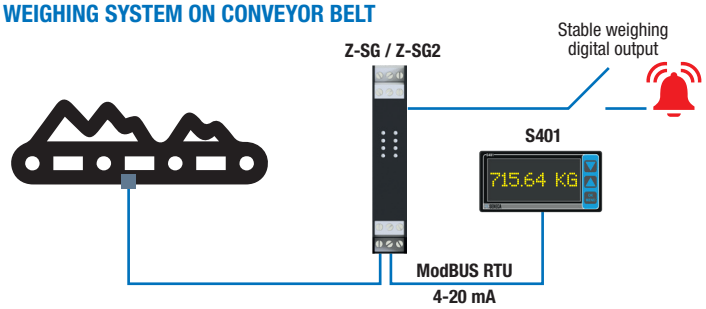
Approvals	CE
Norms	EN61000-6-4, EN61000-6-2, EN61010-1

INPUT / OUTPUT DATA

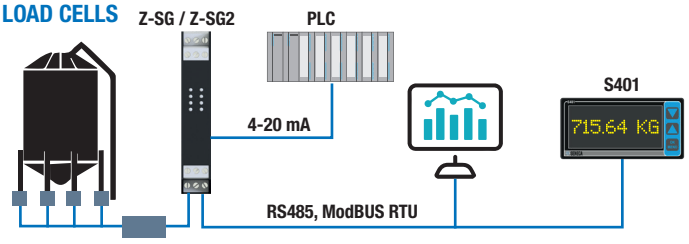
Number of Channels	1 analog input, 1 analogo output, 1 digital input/output
Analog input	4 or 6-wire differential measurement Input impedance: > 1 MΩ Full scale: ± 10 mV / ± 320 mV Error: 0.01% f.s. Thermal stability: 0.0025%/°C f.s.
Load	Supply voltage: 5 Vdc Minimum impedance: 87 Ω equivalent Sensitivity: ±1 mV/V to ±64 mV/V Load cells: 4 or 6 wires
Analog Output	Configurable voltage 0 - 10 Vdc, min load resistance 2 kΩ Configurable current 0 - 20 mA, max. load resistance 500 Ω Retransmission error: 0.1 % of max range Response time (10%..90%): 5 ms
Digital Input/Output	Opto-insulated Digital Input: Min. voltage 12 V / Max. voltage 30 V Opto-isolated Digital Output: Min. current 50 mA / Max. voltage 30 V
Accuracy class	0,01%
Stability	0,025%/°C

APPLICATION EXAMPLES

WEIGHING SYSTEM ON CONVEYOR BELT



WEIGHT MEASUREMENT AND RETRANSMISSION WITH PARALLEL LOAD CELLS



ORDER CODES

Code	Description
Z-SG	Strain gauge input module / RS485 ModBUS RTU
Z-SG2	Advanced strain gauge input module / RS485 ModBUS RTU
ACCESSORI	
SQ-EQ4	Equalization and connection system for load cells
SG-EQ4-BOXPG7	Equalization and connection board for up to 4 load cells in parallel with IP66 containment box
CU-A-MICROB	USB-A Micro USB-B 5 P plug cable
Z-PC-DINAL2-17.5	DIN rail quick mounting bracket - HEAD +2 SLOT P=17.5mm
Z-PC-DIN2-17.5	DIN rail quick mounting bracket - 2 SLOT P=17.5mm
Z-PC-DIN8-17.5	DIN rail quick mounting bracket - 8 SLOT P=17.5mm
ACCESSORI	
Z-NET4	System Configurator Series Z-PC IEC 61131 based
EASY SETUP	SENECA configuration suite for programmable instruments

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