OUTPUT OPTIONS

TYP-9180-Vxxxx

INSTRUCTION MANUAL

OPTION INSTALLATION

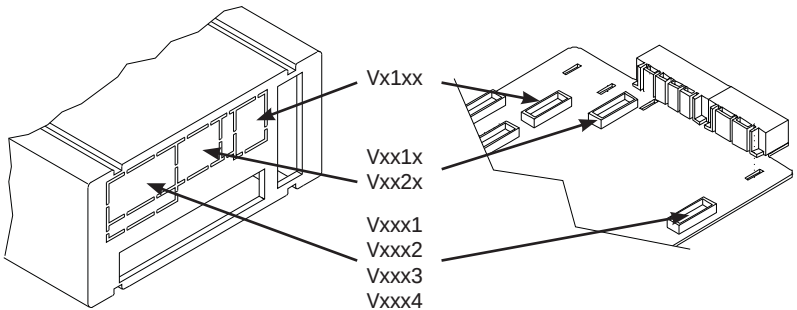
Lift out the electronics assembly from the case and use a screwdriver to pull on the junctions between the case and the selected area to detach it from the case.

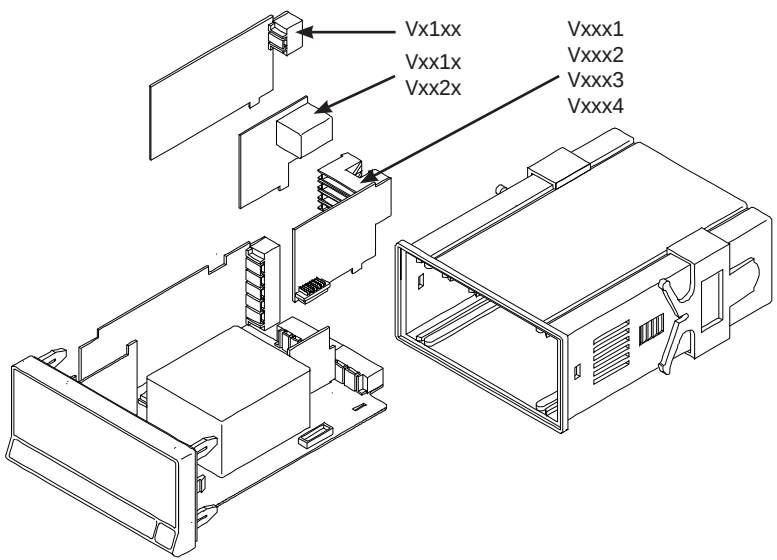
The so performed orifice will allow the analog output board connector be brought out at the rear of the instrument.

Install the circuit board so that the lower pin fits into the corresponding main board insertion slot and push down to plug the option connector in the main board conection location.

If the instrument is to be installed in high vibrating environments, it is recomended to solder the card to the main board making use of the copper tracks on both sides of the card pin and around the main board hole on its solder side.

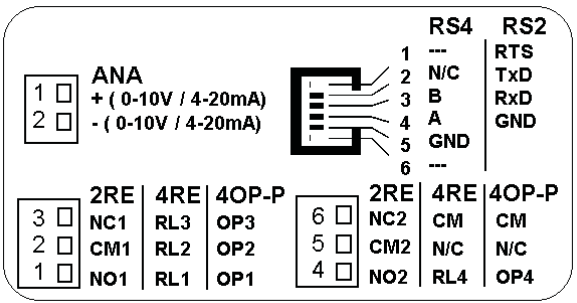
Before inserting the electronics in the case, you should verfy that the access to the programming modules is enabled, since this is next operation to be made powering the unit.





OPTION INSTALLATION

Each output card is supplied with an adhesive label that indicates the wiring connections of each option. To help identifying each terminal, this label should be placed in the lower side of the meter case, beside the basic functions label.



SEE WIRING CONNECTIONS ON PAGE 47

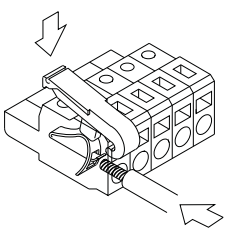
WARNING

In order to guarantee electromagnetic compatibility, the following guidelines for cable wiring must be followed:

- Power supply wires must be routed separated from signal wires. Never run power and signal wires in the same conduit.
- Use shielded cable for signal wiring and connect the shield to ground of the indicator (pin2 CN1).
- The cable section must be 0.25 mm2

If not installed and used according to these instructions, protection against hazards may be impaired.

CONNECTORS



To perform wiring connections, remove the terminal block from the meter's connector, strip the wire leaving from 7 to 10 mm exposed and insert it into the proper terminal while pushing the fingertip down to open the clip inside the connector as indicated in the figure.

Proceed in the same manner with all pins and plug the terminal block into the corresponding meter's connector.

Each terminal can admit cables of section comprised between 0.08 mm² and 2.5 mm² (AWG 26 ÷ 14).

The blocks provide removable adaptors into each terminal to allow proper fastening for cable sections of <0.5 mm².

TYP-9180-Vx1xx

ANALOG OUTPUT OPTION

INTRODUCTION

Two ranges of analog output (0-10V and 4-20mA) can be incorporated to the TYP 9180 instrument by means of an additional card TYP 9180-Vx1xx which is installed on the meter's main board via plug-in connector.
The outputs are opto-isolated with respect to the signal input and the main supply .

The optional board provides a two terminal connector [ANA(+) and ANA(-)] that drives out a signal variation from 0 to 10V or from 4to 20mA proportional to a user-defined display range.

This way, the meter is furnished with an output signal that can be utilized for proportional purposes and also be used to drive a variety of terminal equipment such as graphic recorders, controlers remote displays or other devices that accept input data in analog form.

An exceptional feature is the possibility of setting the range at which the output signal may change by either making it follow the display or the input signal conversion rate.

The voltage and current outputs cannot simultaneously be used; the output type is selectable via the software programming module that is included automatically in the program routines when the card is installed.

The display values producing the full scale output (OUT-HI and OUT-LO) are also introduced via fron-panel buttons in the same programming module. The analog output then follows the display variations between the HI and LO programmed points.

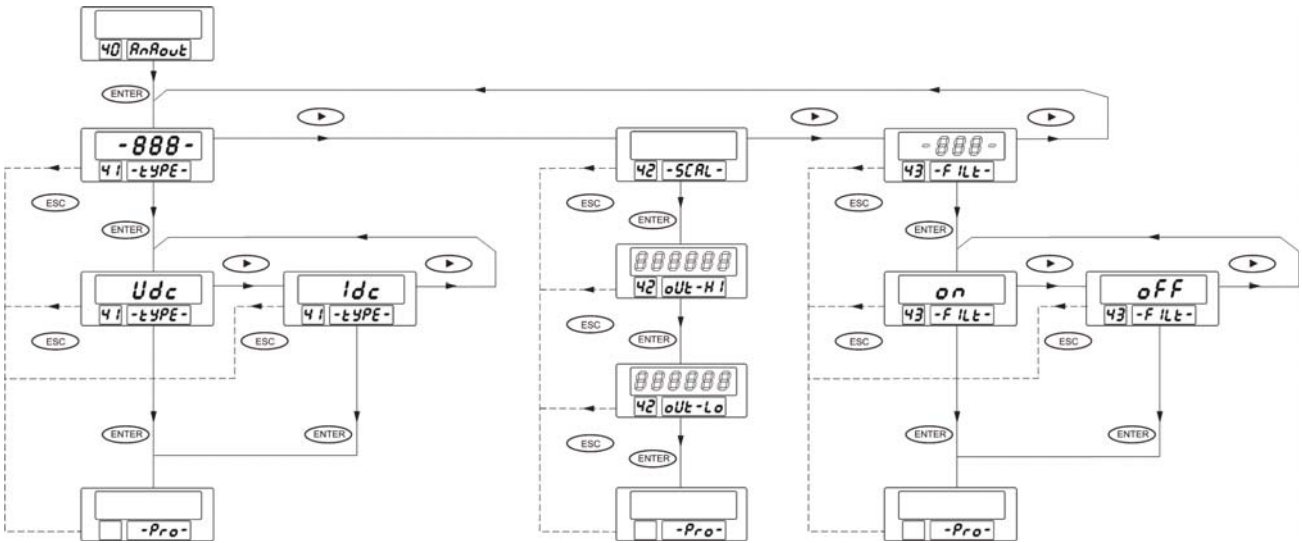
A display HOLD command also freezes the analog output data. (See logical functons on TYP9180).

The output signal can be set up for reverse action by programming the high display for the low output (OUT-LO) and the low display for the high output (OUT-.HI).

TECHNICAL SPECIFICATIONS

CHARACTERISTICS	0-10V OUTPUT	4-20mA OUTPUT
Resolution	12 bits	12 bits
Accuracy	0.1% F.S. ±1bit@ 23º±5 ºC	0.1% F.S. ±1bit@ 23º±5ºC
Response Time	60ms	60ms
Temperature Coeficient	0.2 mV / ºC	0,5 μA / ºC
Load Max.	500Ω	800Ω
Isolation between analog output and input signal (1 min)	500 VAC	500 VAC
Isolation respect to supply and relay output	2300 VAC	2300 VAC

ANALOG OUTPUT PROGRAMMING

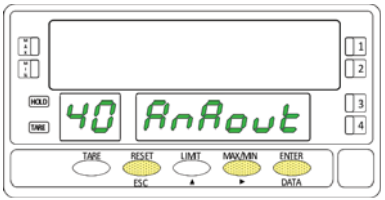


MODUL 40 – ANALOG OUTPUT

The enclosed figure shows the diagram of the MODULE 40 for configuration of the analog output that appears in the programming routines of model TYP 9180-Vx1xx when the corresponding option is installed.
The module provides three menus of independent access that permit user-selection of the following parameters:

Menu 41 -tYPE- : Selection of the output type (0-10V or 4-20mA)
Menu 42 -SCAL- : Programming of the display values that are wanted to prodece the high and low output values .
Menu 43 -FILt- : Selection of wheter the analog output must change at the same rate as the input signal conversion (filter OFF) or as the display (filter ON).

[1.1] Access to the programming



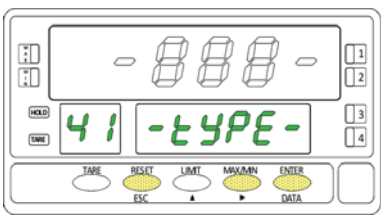
Press the ENTER key to pass from the run mode to the programming mode (-Pro- indication, PROG LED) and press repeatetly the ▶ key until the meter displays the indication given on the fig. 1.1. Press ENTER to acceed to the first programming menu, or:

▶ To advance to the next program module.

ENTER To return to the programming access level (indication -Pro-).

MENU 41 - OUTPUT TYPE SELECTION

[1.2] Type of output

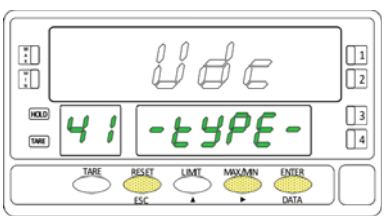


From the level shown in figure 1.1. a push of ENTER key, makes the meter read the indications corresponding to the entry stage of menu 41 (fig. 1.2., “Udc” for 0-10 V or “Idc” for 4-20 mA). If the existing configuration is already the desired one, press the ▶ key to skip over this menu and acceed to the output scaling (fig. 2.1.).

ENTER Acceed to this menu.

ESC To return to the programming access level (indication -Pro-).

[1.3] Selection of output type

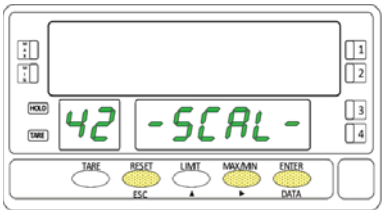


By pressing the ▶ key, the display alternates between the indication (“Udc” for 0-10 V and “Idc” for 4-20 mA. When the desired option is present on the display, press ENTER key to validate the choice and return to the -Pro- stage.

ESC Returns the meter to the -Pro- stage without saving changes.

MENU 42 - SCALE

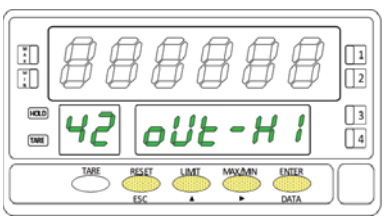
[2.1] Display Configuration



By pressing ENTER key and ▶ key from the programming stage shown in figure 11.1, the meter displays the indication given by the left figure corresponding to the entry stage of the menu 42. The programmable parameters of this menu are the display values corresponding to both extremes of the analog output range.
Press ENTER to set up these parameters, or:

▶ To pass to the next menu (fig 2.1).
ESC To return to the -Pro- stage.

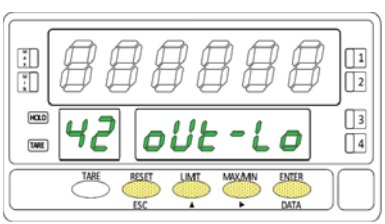
[2.2] Display Value HIGH



At this step, the display shows the current display value corresponding to 10V or 20mA with the first digit in flash. To modify this item, press repeatedly the ▲ key to change the value of the flashing digit and the ▶ key to advance to the next digit to be modified. Repeat these operations for every digit until the desired value is composed on the display.

ENTER Validate the entry and advance to the next programming step.
ESC Return to the –Pro- stage

[2.3] Display Value LOW

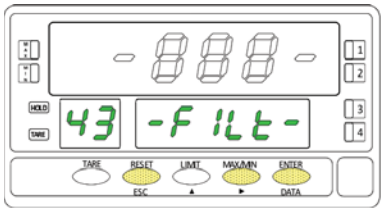


Repeat the process described for the previous phase (▲ and ▶ keys) to program the display value corresponding to 0V or 4mA.
Reverse operation is acomplished by programming the high display in this step and the low display in the previous one.

ENTER Validate the entry and return to the programming access stage (indication -Pro-).
ESC Return to the –Pro- stage.

MENU 43 - FILTER

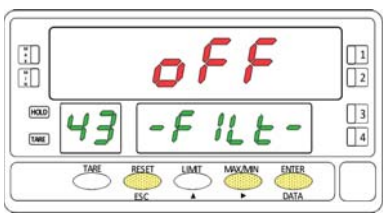
[3.1] Filter Configuration



From the program step indicated in figure 2.1 press once the ENTER key to acceed to the top menu and twice the ▶ key to bring the meter to the entry stage of the Menu 43 (-FILt-) (fig. 3.1).
This Menu offers the possibility of selecting whether the analog output should be transmitted at the same rythm as the display updating or at the input signal conversion rate. Press ENTER to get access to the programming of this parameter and go to fig. 3.2

▶ Skips over this menu and pass to the output type selection (fig. 1.2.).
ESC Returns the meter to the programming access level (-Pro- indication).

[3.2] Filter Activation



Under some conditions, the rate at which the input signal is converted may result so fast, thus making the analog output reflect all variations and even unwanted phenomena present at the input. In such cases it is convenient to increase the output response time by filtering the output signal to the same level as it has been selected for the display.
At this menu step the display shows one of the following options; The “OFF” option will make the analog output be updated at the same rythm as the input conversion (without filter) and the “ON” option will allow to use the output signal as a display image, presenting the same filtered values.
If it is desired to modify the existing configuration, press ▶ to alternate the display indication [“**on**” / “**oFF**”] and ENTER to validate the choice and go to the -Pro- stage.
If the existing configuration is already the desired one, press ESC to return to the -Pro- stage witout saving changes.

TYP-9180-Vxx1x
TYP-9180-Vxx2x

COMMUNICATION PROTOCOLS

DESCRIPTION OF OPERATION FOR RS OUTPUTS

Three communication mode are provided: The ASCII mode utilizes an easy to use protocol. The ISO mode conforming the ISO 1745 standard, permits a more safe communication in noisy environments since the data transfer is verified at the transmission and the reception ends.
As it can be seen in the table of functions on page 13, the protocol 1 uses 1 or 2 bytes depending of the command type while the ISO 1745 forces the use of two bytes per command.

Prot-1- = Protocol ASCII, Prot-2- = Protocol ISO1745, Prot-3- = Protocol MODBUS-RTU.

Specific information of MODBUS-RTU protocol (Ask for specific manual).

Prot-1- ASCII PROTOCOL

The transmission format is 1 START Bit, 8 DATA bits and 1 STOP Bit.

• RECEIVING MESSAGES
A message sent from the master device to the instrument must be composed of the following sequence of ASCII characters:

*	D	d	C	C	X.....X	CR

• One " * " byte [ASCII42] of start of message.
• Two address bytes (from 00 to 99).
• One or two ASCII-Characters corresponding to the desired comand according to the table of functions (page 13).
• In case that the command request for a modification of parameters, the new value shall be transmitted with one byte of sign + [ASCII 43] or – [ASCII 45] followed by a block of N ASCII-Characters including the decimal point.
• One " CR " character of end of message [ASCII 13].

• TRANSMISSION OF MESSAGES
The data sent from the instrument as a response to a data request type command from the master device is the following:

SP	X.....X	CR

• One byte of blank space [ASCII 32].
• One text (requested value) consisting of a byte of sign + [ASCII 43] or – [ASCII 45] followed by a block of N ASCII-Codes including decimal point.
• One " CR " character of end of message [ASCII 13] .

If the command belongs to "orders" or " changing parameters", the instrument gives no response.

COMMAND		FUNCTION	TYPE OF FUNCTION
ASCII	ISO		
V	0V	Transmission of the valley reading	Data Request
P	0P	Transmission of the peak reading	
T	0T	Transmission of the tare/offset value	
D	0D	Transmission of the display reading	
L1	L1	Transmission of the setpoint 1	
L2	L2	Transmission of the setpoint 2	
L3	L3	Transmission of the setpoint 3	
L4	L4	Transmission of the setpoint 4	
I	0I	Transmission of the CN2 status	
Z	0Z	Transmission of the TOTAL value	
X	0X	Transmission of the BATCH value	
v	0v	Reset the valley memory	Orders
p	0p	Reset the peak memory	
r	0r	Reset the tare memory	
t	0t	Tare the display	
n	0n	Reset of RELAIS “LATCH”	
z	0z	Reset of the TOTAL anb BATCH	
M1	M1	Change the setpoint 1	Changing Parameters
M2	M2	Change the setpoint 2	
M3	M3	Change the setpoint 3	
M4	M4	Change the setpoint 4	

Prot-2- ISO1745 PROTOCOL

The transmission format is 1 START Bit, 7 DATA bits, 1 Parity bit (even) and 1 STOP Bit.

• RECEIVING MESSAGES

The message format, as sent from the master device, must consist of the following sequence of characters:

SOH	D	d	STX	C	C	X.....X	ETX	BCC

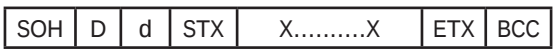
• One byte SOH of start of message [ASCII 01].
• Two bytes corresponding the first to the tens and the second to the units of the instrument address number.
• One byte STX of start of text [ASCII 02].
• Two command bytes according to the table functions.
• In case of commands that change parameters, a block of N bytes corresponding to the new value including sing and decimal point.
• One byte ETX of end the text [ASCII 03].
• One control byte BCC calculated in the following manner:
Perform an Exclusive-OR with all bytes comprised between the STX (not included) and the ETX (enclosed).

-If the obtained byte (in ASCII format) is higher than 32, it can be taken as the BCC.
-If the result (in ASCII) is lower than 32, the BCC byte will be obtained adding 32.

• TRANSMISSION OF MESSAGES

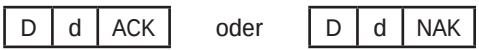
The format of a message as sent from the instrument in response to a command from the master device is the following:

1./ In case of commands that ask for the transmission of a value (data request type):



- One byte SOH of start of message [ASCII 01].
- Two address byte.
- One byte STX of start of text. [ASCII 02].
- N bytes corresponding to the requested value (including the sign and the decimal point).
- One byte ETX of end of text [ASCII 03].
- One control byte BCC calculated with the method described in page 13.

2./ In case of commands that do not imply the return of a value (command type or changing parameters) :



The instrument sends a confirmation to the master device when it receives a message.

- If the message has been correctly received and interpreted, the response will consist of two address byte and one " ACK " byte [ASCII 06].
- If the received message has not been well interpreted or it has been detected as to have errors, the response will be two address bytes and a " NAK " byte [ASCII 21].

When the master device transmits a message to the address 00, the command will be received by all the instruments on the bus and there will not be any response.

TYP-9180-Vxx1x

RS232C OUTPUT OPTION

The RS232C output option consists of an additional card (reference TYP 9180 Vxx1x) that is installed in the M1 plug-in connecto rof the instrument's main board. The card incorporates one telephone socket protruding out of the rear of the meter.

The serial output permits to construct a communication line through which a master device can request to the TYP 9180 instrument the transmission of data such as display value, setpoint values, peak, valley, tare (or offset in case of thermometers) and to perform operations such as tare of the display, reset of the peak, valley or tare memories and update setpoint values.

The TYP 9180 model provides also a special command that allows to copy the programming data from one meter to other of the same type.

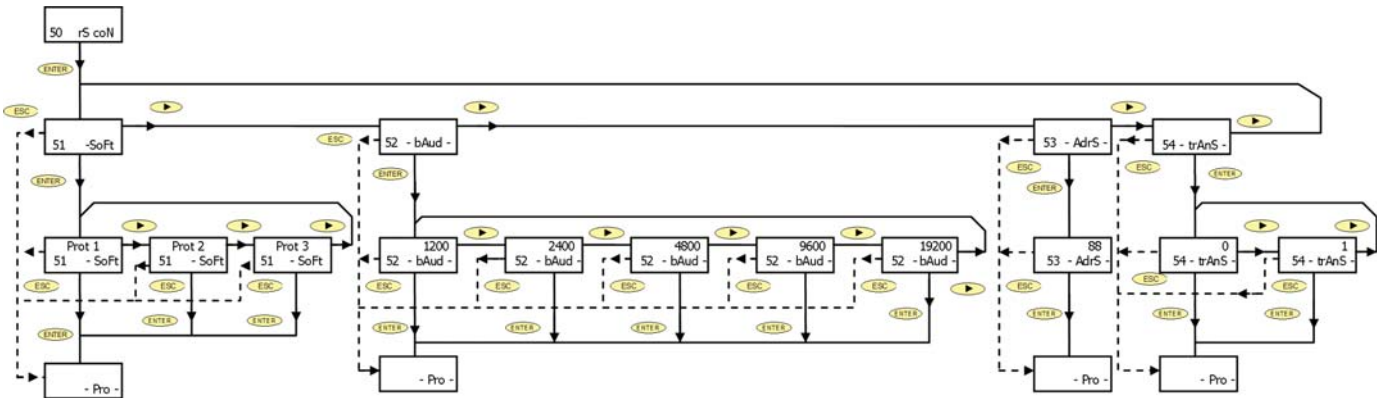
Fully sotware programmable, the option permits selection of the transmission rate (1200, 2400, 4800, 9600, 19200 baud), the instrument's address (from 00 to 99) and the communication protocol (ASCII , ISO1745 or MODBUS-RTU).

The RS232C option allows one instrument be connected to a master device with RS232C output.
The operating mode is half-duplex. The serial chanenel does only function when the instrument is in the run mode and it normally stands in data reception mode until reception of a message.

A valid data transmission may cause the inmediate execution of an action (tare, reset of the peak, valley or tare memories, modification of setpoint values) or the transmission of a response from the instrument (display value, one of the setpoint value, peak, valley, tare/ offset).

The display value (solely) can be requested by means of an external button as shown in schematics of page 10

RS232C OUTPUT PROGRAMMING



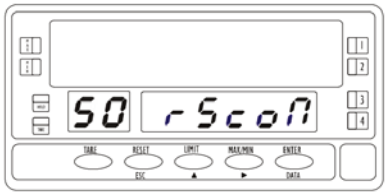
PROGRAMMING INSTRUCTIONS

The upper figure represents the MODULE 50 for the serial output configuration, which is valid for the TYP 9180 models.

This module is composed of five menus of independent access that allow configuration of the following parameters:

- **Menu 51 –SoFt-**: Selection of the communication Protocol 1= ASCII, 2= ISO1745 or 3= MODBUS-RTU.
- **Menu 52 –bAud-**: Configuration of the transmission rate.
- **Menu 53 _AdrS-** : Programming of the instrument address.
- **Menu 54 –trAnS-**: Validation of inhibition of the SEnd command. This command, if validated, permits to copy the configuration of the meter into another TYP 9180 connected in the RS232C communication link.

[1.1] Access to the programming

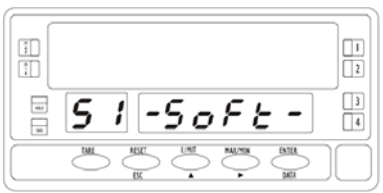


Press the ENTER key to pass from the run mode to the programming mode (the -Pro- indication appears on the second display) and press repeatedly ▶ until the meter displays the indication given by figure 1.1).
Press ENTER to acceed to the first programming menu or:

▶ to advance to the next programming module
ESC to return to the (-Pro-) stage.

MENU 51 - COMMUNICATION PROTOCOL

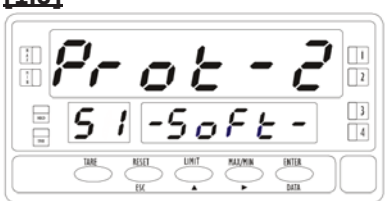
[1.2]



The figure shows the indication corresponding to the entry stage of the communication protocol selection menu.
Press the ENTER key to acceed this menu or

▶ to pass to the next programming menu.
ESC to return to the (-Pro-) stage.

[1.3]

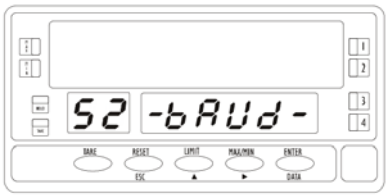


The display shows the previously selected type of protocol:
[Prot-1 = Protocol ASCII, Prot-2 = Protocol ISO 1745, Prot-3 = MODBUS-RTU].
See pages 13, 14 and 15 for a detailed description of protocols type 1 and 2..

Press the ▶ key if desired to change the option present on display and the
ENTER key to save the choice and automatically return to the –Pro- stage.
ESC Returns the meter to the –Pro- stage without saving changes.

MENU 52 - TRANSMISSION RATE

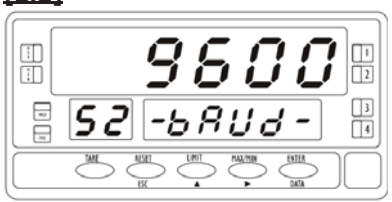
[2.1]



The figure 2.1 shows the indication corresponding to the entry stage of the baud rate configuration menu. Press ENTER to acceed to this menu.
If the programming of this parameter has been already made and it is desired to pass to the following menu, press ▶ and go to fig 3.1.

ESC Returns the meter to the programming access level (-Pro-)

[2.2]



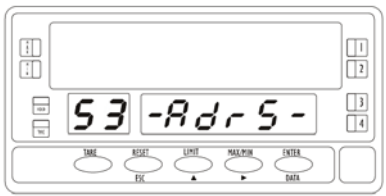
A press of ENTER key made at previous step makes the main display show the initially programmed transmission rate.
The available options are **1200, 2400, 4800, 9600, 19200** baud.

Press repeatedly the ▶ key until the desired option appears on the display and press ENTER to validate the choice and automatically go to the -Pro- stage.

ESC Returns the meter to the -Pro- stage without data memory storage.

MENU 53 - ADDRESS

[3.1]

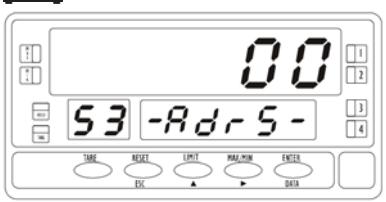


From the phase represented in figure 1.1, press the ENTER key to acceed to the menu selection level and ▶ to bring the meter to the entry stage of the Address change menu (see figure 3.1).

Press ENTER key to get access to the programming of this parameter, or:

▶ to go to the next menu.
ESC to return to the programming access level (-Pro- indication).

[3.2]

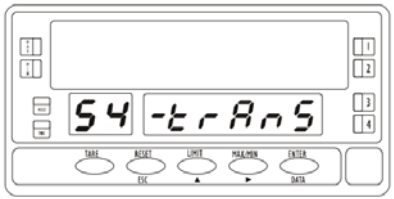


The main display shows a number of two digits corresponding to the previously programmed address, with the first digit in flash.
If it is wanted to change the number, press repeatedly the ▲ key to make the flashing digit rotate from 0 to 9, and once it has taken the desired value, press ▶ to advance to the next digit to be modified. Repeat this operation until the desired address appears on the display. It can be assigned address numbers between 00 and 99.

Once the instrument's identification number has been composed on the display, press ENTER to store data in the memory and return to the -Pro- stage.

MENU 54 - VALIDATION OF “Send Configuration” COMMAND

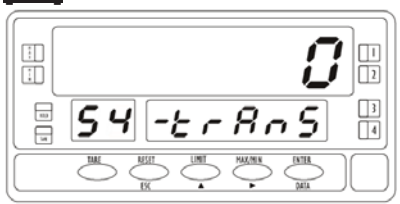
[4.1]



From the phase represented in figure 1.1, press ENTER to get access to the menu selection level and press three times the ► key to bring the meter to the entry stage of the TRANS menu (auxiliary display shows 54 -trAnS).
This menu allows to validate or inhibite a very peculiar function of the TYP 9180 model; the ability of copying the configuration parameters from one instrument to another via the RS232C link.
Press ENTER to acceed this menu, or:

► to skip over this menu and advance to the next one.
ESC to return to the programming access level (-Pro- stage).

[4.2]



A flashing number appears on the main display (0 or 1 depending on previous selection). The “ **0** ” means that the “ send configuration ” option is disabled, and the “ **1** ” means that it is possible to use this option.

If the display shows the number corresponding to the desired option, press ENTER or ESC to go to the -Pro- stage. If not so, press ► to change the number and ENTER to save the entry and return to the -Pro- stage.

SEnd COMMAND (Send configuration)

To be able to use this command it is necessary to have selected the “ 1 ” option in the 54 –trAnS menu and the “ISo” option (corresponding to the ISO 1745 communication protocol) in the 51 –SoFt- menu.
To program one instrument connected via the RS232C line it is sufficient to give the TYP 9180 receiver the same address as the TYP 9180 transmitter (see pag 20 for instructions about this item).
After doing this operation, press ENTER while the transmitter is in the run mode to pass to the -Pro- stage. Press the TARE key to make the second display show the indication SEnd.
At this point, press ENTER to start sending the programming parameters to the receiver or press ESC to cancel.


burster

TYP-9180-Vxx2x

RS485 OUTPUT OPTION

The RS485 output option consists of an additional card (reference TYP 9180 Vxx2x) that is installed in the M1 plug-in connector of the instrument's main board. The card incorporates one telephone socket protruding out of the rear of the meter.

The serial output permits to construct a communication line through which a master device can request to the TYP 9180 instrument the transmission of data such as display value, setpoint values, peak, valley, tare (or offset in case of thermometers) and to perform operations such as tare of the display, reset of the peak, valley or tare memories and update setpoint values.

The TYP 9180 model provides also a special command that allows to copy the programming data from one meter to other of the same type.

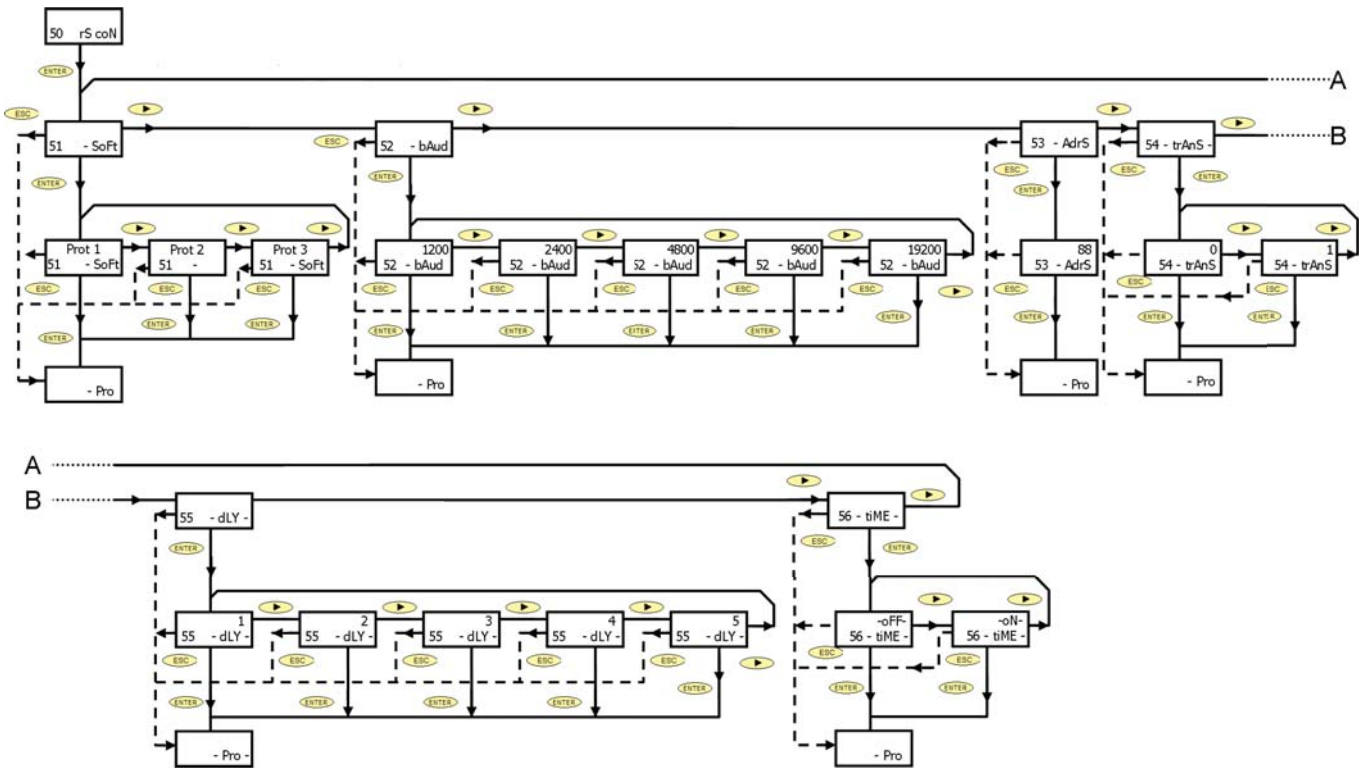
Fully sotware programmable, the option permits selection of the transmission rate (1200, 2400, 4800, 9600, 19200 baud), the instrument's address (from 00 to 99) and the communication protocol (ASCII , ISO1745 or MODBUS-RTU).

The RS485 option allows up to 31 instruments be connected to a master device with RS485 output.

The operating mode is half-duplex. The serial chanel does only function when the instrument is in the run mode and it normally stands in data reception mode until reception of a message.

A valid data transmission may cause the inmediate execution of an action (tare, reset of the peak, valley or tare memories, modification of setpoint values) or the transmission of a response from the instrument (display value, one of the setpoint value, peak, valley, tare, offset).

RS485 OUTPUT PROGRAMMING



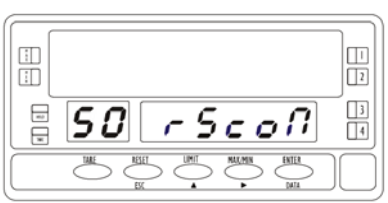
PROGRAMMING INSTRUCTIONS

The diagram on page 11 shows the Module 50 for the serial output configuration of Typ 9180 with RS485 output option.
This module is composed of six menus of independent access that allows confuguration of the following parameters :

- **Menu 51 -SoFt-** Selection among protocol ASCII,ISO 1745 oder MODBUS-RTU.
- **Menu 52 -bAud-**Configuration of the transmission rate.
- **Menu 53 -AdrS-** Programming of the instrument address.
- **Menu 54 –trAnS-** Validation or inhibition of the SEnd command. This command, if validated, permits to copy the configuration of the meter into another Typ 9180 connected in the RS485 communications link, with ISO 1745 protocol.
- **Menu 55 –dLY-** Selection of a time delay applied to the response of the meter from the reception of data request command.
- **Menu 56 –tIME-** Selection of the activation or deactivation of TIME and DATE when used with Printer Ditel Printk180.

Detailed instructions for each step menu are given on pages 13,14,15,16 and 17

[1.1] Access to the programming

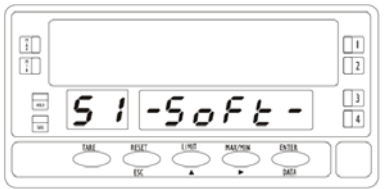


Press the ENTER key to pass from the run mode to the programming mode (the -Pro- indication appears on the second display) and press repeatedly the ▶ key until the meter displays the indication given by figure 1.1 .
Press ENTER key to acceed to the first programming menu, or:

▶ to advance to the next programming module.
ESC to return to the -Pro- stage.

MENU 51 - COMMUNICATION PROTOCOL

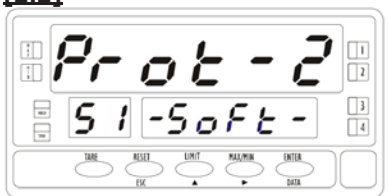
[2.1]



The figure 2.1 shows the indication corresponding to the entry stage of the communication protocol selection menu.
Press the ENTER key to acceed this menu or

► to pass to the next programming menu.
ESC to return to the (-Pro-) stage.

[2.2]

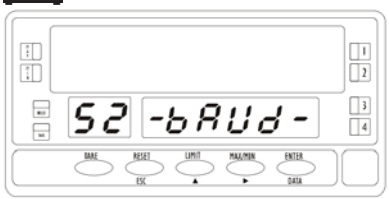


The display shows the previously selected type of protocol:
[Prot-1 = Protocol ASCII, Prot-2 = Protocol ISO 1745, Prot-3 = MODBUS-RTU].
See pages 13, 14 and 15 for a detailed description of protocols type 1 and 2..

Press the ► key if desired to change the option present on display and the
ENTER key to save the choice and automatically return to the –Pro- stage.
ESC Returns the meter to the –Pro- stage without saving changes.

MENU 52 - TRANSMISSION RATE

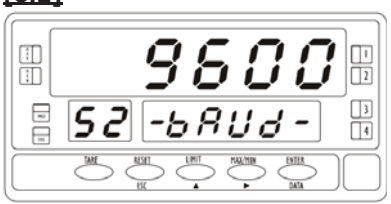
[3.1]



The figure 3.1 shows the indication corresponding to the entry stage of the baud rate configuration menu. Press ENTER to acceed to this menu.
If the programming of this parameter has been already made and it is desired to pass to the following menu, press ► and go to fig 4.1.

ESC Returns the meter to the programming access level (-Pro-)

[3.2]



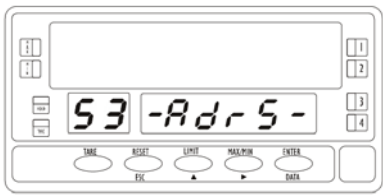
A press of ENTER key made at previous step makes the main display show the initially programmed transmission rate.
The available options are **1200, 2400, 4800, 9600, 19200** baud.

Press repeatedly the ► key until the desired option appears on the display and press ENTER to validate the choice and automatically go to the -Pro- stage.

ESC Returns the meter to the -Pro- stage without data memory storage.

MENU 53 - ADDRESS

[4.1]

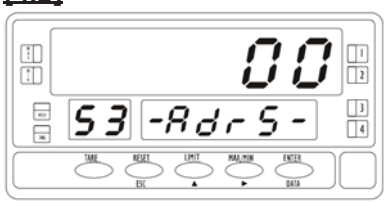


From the phase represented in figure 1.1, press the ENTER key to acceed to the menu selection level and ► to bring the meter to the entry stage of the address programming menu (see figure 4.1).

Press ENTER key to get access to the programming of this parameter, or:

► to go to the next menu.
ESC to return to the programming access level (-Pro- indication).

[4.2]

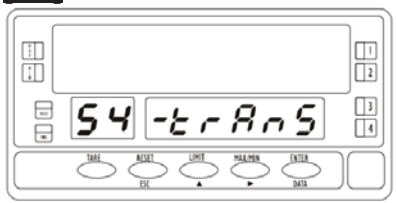


The main display shows a number of two digits corresponding to the previously programmed address, with the first digit in flash.
If it is wanted to change the number, press repeatedly the ▲ key to make the flashing digit rotate from 0 to 9, and once it has taken the desired value, press ► to advance to the next digit to be modified. Repeat this operation until the desired address appears on the display. It can be assigned address numbers between 00 and 99.

Once the instrument's identification numberhas been composed on the display, press ENTER to store data in the memory and return to the -Pro- stage.

MENU 54 - VALIDATION OF “Send Configuration” COMMAND

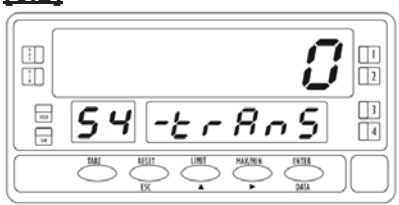
[5.1]



From the phase represented in figure 1.1, press ENTER to get access to the menu selection level and press three times the ▶ key to bring the meter to the entry stage of the TRANS menu (auxiliary display shows 54 -trAnS).
This menu allows to validate or inhibite a very peculiar function of the TYP 9180 model; the ability of copying the configuration parameters from one instrument to another via the RS232C link.
Press ENTER to acceed this menu, or:

▶ to skip over this menu and advance to the next one.
ESC to return to the programming access level (-Pro- stage).

[5.2]



A flashing number appears on the main display (0 or 1 depending on previous selection). The “ **0** ” means that the “ send configuration ” option is disabled, and the “ **1** ” means that it is possible to use this option.

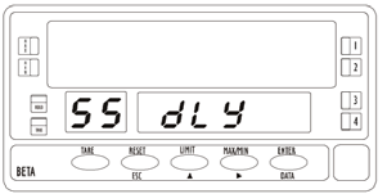
If the display shows the number corresponding to the desired option, press ENTER or ESC to go to the -Pro- stage. If not so, press ▶ to change the number and ENTER to save the entry and return to the -Pro- stage.

SEnd COMMAND (Send configuration)

To be able to use this command it is necessary to have selected the “ 1 ” option in the 54 –trAnS menu and the “ISo” option (corresponding to the ISO 1745 communication protocol) in the 51 –SoFt- menu.
To program one instrument connected via the RS232C line it is sufficient to give the TYP 9180 receiver the same address as the TYP 9180 transmitter (see pag 28 for instructions about this item).
After doing this operation, press ENTER while the transmitter is in the run mode to pass to the -Pro- stage. Press the TARE key to make the second display show the indication SEnd.
At this point, press ENTER to start sending the programming parameters to the receiver or press ESC to cancel.

MENU 55 - TIME DELAY SELECTION

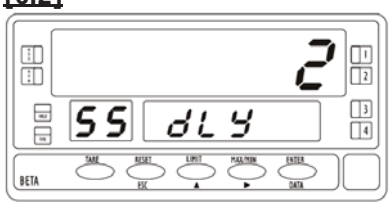
[6.1]



From the entry stage of the module 50 (fig. 1.1), press the ENTER key to acceed to the programming menus and four times the ▶ key to bring the meter to the level shown in fig. 6.1, corresponding to the access stage of the **55 dLY** menu. This menu permits to introduce a time delay that is applied to the time that takes the instrument to send a response from the moment it receives a command. The purpose of this delay is to avoid loss of information in case that the response occurs before the master device is ready to receive data. [This circumstance can appear in half-duplex links since the transmission and the reception take place in the same direction]. Press ENTER to acceed this menu, or:

▶ to skip over this menu and go to the 56 menu .
ESC to return to the -Pro - stage.

[6.2]



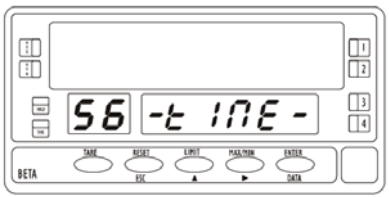
A stroke of ENTER key at previous step makes the display show a number (from 1 to 5 depending on previous programming) in flash.

IMPORTANT
1 = delay of 30ms, 2 = delay of 60ms 3 = delay of 100ms,
4 = delay of 300ms and 5 = without delay.

Press repeatedly the ▶ key to scroll around the five numbers and, when the display reads the desired option, press ENTER to save the entry and automatically go to the -Pro – stage.

MENU 55 - “TIME” FUNCTION ACTIVATION

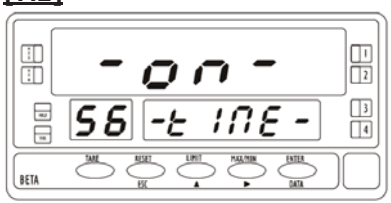
[7.1]



From the entry stage of the module 50 (fig. 1.1), press the ENTER key to acceed to the programming menus and five times the ▶ key to bring the meter to the level shown in fig. 7.1, corresponding to the access stage of the **56 tiME** menu.
This menu allows to activate or inhibit the possibily to print DATE and TIME if using the printer PRINK180 with this instrument.
Press ENTER key to enter into this menu or:

▶ to skip over this menu and go to the 51 menu .
ESC to return to the -Pro - stage.

[7.2]



After press the ENTER key the display shows **-on-** or **-oFF-**.
Press the ▶ key to choice between on or oFF.

ENTER to accept this choice
ESC to save the entry and automatically go to the -Pro – stage.


burster

TYP-9180-Vxxx1
TYP-9180-Vxxx2
TYP-9180-Vxxx3
TYP-9180-Vxxx4

SETPOINTS OUTPUT OPTION

RELAIS / OPTOCOUPLER

INTRODUCTION

An option of 2 or 4 SETPOINTS, programmable within the full display range, can be incorporated to the unit thus providing alarm and control capabilities by means of individual LED indicators and relay or transistor outputs.

All the SETPOINTS provide independently programmable value, time delay, asymmetrical or symetrical hYsteresis (in counts of display) and selectable HI/LO acting.

The SETPOINTS are also configurable to activate independently (each one activates at its corresponding value) or tracking one another (setpoint 2 can be conditioned by the action of setpoint 1, setpoint 4 by setpoint 3). Such later function is included in the programming menus with the name “TRAC” and, in case of the setpoint 2, it can be manual or automatic.

The setpoint option consists of a plug-in additional card that once installed to the meter’s main board, activates its own programming module. The setpoints programming my be locked out by means of secure code menu, to prevent from accidental unauthorized changes. The available setpoint options are:

-Vxxx1 : 2 Relais Typ SPDT 8A
-Vxxx2 : 4 Relais Typ SPST 5A*
-Vxxx3 : 4 Optocoupler Type NPN
-Vxxx4 : 4 Optocoupler Type PNP

These type of outputs, capable of carrying out a wide variety of control operations and processing of limit values, increase notably the unit’s performance qualities thanks to the possibility of combinating basic alarm functions with advanced safety and control applications.
* from nº 05397

1.2. FUNCTION DESCRIPTION

All the setpoints can operate independently or in association with another in a variety of combinations to suit specific operating conditions.

1./ INDEPENDENT SETPOINTS.

As programmed like independent setpoints, the alarm outputs activate when the display value reaches the user-programmed value. The independent alarms programming requires definition of the following parameters:

a. HI/LO ACTING MODE.

In HI mode, the output activates when the display rises above the setpoint level and in LO mode, the output activates when the display falls bellow the setpoint.

b. PROGRAMMABLE TIME DELAY or HYSTERESIS.

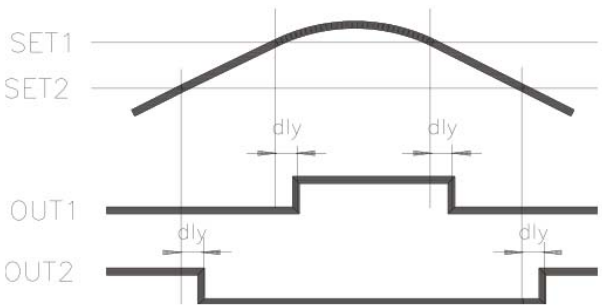
Each output action can be deferred by a programmable time delay or hysteresis level.

The time delay is the time that takes the output to activate after passing through the setpoint in the up or down direction, while the hysteresis band can be selected asymmetrical (only acts on the output deactivation edge) or symmetrical (operate on both sides of the setpoint)

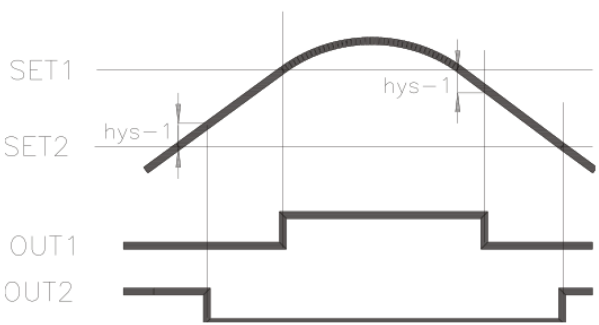
The time delay can be set from 0.0 to the max displayable value in seconds and can have a decimal place.

The hysteresis can be programmed, in counts, within the full display range. The decimal point appears in the same position as programmed in the display configuration module.

The figures 4.1 and 4.2 show the time delay action (dly) and the asymetrical hysteresis action (hys-1) of two alarms (SET1 and SET2) programmed to activate in HI mode (OUT1) and in LO mode (OUT2).

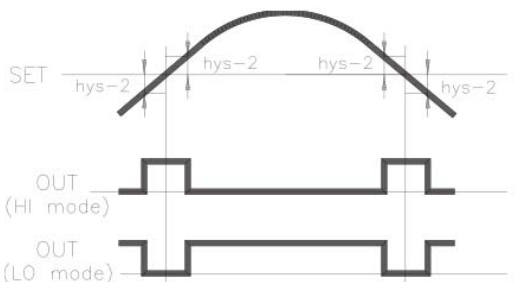


4.1 Time Delay Action



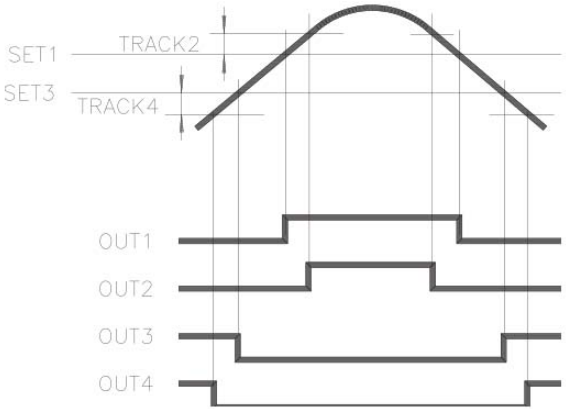
4.2 Asymetrical Hysteresis Action

The figure 5.1 shows the action of the symetrical hysteresis. In order to clarify the drawing, it has been represented only one alarm in the cases of HI and LO acting.
The 100% of the proportional hysteresis (hys-2) is added to each side of the setpoint, thus creating a band around the setpoint within which the output is activated (mode HI) or deactivated (mode LO). This band can be as large as twice the maximum number of counts of display.
The hold up of the alarm action by means of this type of hysteresis can be useful in operations in which it is necessary to keep the alarm conditions between two specified points.



5.1 Symetrical Hysteresis Action

As an example, let's suppose that it is wanted to control a quantity composer of two other in proportion of 1000 and 2000kg. By programming the first setpoint at 500 with hys-2=500 and the second setpoint at 2000 with hys-2 =1000 the alarm output should control the first quantity from 0 to 1000 and the second quantity from 1000 to 3000.



5.2 Tracking Alarms

2./ TRACKING ALARMS

The SET2 and SET4 setpoints can be programmed to "track" SET1 and SET3 respectively. This type of alarm does not activate as compared with a preprogrammed display value but at a programmable fixed distance from the activation of their pre-alarms.
The programming of these alarms requieres to determine first the pre-alarm setpoint value (for example SET1=200). Then, instead of programming the SET2, it is assigned an offset between this and the first alarm (for example TRACK2= 50).
Although SET1 is changed, the alarm 2(if not changed) will always activate 50 counts above SET1. If a negative tracking value should have been programmed (-50), the alarm 2 would activate 50 counts below the SET1.
The figure 5.2 shows an example of positive (TRACK2) and negative tracking (TRACK4).

3./ OUT-OF-LIMIT QUANTITY

In some measurements systems and particularly in weighing and dosage applications, the mechanical parts and the system structure makes it impossible to shut off operations at a given point (due to response times, wieght in fly ...) this causing an extra quantity of material be settle after the interrupting action.

As an application example of the “AUTO TRACK” function, let’s comment the effect known as “weight in fly”.
The “weight in fly” effect is produced in those systems in which some kind of recipient is to be filled with a preprogrammed quantity of material. Each time this quantity is reached, an alarm output stops the filling mechanism.
However, the quantity of material which is still on air at the moment of shutting off the process, is deposited in the recipient exceeding from the desired measure.

The automatic track function (AUTO TRACK) is specially designed to compensate for this out of limit quantity.
This function is based on controlling the quantity in which the programmed limit is surpassed and using this excess to activate the shut off signal so that, including the out of limit quantity, the final measure suits the desired value.

Only the alarm 2 provides automatic track function.
The auto tracking is implemented by programming SET1 for the desired limit value and SET2 for “AUTO TRACK” operation (initally it takes the same value as SET1).

SET1 = Desired setpoint value
SET2 = AUTO TRACK

When, despite the alarm that shuts off the process activates, still a little quantity of material exceeding from SET1 is deposited, the excess is registered in the peak memory as “TRACK” value and substracted from SET2.

This way, in succesive measurements the output of SET2 will take charge of interrupting the operations one moment before the display reaches the programmed value. The extra quantity will then measure until the required level.

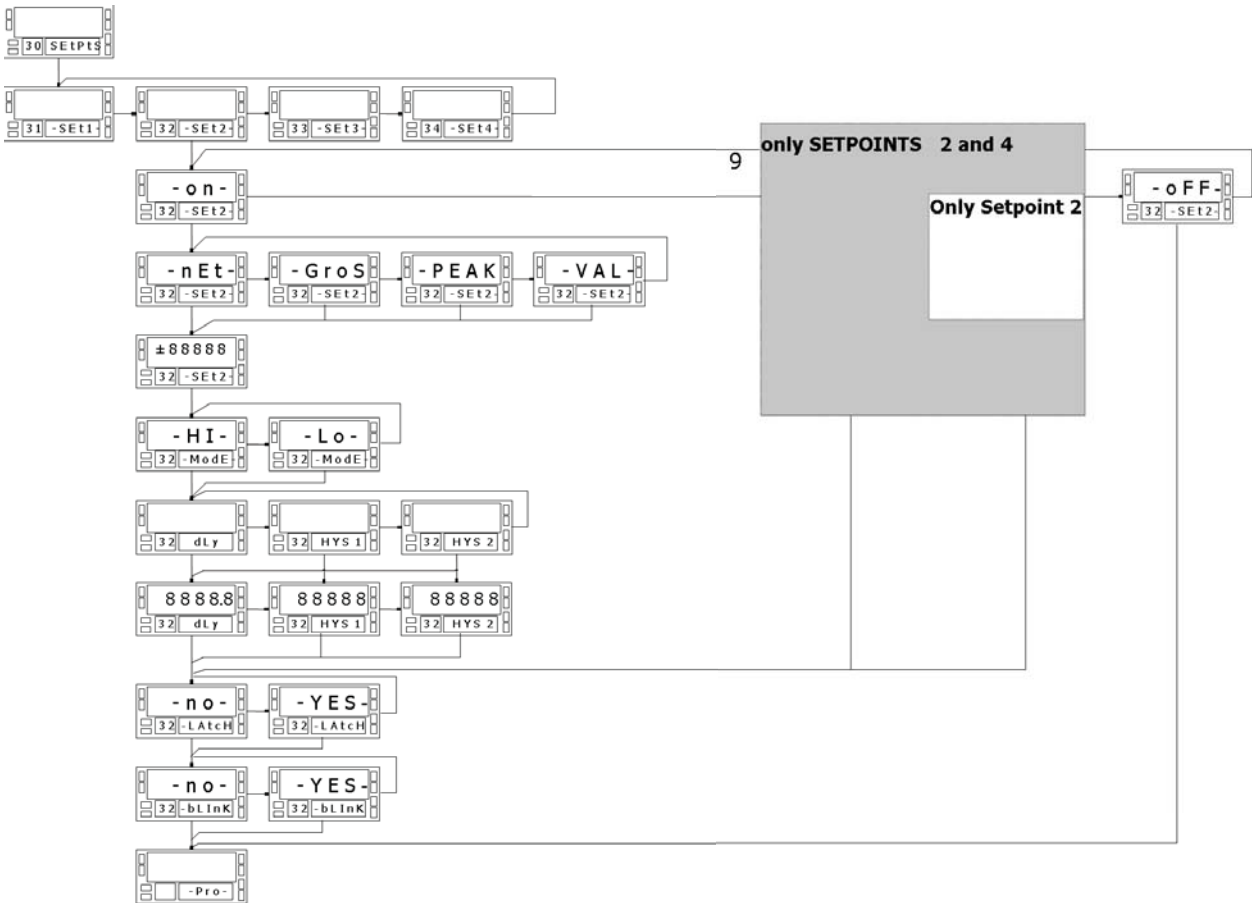
We remark that the track value is continously updated according to process needs.

TECHNICAL SPECIFICATIONS

	Option Vxxx1	Option Vxxx1
Max. Current (Res. Load)	8A	5A
Max. Power	2000VA/192W	1250VA/150W
Max. Voltage	250VAC/150VDC	277VAC/125VDC
Contact Resistance	Max. 3mΩ	Max. 30mΩ
Output Resp. Time	Max. 10ms	Max. 10ms

	Option Vxxx3 and Vxxx4
Max. Voltage	50VDC
Max. Current	50mA
Leakage Current	100μA (max.)
Output Res. Time	1ms

SETPOINT OUTPUT PROGRAMMING



PROGRAMMING INSTRUCTIONS

The diagram of page 38 corresponds to the menu 30 of setpoints programmation that is valid for the output options –Vxxx1, -Vxxx2, -Vxxx3, -Vxxx4. If you only have the output option 2 relais it will only appear the 31 and 32 menus corresponding to the setpoints SET1 and SET2.

Each output is programmed independently by means of , finalized the programming sequence of each setpoint, by pressing the key ENTER the display shows the indication "-Pro-", wherefrom you can access the 30 menu to configure the rest of the setpoints.

The setpoints SET1 and SET3 can only be programmed for independent action, the SET2 and SET4 can be activated independent from the first or tracking the first. In this case SET2 depends on SET1 and SET 4 depends on SET3. The setpoint 2 has automatic tracking.

The setpoint outputs can act in relationship with the net, gross, peak or valley value. There are two control modes, HI or LO, with programmable delay or hysteresis values.

The setpoints can be configured as "latch". With this configuration, the led indicator remains activated after the alarm condition has finished. The setpoint reset can only be done by means of the logical function nº 25.

It is possible to configure the display blink option when a setpoint is activated.

[1.1] Access to the programming

Press ENTER to go from run mode to programmation mode.
Press ▶ to pass to the level shown in the figure.

Press ENTER one more time and in the display will appear the indication "**31 SET-1**" corresponding to the input in the programmation menu of setpoint 1. Now we are in the menu level selection, where ENTER allows access to the setpoints programmation in the display and ▶ allows to pass to the next setpoint configuration.

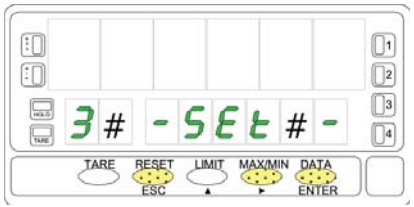
Considerations about programming instructions

Since all setpoints have the same programming sequence as free alarms (see. 40 to 43), we have changed the setpoint number in the figures by the symbol "#", this way the instructions sequence is valid for all selected number.

In the setpoints 2 and 4 programming, the selection of the "-on-" or "trAC" option (see fig. 2.2), brings you different subrutines. Each one is explained in different sections on pages 42 and 43.

SUBMENU 31,32,33,34 - SETPOINTS

[2.1] Start



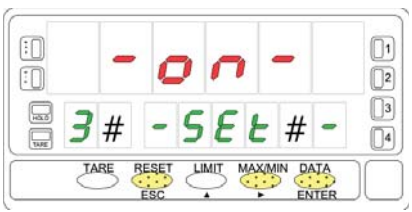
The figure shows the input display in the programming menu of one of the outputs where the symbol "#" represents the setpoint number that you are going to program. To select other setpoint, press ► until the desired number appears in the place of #.

ENTER Access to the programming of the setpoint shown in display.

ESC Return to the programming access level (indication "-Pro-").

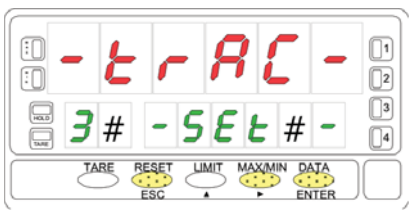
[2.2] Setpoints RUN mode

Once on the selected menu in the step before, the options represented in the figures are shown. The option "**-trAC-**" appears in the setpoints 2 & 4 programming menu only. By pressing ► , go to desired option display and press the key ENTER .



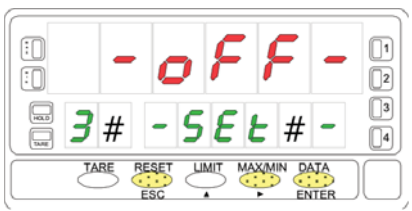
Select "**-on-**" to program the setpoint as independent alarm.

Press ENTER and the display shows the figure 3.1. indication.



The option "**-trAC-**" is the tracking function that only appears in the programming menus of SET2 and SET4. Select "**-trAC-**" to program the setpoint as manual or automatic tracking alarm.

Press ENTER and go to page 43.

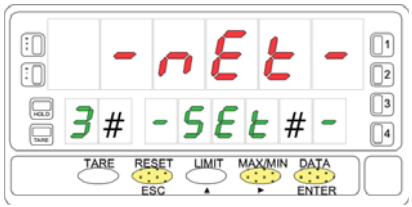


Select "**-oFF-**" to disable the action of the output relay/opto corresponding to the setpoint you are programming.

Press ENTER to go back to the "**-Pro-**" indication that give you access to the programming mode.

If you have selected “-on-” in step 2.2

[3.1] Comparison

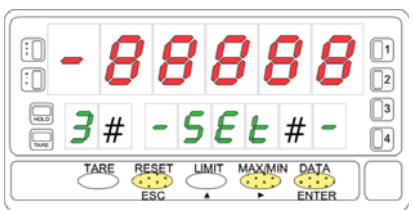


▶ Select comparison of the setpoints with the net value "**-nEt-**", with the gross value "**-GroS-**", with the peak value "**-PEAK-**" or with the valley value "**-VAL-**".

ENTER Validate the introduced data and go to introduce the setpoint value.

ESC Return to the programming access level (indication "-Pro-").

[3.2] Setpoint Value

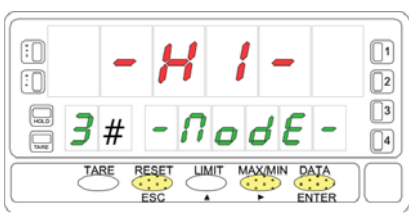


Compose using the keys ▶ and ▲ the setpoint value between "-99999" and "+99999".

ENTER Validate the introduced data and go to select the activation mode.

ESC Return to the programming access level (indication "-Pro-").

[3.3] Activation Mode



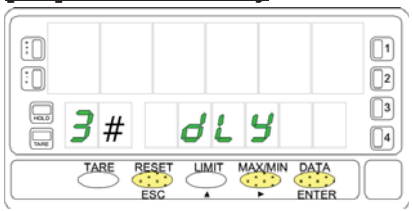
▶ Select "**-HI-**" to activate the output over the setpoint value or "**-Lo-**" to activate the output under the setpoint value.

ENTER Validate the selection and go to the activation delay programming.

ESC Return to the programming access level (indication "-Pro-").

If you have selected “-on-” in step 2.2

[3.4] Activation Delay

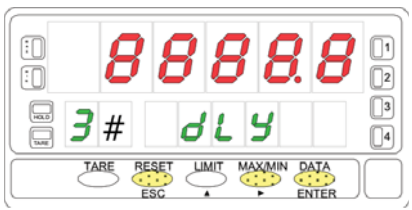


The secondary display shows three delay options in the output action. Select one of them: **"dLY"** = delay or **"HYS 1"** = asymmetrical hysteresis or **"HYS 2"** = symmetrical hysteresis.

ENTER Validate the selection and go to program the delay value.

ESC Return to the programming access level (indication "-Pro-").

[3.5] Delay Value

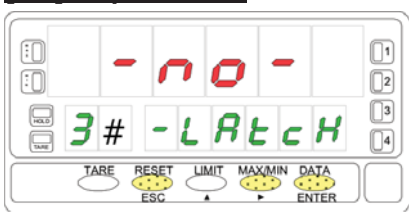


Compose using the keys ► and ▲ the setpoint value between "-99999" and "+99999".

ENTER Validate the introduced data and go to select the activation mode.

ESC Return to the programming access level (indication "-Pro-").

[3.6] Setpoint Latch

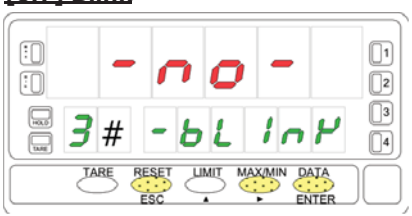


► Select "-no-" or "-YES-" to configure the setpoint as "latch".

ENTER Validate the selection and go to program the blink.

ESC Return to the programming access level (indication "-Pro-").

[3.7] Blink



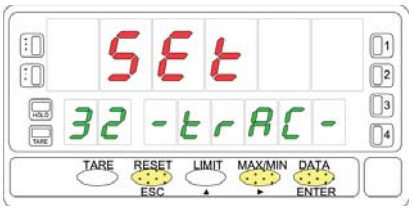
► Select "-no-" or "-YES-" to make the main display blink when setpoint is activated.

ENTER Validate the selection and go to program the blink.

ESC Return to the programming access level (indication "-Pro-").

If you have selected “-trAC-” in step 2.2

[4.1] Activation Mode

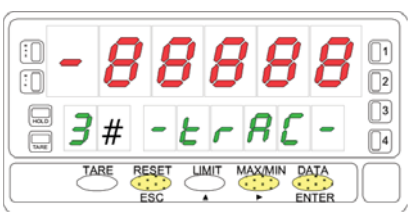


The function "**-trAC-**" is only available in the SET2 and SET4 alarms.
As you can see the auxiliar display shows the number 2 instead of de #; this is the only alarm that has automatic tracking, by this way, in the SET4 configuration menu, this indication is omitted and you access right to the setpoint value programming
In the menu 32, there are two options: manually program the tracking value from SET1 (in this case select **"SET"** = manual) or allow the process to select the necessary value (select **"AUto"** = auto)

ENTER If "AUto" has been selected, the ENTER key returns the instrument to the entry level in the programming mode (indication "**-Pro-**"). If "SET" has been selected, the ENTER key goes to the next menu step where the SET2 or SET4 value can be programmed.

ESC Return to the programming access level (indication "**-Pro-**").

[4.2] Setpoint Value



Compose using the keys ▶ and ▲ the tracking value between "-99999" and "+99999". Remember that the SET2 will track the SET1 and SET4 tracking the SET3.

ENTER Validate the introduced data and return to the programming access level (indication "-Pro-").

ESC Return to the programming access level (indication "-Pro-").

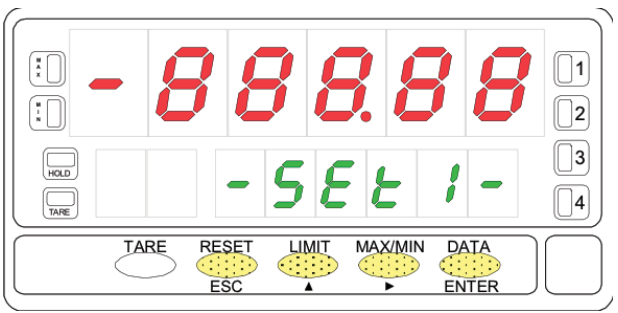
DIRECT ACCESS TO SETPOINT VALUES

There is an easy way to access only to the setpoints value configuration. From the run mode (RUN), press ENTER, we enter in the programming mode (PROG) and then the key ▲.

The setpoint values appears by pressing the key ENTER. The secondary display shows the selected setpoint. And the main display shows the setpoint value with the left digit blinking (see fig. 19.1).
By the keys ► and ▲ compose the desired setpoint value, between "-99999" and "+99999".

If it is not possible to modify the setpoints value, it is because of the programming is blocked. Check the TYP-9180 manual for info about blocking programmation.

The setpoint values can be configured if we have the connector function number 24 activated, that allows the programming and the use of the setpoints value without relay or opto output option. See the programmable functions table in the TYP-9180.



Configuration of Setpoint 1 value

RUN MODE INDICATIONS

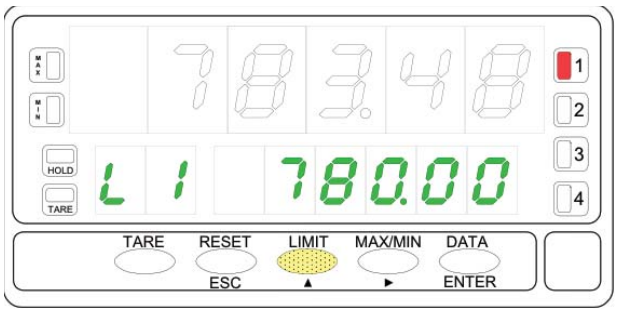
The TYP-9180 has four LED indicators situated at the right side of the display to show the alarm status. The LEDs are numerated from 1 to 4 but with the output option –Vxxx1, only the first two are used.

The programmed setpoint values, even if they are inactives, can be visualized during the normal device run mode by pressing the key ▲ .

The visualization of any setpoint value does not afect the mesure reading in the main display; the setpoint value is indicated in the secondary display while in the auxiliar appears the letter "**L**" followed by the number of the corresponding visualized setpoint.

In case of the setpoints SET2 and SET4, the letter "**L**" in the auxiliar display is changed by "**t**" (followed by the numbers 2 and 4) when they are tracking SET1 and SET3.

If SET2 has been programmed as autotracking, when you recall the setpoints by pressing the key ▲, the auxiliar display and the secondary shows, in the first press, the indication "**L1**" and the SET1 value. The second press display the indication "**t**" and the tracking value. The next press shows the setpoints 3 and 4 if they are installed and finally turn off the displays.



Setpoint 1 value visualization
LED1 indicates the activation of setpoint

The setpoint value remains in the display until a new press of key ▲ is done, that shows the next setpoint value, ► shows the peak value or ENTER that gives you access to the programming mode.

When overflow ("**oUFLo**"), all the output and LED indicators corresponding to the setpoints are inactive, except the ones configured as latch.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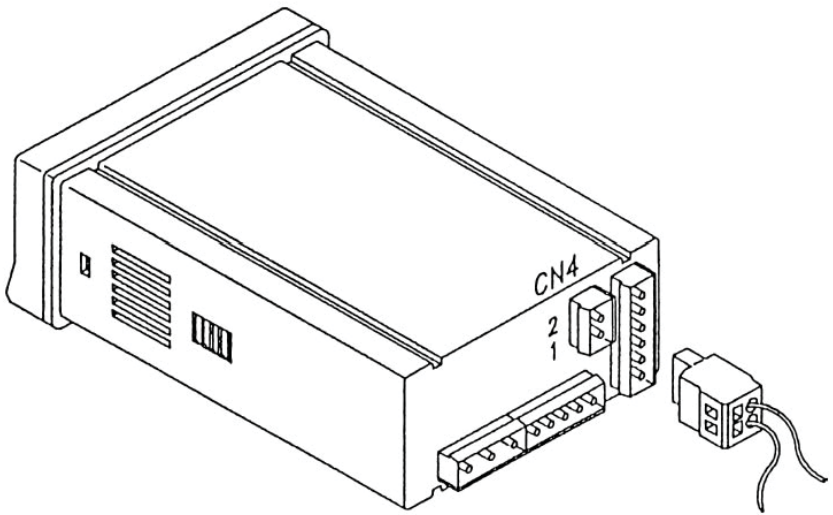
WIRING DIAGRAMS

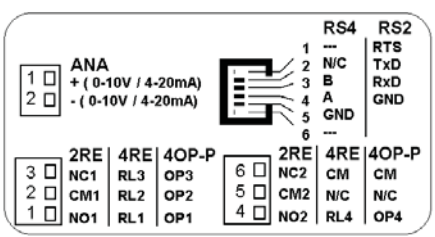
ANALOG OPTION Vx1xx



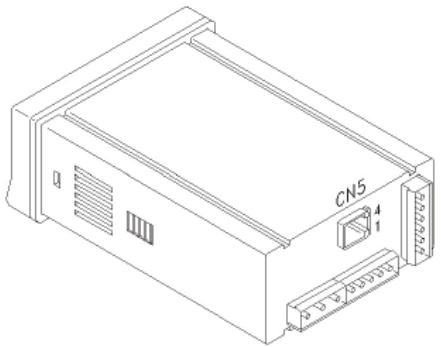
CONNECTIONS

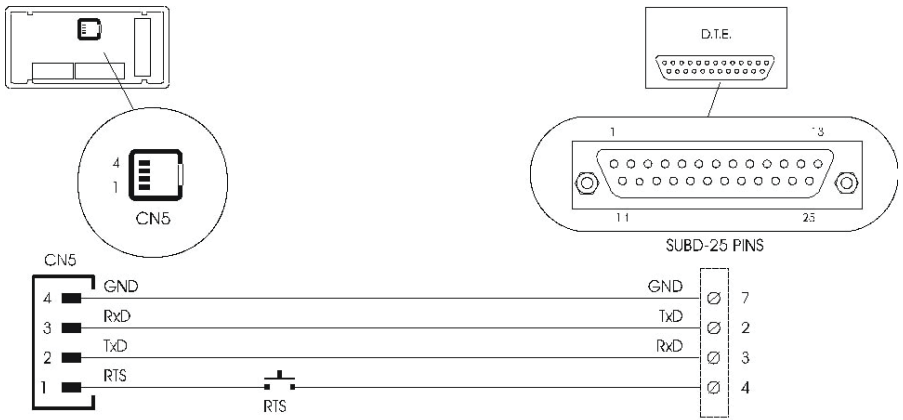
CN4 CONNECTOR

PIN 2 = (-) 0-10V / 4-20mA
PIN 1 = (+) 0-10V / 4-20mA



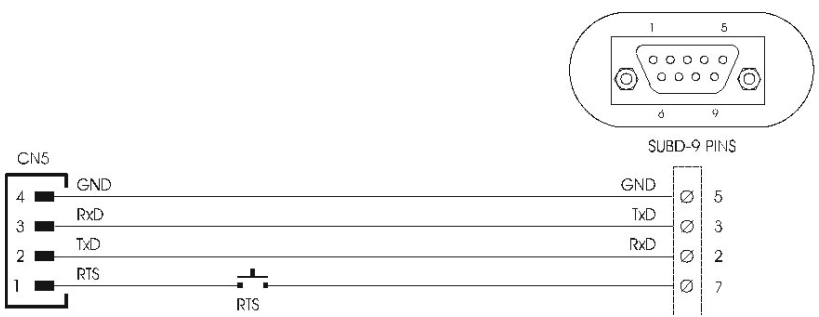
RS232C OPTION Vxx1x



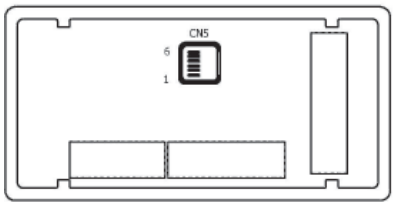


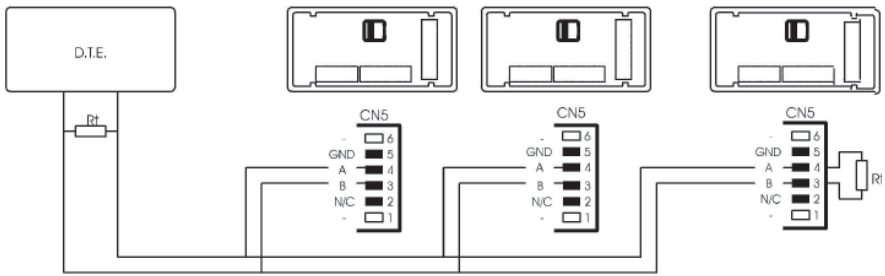
The display value can be requested by a push on the RTS button according the schematics.

If the pushbutton is held closed, the display value is continuously transmitted at 1 second intervals.



CONNECTION OF SEVERAL INSTRUMENTS TO A D.T.E.



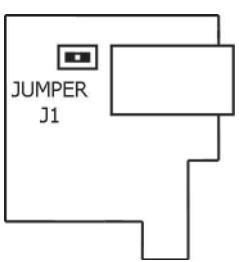


CONNECTIONS

CN5 CONNECTOR

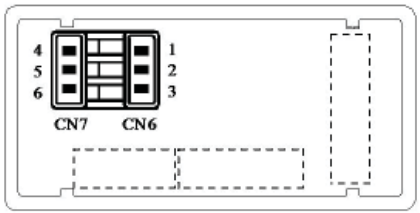
PIN 6 = -
PIN 5 = GND
PIN 4 = A (+TxD / +RxD)
PIN 3 = B (-TxD / -RxD)
PIN 2 = NOT CONNECT
PIN 1 = -

Up to 31 typ9180 instruments can be connected on the same bus with a D.T.E. by giving each unit different adress numbers from 00 to 99.
The address 00 is common to all the instruments on the line and can be used to send commands that have no response such as tare the display, reset the peak, valley, tare memories or change the setpoint values.
A command sent to the address 00 is executed by all the instruments simultaneously



The connection of multiple instruments via the RS485 interface requires a 120 Ohm resistance be connected at both ends of the communication line (R).
The typ 9180 instruments provide the R resistance which is internally connected between terminals 3 and 4 of the CN5 connector by placing the J1 jumper in the output circuit card.
Signal connections and the R value at the D.T.E. side may depend on the card type. It is recommended to consult the corresponding technical manual.

SETPOINT OPTION Vxxx1, Vxxx2, Vxxx3, Vxxx4

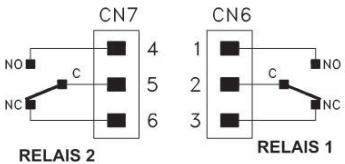


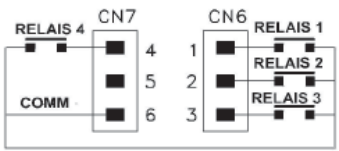
-Vxxx1 – OPTION 2 RELAIS
PIN 4 = NO2 PIN 1 = NO1
PIN 5 = COMM2 PIN 2 = COMM1
PIN 6 = NC2 PIN 3 = NC1

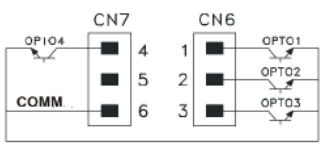
-Vxxx2 – OPTION 4 RELAIS
PIN 4 = RL4 PIN 1 = RL1
PIN 5 = NOT CONECT PIN 2 = RL2
PIN 6 = COMM PIN 3 = RL3

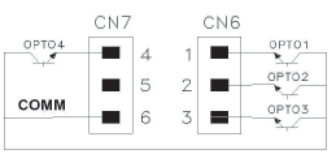
-Vxxx3 – OPTION 4 NPN OPTOCOUPLER
PIN 4 = OP4 PIN 1 = OP1
PIN 5 = NOT CONECT PIN 2 = OP2
PIN 6 = COMM PIN 3 = OP3

-Vxxx4 – OPTION 4 PNP OPTOCOUPLER
PIN 4 = NO2 PIN 1 = NO1
PIN 5 = COMM2 PIN 2 = COMM1
PIN 6 = NC2 PIN 3 = NC1









Each output card is suplied with a label that indicates the wiring connectios of each option. In order to help identifying the pin terminals, it is recommended to place this label on the lower side of the meter case, beside the basic functions label.

NOTE :

In case that the outputs are used to drive inductive loads, it is recommended to add an RC network between the coli terminals (preferently) or between the relay contacts to limit electromagnetic effects.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