



Z-LINE **Z109REG2**

Universal converter with advanced functions

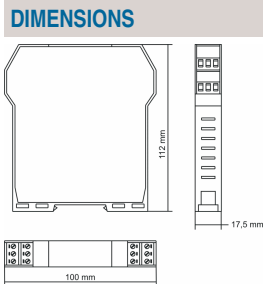
ANALOG CONVERTERS



- ▶ **INPUT:** voltage (up to ± 20 V), current (up to 20 mA), RTD (Pt100, Pt500, Pt1000, Ni100, KTY81, KTY84, NTC (< 25 KOhm)), TC (J,K,R,S,T,C,B,E,N), potentiometer, rheostat,
- ▶ **STROBE** input (control analog output)
- ▶ **OUTPUT:** current, voltage, relay (SPST)
- ▶ **RESOLUTION:** programmable from 11 to 15 bits + sign
- ▶ **PRECISION:** 0.1%
- ▶ **RESPONSE TIME:** 35 ms (11 bits + sign)
- ▶ **ISOLATION:** 1.500 Vac @ 3 way
- ▶ **POWER SUPPLY:** Z109REG2: 9..40 Vdc, 19..28 Vac
Z109REG2-H: 85..265 Vac/Vdc

TECHNICAL SPECIFICATIONS

Z109REG2 • Universal converter with advanced functions



ORDER CODES

Code		Description
Model	Z109REG2	Power Supply 10..40 Vdc, 19..28 Vac
	Z109REG2-H	Power Supply 85-265 Vac/Vdc
Option	-ER	Square root extraction
Accessories	S-TOOL	Z109REG2 toolkit: setup software (ZSETUP2) + serial cable (PM001600)

GENERAL DATA

Power supply	Z109REG2: 9..40 Vdc, 19..28 Vac Z109REG2-H: 85-265 Vac/Vdc																		
Consumption	Max 2.5 W; 1.6 W @ 24 Vdc (20 mA output)																		
Isolation	1.500 Vac @ 3 way																		
Input protection	Against pulse overvoltages 400 W/ms																		
Output/Supply protection	Against pulse overvoltages 400 W/ms																		
DIP switch configuration	Input type, start-end, output mode (zero elevation, scale inversion), output type (mA, V)																		
Software configuration	Start-end scale, root extraction, burn-out, etc.																		
Status indicators	Power supply, Out scale, error, alarm																		
Operating temperature	-10..+60°C																		
Humidity	Min 30%, max 90% at 40°C non condensing																		
Memory	EEPROM for all setup data; retention time: 40 years																		
Errors	V	mA	Ohm	Ni100	Pt100	Pt500	Pt1000	KTY81	KTY84	TC J	TC K	TC R	TC S	TC T	TCB	TCE	TCN	Vout	
Calibration	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.3%
Thermal drift	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K	0.01%/°K
Linearity	0.05%	0.05%			0.02% (>0°C); 0.05%					0.2°C	0.2°C	0.5°C	0.5°C		1.5°C	0.2°C	0.2°C	0.01%	
EMI	<1%	<1%								<1%	<1%	<1%	<1%	<1%	<1%	<1%	<1%		
CE Norms	EN 61000-6-4 / 2002, EN 61000-2-2/2005, EN61010-1																		

INPUT DATA

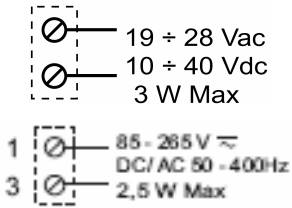
Voltage input	9 bipolar scales from 75 mV to 20 V, input impedance 1 MOhm, max resolution 15 bit + sign
Current input	Bipolar scales up to 20 mA, input impedance 50 Ohm, max resolution 1 µA
RTD input	Pt100, Pt500, Pt1000, Ni100, KTY81, KTY84 and NTC. 3 or 4 wires connection, excitation current 0,65 mA, resolution 0.1°C, RTD or cable interruption automatic detection. Resistive value for NTC: <25 KOhm. KTY81, KTY84 and NTC settable only by software.
TC input	TC J,K,R,S,T,B,E,N, resolution: 2,5 µV, TC interruption automatic detection, input impedance > 5 MOhm
Potentiometer input	Excitation voltage 300 mV, input impedance > 5MOhm, potentiometer range from 500 Ohm to 10 kOhm (with parallel resistor 500 Ohm)
Rheostat input	End scale min 500 Ohm, max 25 kOhm
Strobe input	Alternative to relay output
Sample frequency	240 sps (11 bit → sign)..15 sps (15 bit + sign)
Response time	35 ms (11 bit + sign)..140 ms (15 bit + sign)

OUTPUT DATA

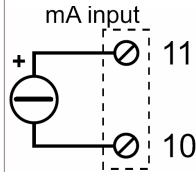
Current output	Scales: 0..20 / 4..20 mA, max load resistance: 600 Ohm
Voltage output	Scales: 0.5 / 0..10 / 1.5 / 2..10 V, min load resistance: 2kOhm
Relay output	Alternative to strobe input NC relay contact, NO in case of alarm
Resolution	2,5 µA / 1,25 mV
Output retransmission	Isolated analog output, current / voltage output Supplied active output connected to passive inputs

ELECTRICAL CONNECTIONS

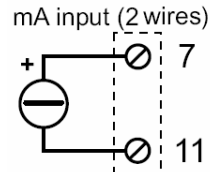
POWER SUPPLY



CURRENT INPUT

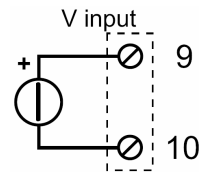


The loop is powered by the sensor

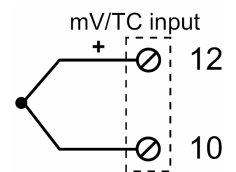


The loop is powered by the module

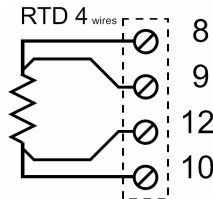
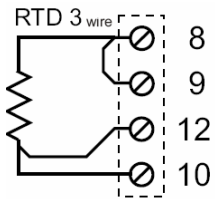
VOLTAGE INPUT



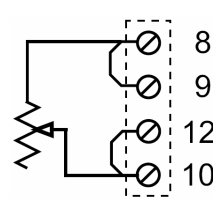
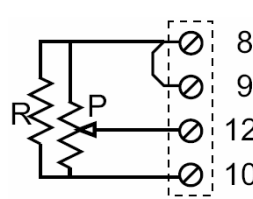
THERMOCOUPLE INPUT



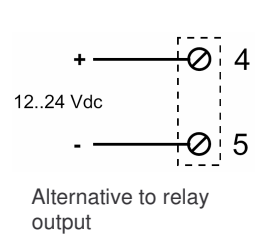
THERMORESISTANCE INPUT



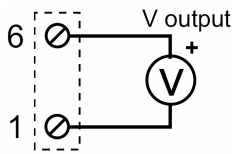
POTENTIOMETER / RHEOSTAT INPUT



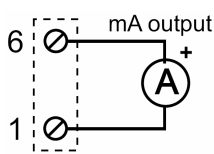
STROBE INPUT



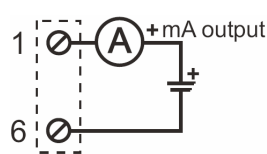
RETRANSMITTED OUTPUT



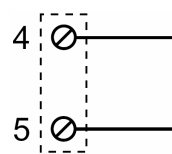
Voltage



Current (supplied active output connected to passive inputs)



RELAY OUTPUT



Enabled alternatively to strobe input. Alarm NO / NC contact relay

CONFIGURATION

1- DIP-SWITCH

- Input type
- Zero and Span
- Output type
- Scale inversion



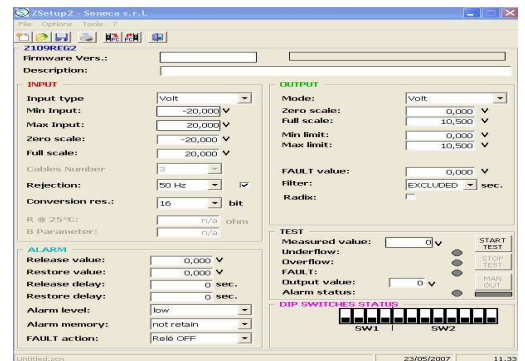
2- HANDHELD

- Min / max range scale; digital filter; square root extraction
- Burn-out
- Analog scale; error analog output value
- Rejection frequency (50 – 60 Hz)
- Sampling time / Resolution
- Measure 2, 3, 4 wires for RTD
- Relay alarm control, strobe configuration



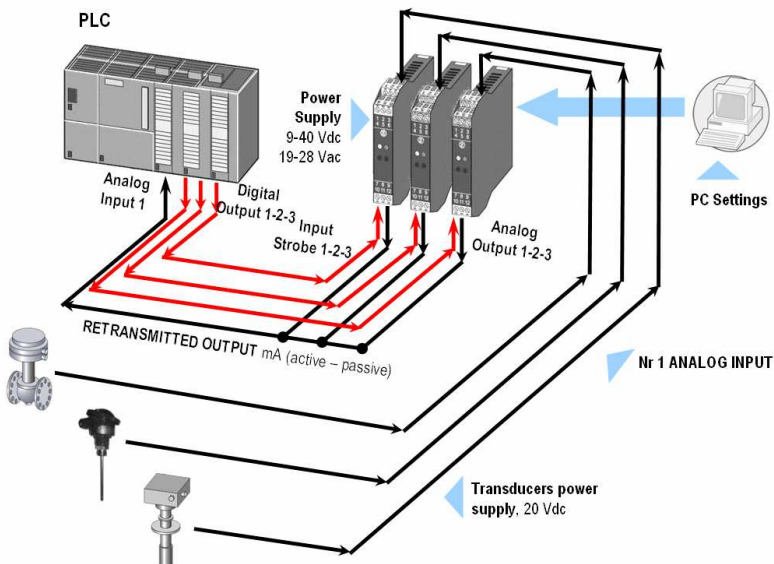
3- SOFTWARE

- Min / max range scale; digital filter; square root extraction
- Burn-out
- Analog scale; error analog output value
- Rejection frequency (50 – 60 Hz)
- Sampling time / Resolution
- Measure 2, 3, 4 wires for RTD
- Relay alarm control, strobe configuration



APPLICATION EXAMPLES

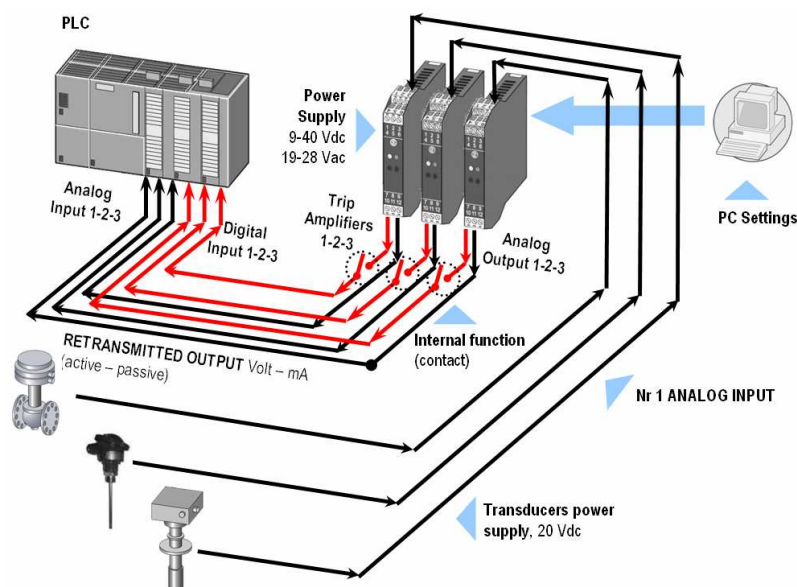
MULTIPLEXER



Advantage:

Just 1 analogue input (plc) is able to read signals outcoming from several Z109REG2.

TRIP AMPLIFIER



Advantages:

Z109REG2 can handle also threshold by a relay settable on 0..100% of universal input value.