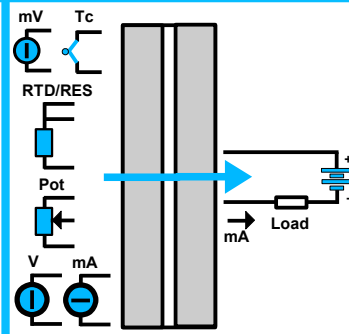




FEATURES

- Universal configurable input for: mV, Tc, RTD, Res, Potentiometer, V and mA
- Configurable current output from 4 to 20 mA
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation at 1500 Vac
- EMC compliant – CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



GENERAL DESCRIPTION

The universal isolated transmitter DAT4535 is able to measure and linearise voltage, current and resistance signals, potentiometers and the standard thermocouples and RTDs with, if required, the cold junction compensation and the wires compensation. In function of programming, the measured values are converted and transmitted on the 4÷20 mA current loop. The device guarantees high accuracy and performances stability both versus time and temperature. The programming is made by the dip-switch located in the window on the side of the enclosure. By means of dip-switches it is possible to select the input type and range without recalibrate the device. Moreover, by Personal Computer the user can program all of the device's parameters for his own necessity. **The terminals of the current signal on input side must be only connected to active current loop.** The 1500 Vac galvanic isolation eliminates the effects of all ground loops eventually existing and allows the use of the transmitter in heavy environmental conditions found in industrial applications. It is housed in a plastic enclosure of 12.5 mm thickness suitable for DIN rail mounting in compliance with EN-50022 and EN-50035 standards.

USER INSTRUCTIONS

The transmitter DAT 4535 must be powered by a direct voltage between 7 to 32 V and applied to the terminals P(+V) and O (-V) or to the terminals N(+V) and M (-V). The 4÷20 mA output signal is measurable in the power loop as shown in the section "Output/Power supply connections"; Rload is the input impedance of instruments on the current loop; to obtain a correct measure, the value of Rload will be calculated as function of the power supply value (see section "Technical specification – Load characteristic"). The input connections must be made as shown in the section "Input connections". To configure and install the transmitter refer to sections "Programming", "Configuration by dip-switches", "Dip-switches configuration tables" and "Installation Instructions".

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

INPUT				Linearity (1)		POWER SUPPLY	
Input type	Min	Max	Min. Span	Tc, RTD, Pot	± 0.1 % f.s.	Supply voltage	7 .. 32 Vdc
TC (CJC int./ext.)				mV, V, mA	± 0.05 % f.s.	Reverse polarity protection	60 Vdc max
J	-200°C	1200°C	100°C	Input impedance		Load characteristic - Rload (maximum load value on current loop per power supply value)	
K	-200°C	1300°C	100°C	TC, mV	>= 10 MΩ		
S	0°C	1750°C	400°C	Volt	>= 1 MΩ		
R	0°C	1750°C	400°C	mA	~22 Ω	ISOLATION	
B	0°C	1850°C	400°C	RTD excitation current		Input – Power supply/Out 1500 Vac, 50 Hz, 1 min.	
E	-200°C	1000°C	100°C	RTD, Res	400 uA	ENVIRONMENTAL CONDITIONS	
T	-200°C	400°C	100°C	Line resistance influence (1)		Operative Temperature -40°C .. +85°C	
N	-200°C	1300°C	100°C	TC, mV	<= 0.8 uV/Ohm	Storage Temperature -40°C .. +85°C	
Voltage				RTD 3 wires	0.05%/Ω (50Ω max balanced)	Humidity (not condensed) 0 .. 90 %	
mV	-100 mV	+90 mV	5 mV	RTD 4 wires	0.005%/Ω (100Ω max balanced)	Maximum Altitude 2000 m	
mV	-100 mV	+200 mV	10 mV	Thermal drift (1)		Installation Indoor	
mV	-100 mV	+800 mV	20 mV	Full Scale	± 0.01% / °C	Category of installation II	
Volt	-10 V	10 V	1 V	CJC	± 0.01% / °C	Pollution Degree 2	
RTD (2, 3, 4 wires)				CJC Comp.		± 0.5°C	
Pt100	-200°C	850°C	50°C	OUTPUT			
Pt1000	-85°C	185°C	30°C	Output type	Min	Max	Min. span
Ni100	-60°C	180°C	50°C	Current	4 mA	20 mA	4 mA
Ni1000	-60°C	150°C	30°C	Output calibration			
RES. (2, 3, 4 wires)				Current	± 7 uA		
0 Ω	500 Ω	50 Ω	Burn-out values				
0 Ω	2000 Ω	50 Ω	Max. output value	21.8 mA			
Pot. (Rnom. < 50KΩ)				Min. output value	2.4 mA		
0 %	100 %	10 %	Response time (10÷ 90%)				
Current				about 400 ms			
0 mA	20 mA	1 mA	Delay on output				
Input calibration (1)				Programmable from 0 to 30 sec.			
mV, TC	> of ±0.1% f.s. or ±12 uV			MECHANICAL SPECIFICATIONS			
RTD	> of ±0.1% f.s. or ±0.2°C			Material	Self-extinguish plastic		
Res.	> of ±0.1% f.s. or ±0.15 Ω			IP Code	IP20		
Potentiometer	± 0.05 % f.s.			Wiring	wires with diameter 0.8÷2.1 mm ² /AWG 14-18		
Volt	> of ±0.1% f.s. or ± 2 mV			Tightening Torque	0.8 N m		
mA	> of ±0.1% f.s. or ± 6 uA			Mounting	in compliance with DIN rail standard EN-50022 and EN-50035		
EMC (for industrial environments)				Weight	about 90 g.		
Immunity				EN 61000-6-2			
Emission				EN 61000-6-4			

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

PROGRAMMING

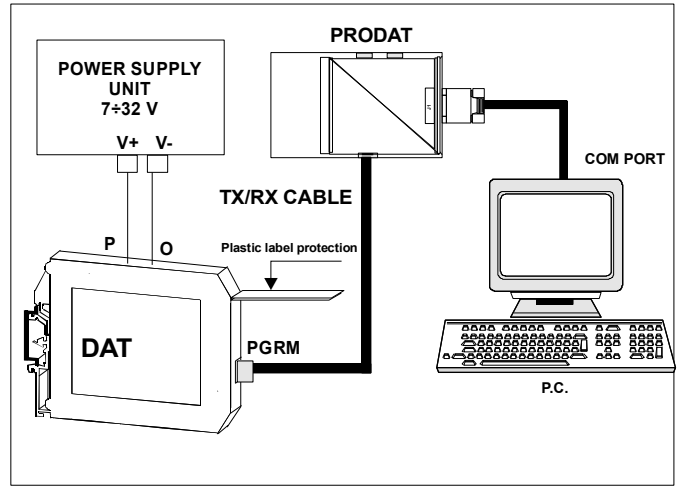
CONFIGURATION BY PC

By software DATESOFT from version 2.7 it is possible to:

- set the default programming of the device;
- program the options not available with the dip-switch;
- (burn-out level, CJC offset, trip alarm settings, delay on output, etc...);
- read, in real time, the input and output measures;
- follow the dip-switches configuration wizard.

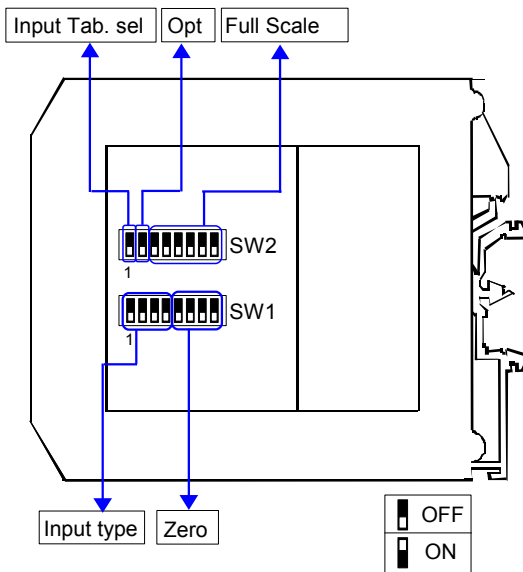
To configure the device follow the next steps:

- 1) Power-on the device.
- 2) Open the protection plastic label on the front of the device.
- 3) Connect the interface PRODAT to the PC (COM port) and to the device (PGRM connector).
- 4) Open DATESOFT.
- 5) Select the COM port in use.
- 6) Click on "Open COM".
- 7) Click on the icon "Program".
- 8) Set the programming data.
- 9) Click on the icon "Write" to send the programming data to the device.



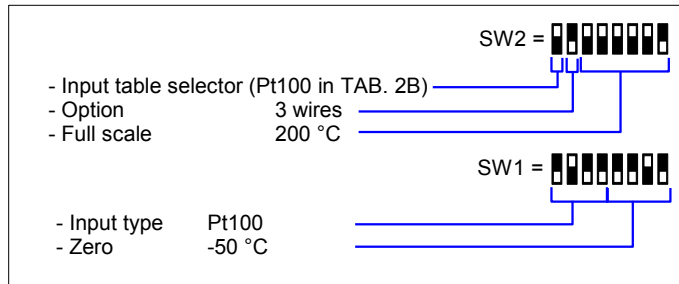
Warning: during these operations the device must always be powered and the TX/RX cable always connected.
For information about DATESOFT refer to the software's user guide.

CONFIGURATION BY DIP-SWITCHES



- 1) Open the suitable door on the side of the device.
- 2) Set the input table selector by the dip-switch SW2 [1] (see TAB.1)
- 3) Set the input type by the dip-switches SW1 [1..4] (see TAB.2A and TAB.2B)
- 4) Set, if foreseen, the option by dip-switch SW2 [2] (see TAB.3)
- 5) Set the minimum value of the input scale (Zero) by dip-switches SW1 [5..8] (see TAB.4)*
- 6) Set the full scale value by dip-switches SW2 [3..8]*

Ex of configuration Pt100 3 wires -50 ÷ 200 °C:



NOTE:

- It is also possible to set the dip-switches using the wizard of the configuration software following the procedure described in the section "Configuration by PC" until the step 6 and clicking on icon "Switch".

DIP-SWITCH CONFIGURATION TABLES

TAB.1 – Input table selection

SW2	TABLE
1	TAB. 2A (mV, Volt, mA, TC)
2	TAB. 2B (Res, RTD, Pot.)

TAB.2A – Input type selection

SW1	SW1	
1 2 3 4	1 2 3 4	
0 0 0 0	0 0 0 0	EPROM *
0 0 0 0	0 0 0 0	90 mV
0 0 0 0	0 0 0 0	200 mV
0 0 0 0	0 0 0 0	800 mV
0 0 0 0	0 0 0 0	10 V
0 0 0 0	0 0 0 0	20 mA
0 0 0 0	0 0 0 0	-----
0 0 0 0	0 0 0 0	-----
0 0 0 0	0 0 0 0	Tc J
0 0 0 0	0 0 0 0	Tc K
0 0 0 0	0 0 0 0	Tc R
0 0 0 0	0 0 0 0	Tc S
0 0 0 0	0 0 0 0	Tc T
0 0 0 0	0 0 0 0	Tc B
0 0 0 0	0 0 0 0	Tc E
0 0 0 0	0 0 0 0	Tc N

TAB.2B – Input type selection

SW1	SW1	
1 2 3 4	1 2 3 4	
0 0 0 0	0 0 0 0	Res. 2KΩ
0 0 0 0	0 0 0 0	Res. 500Ω
0 0 0 0	0 0 0 0	Pt100
0 0 0 0	0 0 0 0	Ni100
0 0 0 0	0 0 0 0	Pt 1K
0 0 0 0	0 0 0 0	Ni 1K
0 0 0 0	0 0 0 0	Pot. <500Ω
0 0 0 0	0 0 0 0	Pot. <50KΩ
0 0 0 0	0 0 0 0	-----
0 0 0 0	0 0 0 0	-----

TAB.3 - Option

SW2	CJC	RTD/RES
2	External	3 wires
3	Internal	2/4 wires

NOTES:

* To set the input range refer to the TAB.4 (next pages) referred to the input type selected by TAB.1, TAB.2A and TAB.2B.

* If the dip-switches SW1 [1..4] and SW2 [1] are all set in the position 0 ("EPROM"), the device will follow the configuration programmed by PC (input type and range, output range and options).

* If the dip-switches SW1 [5..8] and SW2 [3..8] are all set in the position 0 ("Default"), the device will follow the input scale programmed by PC for the input type selected by the dip-switches SW1[1..4] and SW2[1].

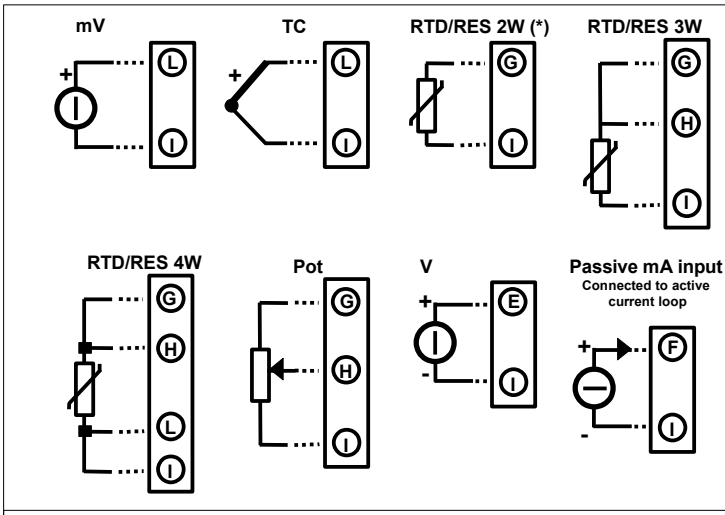
* If the dip-switch SW2 [2] is set in the ON position and is in progress a measure by Resistance or RTD 2 wires sensor, it is necessary to connect the terminal I to the terminal L and the terminal G to the terminal H.

TAB.4g – Volt Input scale settings

Zero		Full Scale							
SW1	Volt	SW2		SW2		SW2		SW2	
5 6 7 8		3 4 5 6 7 8	3 4 5 6 7 8	3 4 5 6 7 8	3 4 5 6 7 8	3 4 5 6 7 8	3 4 5 6 7 8	3 4 5 6 7 8	3 4 5 6 7 8
Default		Default		3.4		6.6		9.8	
0		0.5		3.6		6.8		10	
1.5		0.6		3.8		7		10	
2		0.8		4		7.2		10	
2.5		1		4.2		7.4		10	
3		1.2		4.4		7.6		10	
3.5		1.4		4.6		7.8		10	
4		1.6		4.8		8		10	
4.5		1.8		5		8.2		10	
5		2		5.2		8.4		10	
5.5		2.2		5.4		8.6		10	
6		2.4		5.6		8.8		10	
6.5		2.6		5.8		9		10	
7		2.8		6		9.2		10	
7.5		3		6.2		9.4		10	
8		3.2		6.4		9.6		10	

CONNECTIONS

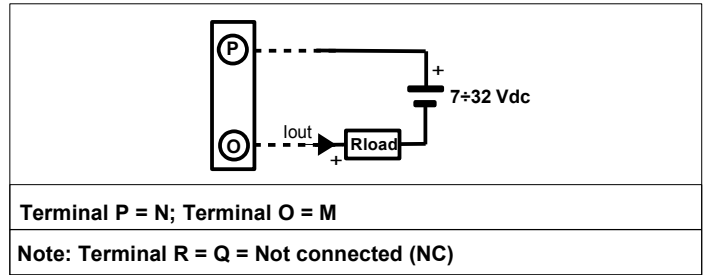
INPUT CONNECTION



Terminal I = GND INPUT

Note: if the device is programmed by dip switches for RTD / RES with 2 wires connection make a short circuit between the terminals I and L and the terminals G and H.

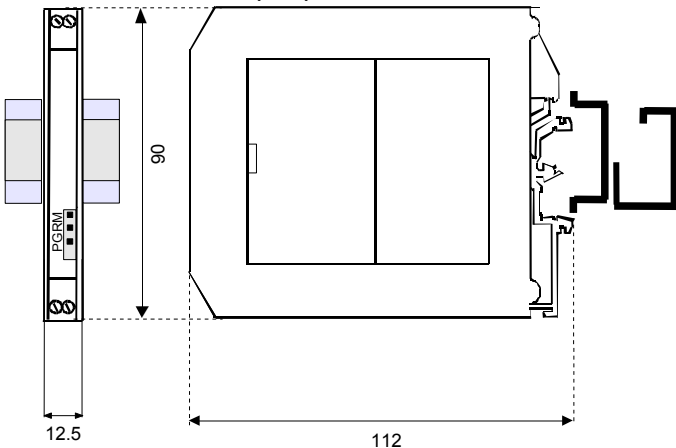
POWER SUPPLY / OUTPUT CONNECTION



ISOLATION STRUCTURE



DIMENSIONS (mm) & CONNECTOR PGRM



INSTALLATION INSTRUCTIONS

The device DAT 4535 is suitable for DIN rail mounting. It is necessary to install the device in a place without vibrations; avoid to routing conductors near power signal cables .

HOW TO ORDER

The device is provided as requested on the Customer's order. Refer to the section "Programming" to determine the input ranges. In case of the configuration is not specified, the parameters must be set by the user.

ORDER CODE EXAMPLE

DAT4535 /Pt100 /0 ÷ 200 °C /3 wires /4 ÷ 20 mA

