FAGOR
RS-232

FOR THE NV DRO FAMILY

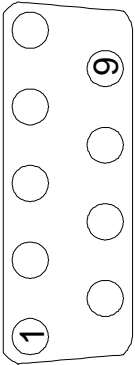**INSTALLATION / OPERATION MANUAL**

FAGOR

INSTALLATION & OPERATION OF THE RS-232-C OPTION

RS-232-C CONNECTOR DESCRIPTION

This feature is available on models whose name ends with an "RS".

It uses a 9-pin male SUB-D type connector. The location of this connector on the rear panel may be "X1" or "X7" depending on models.

Pin	Signal	Function
1	NC	Not connected
2	RxD	Receive Data
3	TxD	Transmit Data
4	NC	Not connected
5	GND	Ground
6	NC	Not connected
7	NC	Not connected
8	NC	Not connected
9	PROBE	Probe signal input

INSTALLATION PARAMETERS FOR THE RS-232
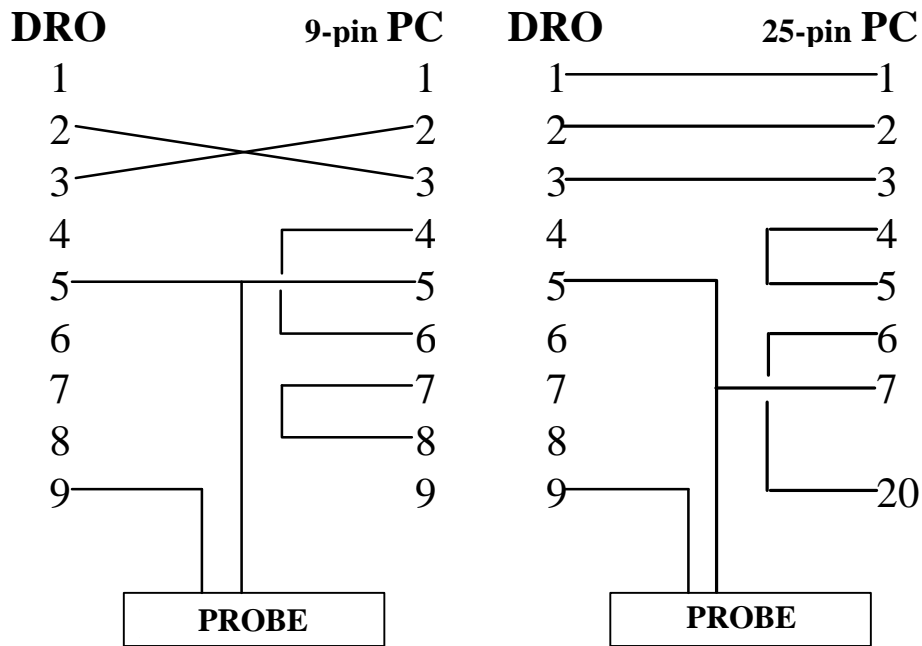
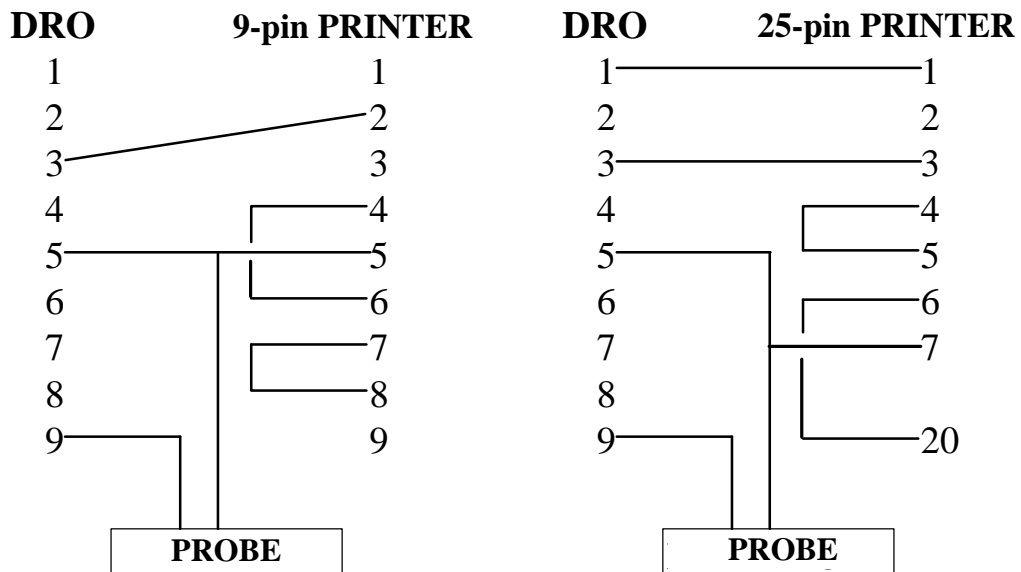| PARA-METER	MEANING
PAR90	Indicates the transmission speed of the RS 232 line. Options: 75, 150, 300, 600, 1200, 2400, 4800 & 9600 baud.
PAR91	Indicates the existence and active level of the probe. Options: 0 = There is no probe. 1 = There is a probe and it is active high (> 2.4Vdc). 2 = There is a probe and it is active low (< 0.8Vdc). The probe signals must be within ±24Vdc.
PAR92	Indicates the diameter of the probe ball. Number between 0 and 99.999 millimeters. NOT BEING USED IN THIS VERSION
PAR93	Position display mode when activating the probe: Options: 0 = It keeps displaying the axis position. 1 = It freezes the display until it quits touching. 2 = It freezes the display until it touches again.

PERIPHERAL CONNECTION

The DRO uses the XON/XOFF protocol when communicating with peripherals. The RS line must be configured for 8 character bits, 1 stop bit and no parity. The only parameter to be set is the transmission speed (baudrate).
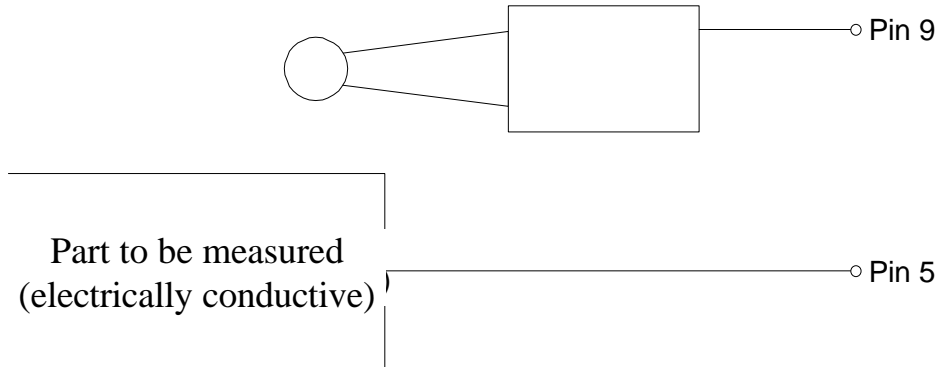
Connection to a PC :

DRO	9-pin PC	DRO	25-pin PC
1	1	1 ——— 1	
2 ⤬ 2		2 ——— 2	
3 ⤬ 3		3 ——— 3	
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	20

PROBE   PROBE

Connection to a printer :

DRO	9-pin PRINTER	DRO	25-pin PRINTER
1	1	1 ——— 1	
2	2	2	2
3	3	3 ——— 3	
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	20

PROBE   PROBE

PROBE CONNECTION

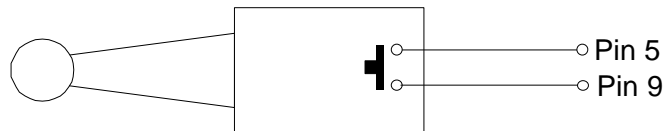### Connection of contact probe:

Simple connection:

This type of connection uses the active-low level (< 0.8 Vdc).
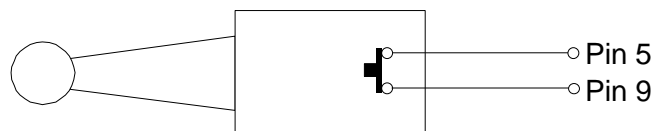
Connection of a probe with an internal contact:

Probe with a normally-open contact:

This type of connection uses the active-low level (< 0.8 Vdc).

Probe with a normally-closed contact:

This type of connection uses the active-high level (> 2.4 Vdc).

OPERATION WITH A PROBE

Once the probe has been installed, follow these steps to measure a part:

1. Mount the probe on the machine and connect it to the DRO and the peripheral both being turned OFF.

2. Turn the DRO and the peripheral receiving the data ON and set the latter in receive mode. Both the DRO and the peripheral must be set to the same transmission values.

3. Press $\boxed{C}$ $\boxed{\bullet}$. The text "**PROBE**" will be display and its corresponding LED will light up. If not, check the probe configuration parameters for the proper setting (PAR91 = 1 or 2).

4. Make the part measurements. If the axes data does not reach the peripheral or it gets strange characters, check the parameter settings on the DRO as well as on the peripheral and check the cable connection.

5. To end the measuring process, press $\boxed{C}$ $\boxed{\bullet}$ again. The "**PROBE**" LED will turn OFF.

The data format is:

X = -12345.678 Y = -12345.678 Z = - 12345.678<cr><lf>

Notes : Only the data for the axes being displayed is sent. The leading zeros are eliminated. A blank space is sent in front of positive numbers (no + sign). The decimal point corresponds to each axis resolution, millimeters or inches, fine or coarse resolution. In case of a rotary axis, its position will be sent in its own format (dddºmm'ss" or ddd.mmmm).   <cr> means carriage return.
         <lf> means line feed.

A home search (Io) cannot be carried out while in this mode. The rest of the operations may be performed.

If while being in this mode, the parameter editing mode is accessed, the probe mode will be canceled.

Fagor Automation supplies the probe with its connection cable for these DROs.