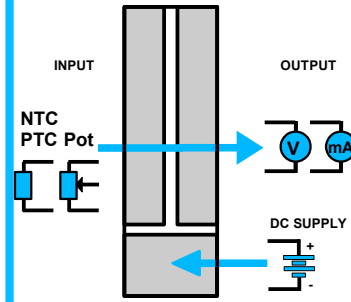




FEATURES

- Configurable input for PTC, NTC and Pot.
- Configurable output in current or voltage
- Configurable by dip-switch or PC
- High accuracy
- On-field reconfigurable
- Galvanic isolation among the ways
- UL / CE mark
- Suitable for DIN rail mounting in compliance with EN-50022 and EN-50035



GENERAL DESCRIPTION

The isolated converter DAT 4531 C is able to measure and linearise the standard PTC and NTC sensors and potentiometers. In function of programming, the measured values are converted in a current or voltage signal. 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 and the output type without recalibrate the device.

Moreover, by Personal Computer the user can program all of the device's parameters for his own necessity.

Moreover it is available the option of alarm for signal interruption (burn-out) that allows to set the output value as high or low out of scale .

The 1500 Vac galvanic isolation on all ways (input, output and power supply) eliminates the effects of all ground loops eventually existing and allows the use of the converter in heavy environmental conditions found in industrial applications.

The DAT 4531 C is in compliance with the Directive UL 61010-1 for US market and with the Directive CSA C22.2 No 61010-1 for the Canadian market.

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 connections must be made as shown in the section "Connections".

It is possible to configure the converter on field by dip-switch or Personal Computer as shown in the section " Programming ". The configuration by dip-switches can be made also if the device is powered (note: after the configuration the device takes some seconds to provide the right output measure).

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

INPUT				OUTPUT				POWER SUPPLY				
Input type	Min	Max	Min.Span	Output type	Min	Max	Min Span					
PTC				Current	0 mA	20 mA	4 mA	Power supply voltage	18 .. 30 Vdc			
KTY81-210	-55°C	150°C	50°C	Voltage	0 V	10 V	1 V	Reverse polarity protection	60 Vdc max			
KTY81-220	-55°C	150°C	50°C	Output resolution				Current consumption				
KTY84-130	-40°C	300°C	50°C	Current	7 uA			Current output	35 mA max.			
KTY84-150	-40°C	300°C	50°C	Voltage	4 mV			Voltage output	20 mA max.			
NTC				Burn-out values				ISOLATION				
Coster 10K	-10°C	100°C	50°C	Max. output value	22 mA or 10.6 V			Among all the ways	1500 Vac, 50 Hz, 1 min			
Coster 1K	-30°C	40°C	25°C	Min. output value	0 mA or -0.6 V			ENVIRONMENTAL CONDITIONS				
Pot. (Rnom.< 50KΩ)	0 %	100 %	10 %	Output load Resistance - Rload				Operative Temperature	-20°C .. +60°C			
Accuracy (1) PTC, NTC the higher of ±0.1% and ±0.2°C Potentiometer ± 0.05 % f.s. Linearity (1) PTC, NTC ± 0.1 % f.s. Sensor excitation current PTC, NTC 500 uA Thermal drift (1) Full scale ± 0.01% / °C				Current output	< 500 Ω			UL Operative Temperature	-10°C .. +60°C			
				Voltage output	> 10 KΩ			Storage Temperature	-40°C.. +85°C			
				Short circuit current	26 mA max.			Humidity (not condensed)	0 .. 90 %			
				Response time (10+ 90%)				about 500 ms			Maximum Altitude	2000 m
											Installation	Indoor
								Category of installation	II			
								Pollution Degree	2			
								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 with DIN rail standard EN-50022 and EN-50035			
								Weight	about 90 g.			
								CERTIFICATIONS				
								EMC (for industrial environments)				
								Immunity	EN 61000-6-2			
								Emission	EN 61000-6-4			
								UL				
								US Standard	UL 61010-1			
								Canadian Standard	CSA C22.2 No 61010-1			
								CCN	NRAQ/NRAQ7			
								Typology	Open Type device			
								Classification	Industrial Control Equipment			
								File Number	E352854			

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

PROGRAMMING

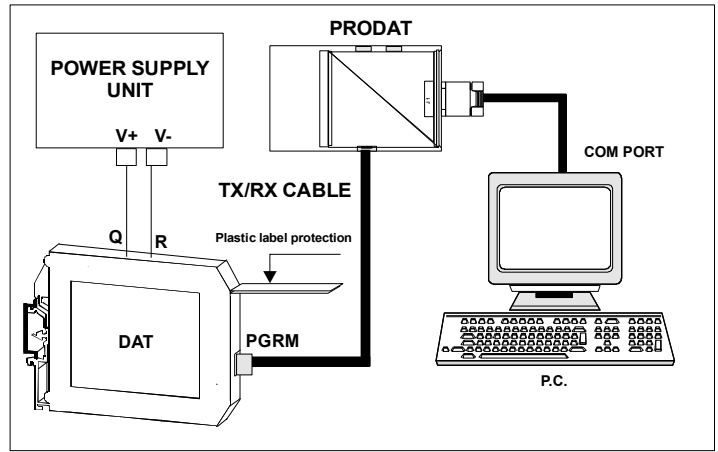
CONFIGURATION BY PC

By software DATESOFT it is possible to:

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

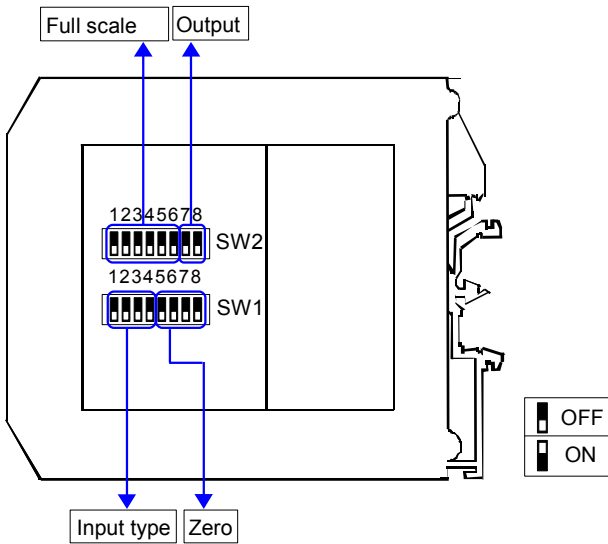
To configure the device follow the next steps:

- 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 "Program".
- 8) Set the programming data.
- 9) Click on "Write" to send the programming data to the device.

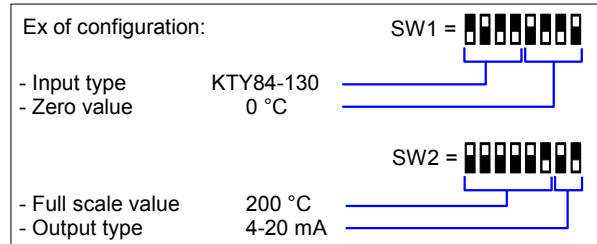


Warning: during these operations the device must always be powered and the TX/RX cable always connected.
For information about DATESOFT refer to the software's user guide.

CONFIGURATION BY DIP-SWITCHES



- 1) Open the suitable door on the side of the device.
- 2) Set the input type by the dip-switch SW1 [1..4] (see TAB.1)
- 3) Set the minimum input scale value (Zero) by the dip-switch SW1 [5..8] (see TAB.3)
- 4) Set the maximum input value (Full scale) by the dip-switch SW2 [1..6] (see TAB.3)
- 5) Set the output type by the dip-switch SW2 [7..8] (see TAB.2)



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 "Switch".

DIP-SWITCH CONFIGURATION TABLES

TAB.1
Input type settings

SW1	1	2	3	4	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	EPROM *
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pot
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	KTY81-210 KTY81-220
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	KTY84-130 KTY84-150
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Coster 10K
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Coster 1K

TAB.2
Output type settings

SW2	7	8	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0-20 mA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4-20 mA
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0-10 V
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0-5 V

NOTES:

* To configure the range for the input type selected (TAB.1) refer to the section of the TAB.3 on next page relative to it (ex: for Potentiometer use the table TAB.3b).

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

* If the dip-switches SW1 [5..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]

* Eventual wrong dip-switches settings will be signalled by the blinking of the led "PWR".

TAB.3a – Settings for PTC, NTC

Zero		Full scale									
SW1 5 6 7 8	°C	SW2 1 2 3 4 5 6	°C	SW2 1 2 3 4 5 6	°C	SW2 1 2 3 4 5 6	°C	SW2 1 2 3 4 5 6	°C	SW2 1 2 3 4 5 6	°C
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.3b –Settings for Potentiometer

Zero		Full scale									
SW1 5 6 7 8	%	SW2 1 2 3 4 5 6	%	SW2 1 2 3 4 5 6	%	SW2 1 2 3 4 5 6	%	SW2 1 2 3 4 5 6	%	SW2 1 2 3 4 5 6	%
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			

INSTALLATION INSTRUCTIONS

The device is suitable for fitting to DIN rails in the vertical position. For optimum operation and long life follow these instructions:

When the devices are installed side by side it may be necessary to separate them by at least 5 mm in the following cases:

- If panel temperature exceeds 45°C.
- Use of high power supply value ($> 27 \text{ Vdc}$).
- Use of output current.

Make sure that sufficient 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; their ideal place should be in the lower part of the panel.

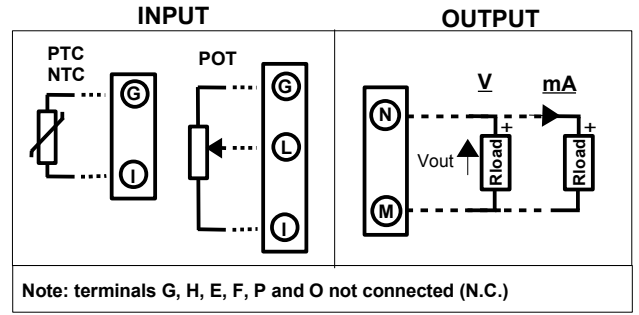
Install the device in a place without vibrations.

Moreover it is suggested to avoid routing conductors near power signal cables (motors, induction ovens, inverters etc...) and to use shielded cable for connecting signals.

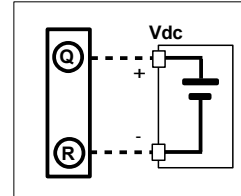
ISOLATION STRUCTURE



CONNECTIONS



POWER SUPPLY(*)

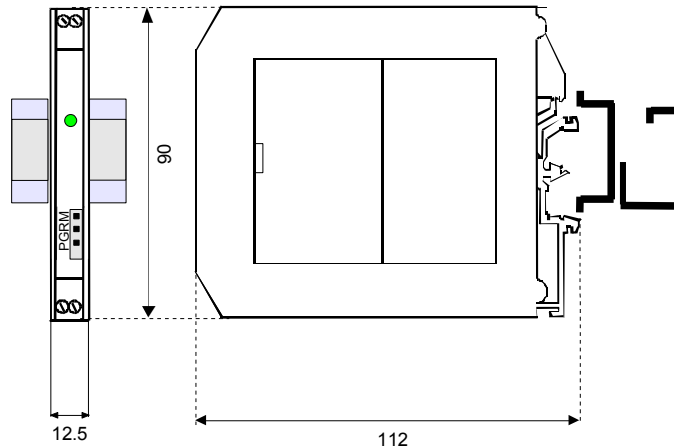


(*) Note: for UL installation the device must be powered using a power supply unit classified NEC class 2 or SELV

LIGHT SIGNALLING

LED	COLOUR	STATE	DESCRIPTION
PWR	GREEN	ON	Device powered
		OFF	Device not powered
		BLINKING	Wrong dip-switches setting

DIMENSIONS (mm)



HOW TO ORDER

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

ORDER CODE EXAMPLE:

DAT 4531C / [KTY84-130] / [0 ÷ 200 °C] / [4 ÷ 20 mA]

