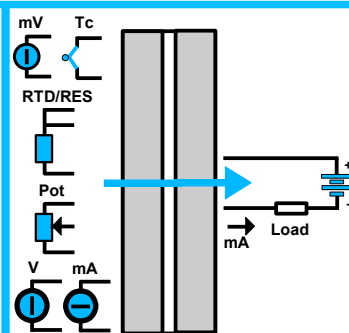


FEATURES

- 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.

The DAT 4535 is in compliance with the Directive 2004/108/EC on the Electromagnetic Compatibility.

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) Tc, RTD, Pot mV, V, mA Input impedance TC, mV Volt mA RTD excitation current RTD,Res 400 uA Line resistance influence (1) TC, mV RTD 3 wires RTD 4 wires Thermal drift (1) Full Scale CJC CJC Comp.				POWER SUPPLY Supply voltage Reverse polarity protection Load characteristic - Rload (maximum load value on current loop per power supply value)			
Input type	Min	Max	Min. Span								
TC (CJC int./ext.)											
J	-200°C	1200°C	100°C								
K	-200°C	1300°C	100°C								
S	0°C	1750°C	400°C								
R	0°C	1750°C	400°C								
B	0°C	1850°C	400°C								
E	-200°C	1000°C	100°C								
T	-200°C	400°C	100°C								
N	-200°C	1300°C	100°C								
Voltage											
mV	-100 mV	+90 mV	5 mV								
mV	-100 mV	+200 mV	10 mV								
mV	-100 mV	+800 mV	20 mV								
Volt	-10 V	10 V	1 V								
RTD (2, 3, 4 wires)											
Pt100	-200°C	850°C	50°C								
Pt1000	-85°C	185°C	30°C								
Ni100	-60°C	180°C	50°C								
Ni1000	-60°C	150°C	30°C								
RES. (2, 3, 4 wires)											
	0 Ω	500 Ω	50 Ω								
	0 Ω	2000 Ω	50 Ω								
Pot. (Rnom.< 50KΩ)											
	0 %	100 %	10 %								
Current											
	0 mA	20 mA	1 mA								
Input calibration (1) mV, TC RTD Res. Potentiometer Volt mA											

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

PROGRAMMING

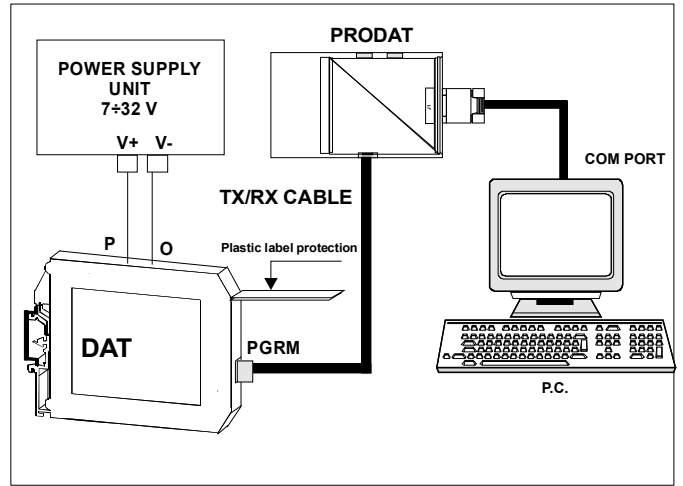
CONFIGURATION BY PC

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.

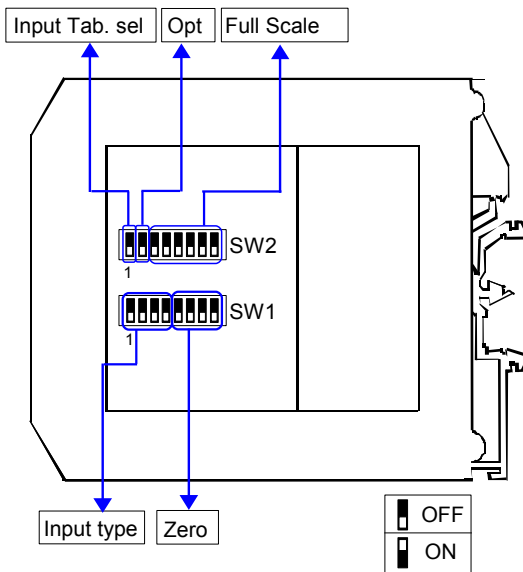
To configure the device follow the next steps:

- 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.



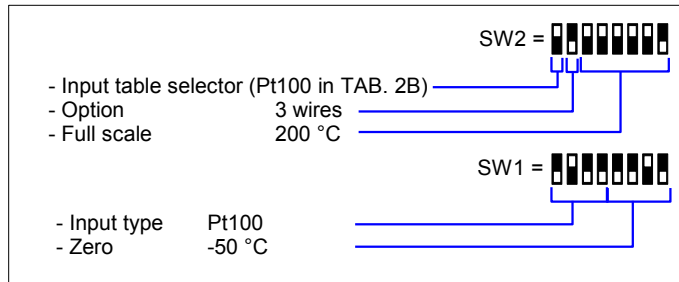
Warning: during these operations the device must always be powered and the TX/RX cable always connected.
For information about DATESOFT refer to the software's user guide.

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] (see TAB.4)*

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	-----

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

TAB.3 – Option

SW2	CJC	RTD/RES
2		
0	External	3 wires
1	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 to the terminal H.

TAB.4a – mV, Tc Input scale settings

Zero			Full Scale										
SW1 5 6 7 8 °C			SW2 3 4 5 6 7 8 °C			SW2 3 4 5 6 7 8 °C			SW2 3 4 5 6 7 8 °C				
	Default			Default			75			225			700
	-200			0			80			250			750
	-100			5			85			255			800
	-80			10			90			275			850
	-60			15			95			300			900
	-50			20			100			325			950
	-40			25			110			350			1000
	-30			30			120			375			1100
	-20			35			130			400			1200
	-10			40			140			425			1300
	0			45			150			450			1400
	10			50			160			475			1500
	20			55			170			500			1600
	50			60			180			550			1750
	100			65			190			600			1800
	150			70			200			650			1850

TAB.4b – Pt100, Pt1K, Ni100, Ni1K Input scale settings

Zero				Full Scale																							
SW1				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
Default				Default				75				210				370											
-200				0				80				220				380											
-150				5				85				230				390											
-100				10				90				240				400											
-50				15				95				250				425											
-40				20				100				260				450											
-30				25				110				270				475											
-20				30				120				280				500											
-10				35				130				290				525											
0				40				140				300				550											
5				45				150				310				600											
10				50				160				320				650											
20				55				170				330				700											
30				60				180				340				750											
50				65				190				350				800											
100				70				200				360				850											

TAB.4c – Resistance < 2KOhm Input scale settings

Zero		Full Scale									
SW1 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω		
	Default		Default		800		1150		1600		
	0		500		820		1175		1650		
	150		520		840		1200		1700		
	200		540		860		1225		1750		
	250		560		880		1250		1800		
	300		580		900		1275		1850		
	350		600		920		1300		1900		
	400		620		940		1325		1950		
	450		640		960		1350		2000		
	500		660		980		1375		2000		
	550		680		1000		1400		2000		
	600		700		1025		1425		2000		
	650		720		1050		1450		2000		
	700		740		1075		1475		2000		
	750		760		1100		1500		2000		
	800		780		1125		1550		2000		

TAB.4d – Resistance < 500 ohm Input scale settings

Zero		Full Scale									
SW1 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω	SW2 3 4 5 6 7 8	Ω
	Default		Default		125		210		370		
	0		50		130		220		380		
	10		55		135		230		390		
	20		60		140		240		400		
	30		65		145		250		410		
	40		70		150		260		420		
	50		75		155		270		430		
	75		80		160		280		440		
	100		85		165		290		450		
	125		90		170		300		460		
	150		95		175		310		470		
	175		100		180		320		480		
	200		105		185		330		490		
	225		110		190		340		500		
	250		115		195		350		500		
	300		120		200		360		500		

TAB.4e – Potentiometer Input scale settings

Zero		Full Scale									
SW1 5 6 7 8	%	SW2 3 4 5 6 7 8	%	SW2 3 4 5 6 7 8	%	SW2 3 4 5 6 7 8	%	SW2 3 4 5 6 7 8	%	SW2 3 4 5 6 7 8	%
	Default		Default		34		66		98		
	0		5		36		68		100		
	15		6		38		70		100		
	20		8		40		72		100		
	25		10		42		74		100		
	30		12		44		76		100		
	35		14		46		78		100		
	40		16		48		80		100		
	45		18		50		82		100		
	50		20		52		84		100		
	55		22		54		86		100		
	60		24		56		88		100		
	65		26		58		90		100		
	70		28		60		92		100		
	75		30		62		94		100		
	80		32		64		96		100		

TAB.4f – mA Input scale settings

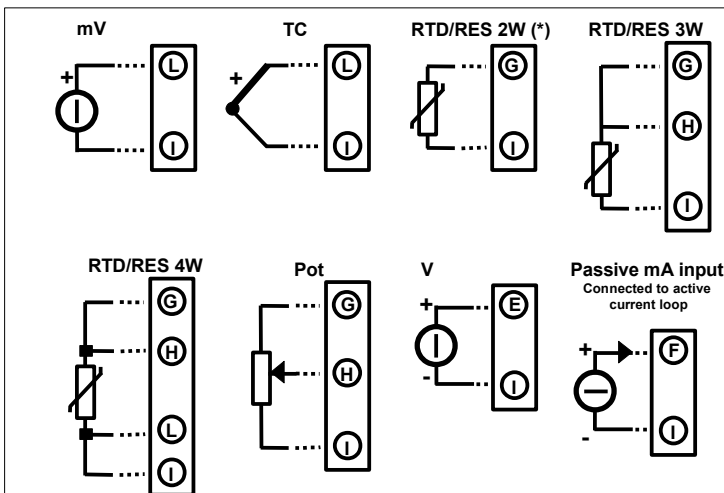
Zero		Full Scale									
SW1 5 6 7 8	mA	SW2 3 4 5 6 7 8	mA	SW2 3 4 5 6 7 8	mA	SW2 3 4 5 6 7 8	mA	SW2 3 4 5 6 7 8	mA	SW2 3 4 5 6 7 8	mA
	Default		Default		8		11.5		16		
	0		5		8.2		11.75		16.5		
	1.5		5.2		8.4		12		17		
	2		5.4		8.6		12.25		17.5		
	2.5		5.6		8.8		12.5		18		
	3		5.8		9		12.75		18.5		
	3.5		6		9.2		13		19		
	4		6.2		9.4		13.25		19.5		
	4.5		6.4		9.6		13.5		20		
	5		6.6		9.8		13.75		20		
	5.5		6.8		10		14		20		
	6		7		10.25		14.25		20		
	6.5		7.2		10.5		14.5		20		
	7		7.4		10.75		14.75		20		
	7.5		7.6		11		15		20		
	8		7.8		11.25		15.5		20		

TAB.4g – Volt Input scale settings

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

CONNECTIONS

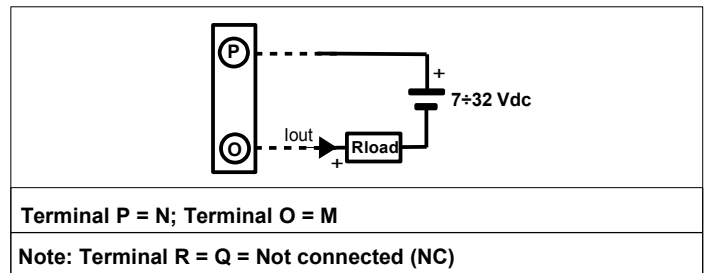
INPUT CONNECTION



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.

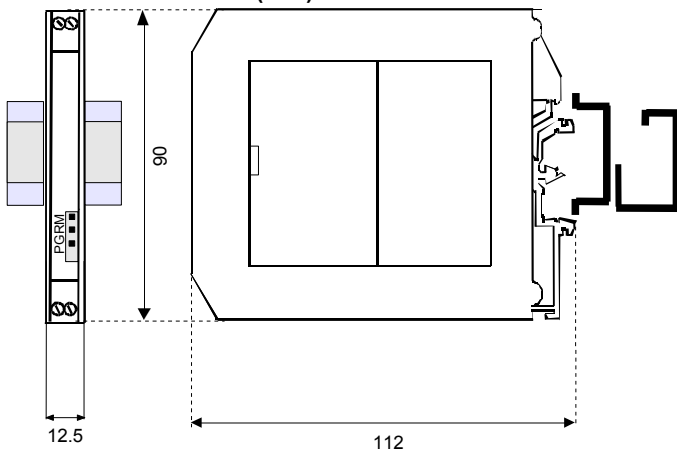
POWER SUPPLY / OUTPUT CONNECTION



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

