DITEL: PRODUCTS: DIGITAL STARS: **800PRC**

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DESCRIPTION

Model 8110 XY09 and 8210 XY09 process indicators provide internal plug-in jumpers to allow easy scaling for direct readout any input parameter in engineering units.

In order to determinated the adequate jumper wiring, calculate the values of N (gain) and P (zero offset) by using the formulas given next page and find out in tables [1] and [2] the jumper configuration for groups S1, S3 and S4.

Once the required range has been set up, recalibrate the instrument by applying a know signal (appoximately full-scale) and adjusting zero and span potentiometers to the desired display reading.

JUMPER CONFIGURATION

JUMPERS S5 (SIGN OF GAIN)
For N > 0, plug in jumpers ad+bc
For N < 0, plug in jumpers ab+dc

JUMPERSS3 AND S4 (GAIN)
Place the appropiate jumpers according to the absolute value of N in table [1]. If an intermediate value of the table is obtained, take always the nearest one.

JUMPERS S2 (SPAN POTENT.MARGIN)
It is normally factory-set in the position J2 and there is no need to change it. In case that, after the board configuration, the span adjustment margin is located at one end of the potentiometer, place the jumper S2 in the position J3 thus increasing the margin.

JUMPERS S1 (ZERO OFFSET) Plug in the appropiate jumper so then the value of P (with its sign) is comprised between the margins indicated in table [2].

TABLES OF CONFIGURATION

TABLE (1) GAIN

-N-	S3	S4	-N-	S3	S4
3618	-	J1/2	400	-	-
3224	-	J1/4	364	J2	J1
2939	-	J3	288	J3	-
2406	-	J2	212	J3/4	-
2012	-	J1	145	J2	-
1810	J4	J1/2	110	J2/3	-
1612	J4	J1/4	96	J2/3/4	-
1470	J4	J3	70	J1	J1/2/3/4
1203	J4	J2	58	J1	J1/2/3
1006	J4	J1	46	J1	J2/3
800	-	-	37	J1	J1/2
724	J3	J1	30	J1	J3
637	J3/4	J2	24	J1	J2
532	J2	J3	20	J1	J1
450	J2/4	J3	8	J1	-

TABLE (2) ZERO OFFSET

-P-	S1
-2000 a -1230	J1/2
-1229 a -615	J1
-614 a -150	J2
-150 a +150	-
+150 a +614	J3
+615 a +1229	J4
+1230 a +2000	J3/4

Note: The values of N given in the table are absolute and must be applied having no regard to the sign obtained in calculation.

CONFIGURATION PROCEDURE FOR 0-1V, 0-5V, 0-10V, 1-5V INPUTS

Take **VSE** as the maximum value and **VIE** as the minimum value of the input signal, in volts. **GAIN CALCULATION:**
Apply the formula:

N = (VSD-VID)/(VSE-VIE)

Where **VSD** is the display value corresponding to the top of the input signal (VSE) and **VID** is the value corresponding to the bottom of the input signal (VIE)
The display value must be taken with its sign and disregarding decimal point, thet is; a display of 100.0 shall be considered in calcutation as 1000.

ZERO OFFSET CALCULATION
For positive values of N, apply the formula:

P = VSD - N*VSE

For negative values of N, apply: P = -(VSD - N*VSE)

(VSD and N with its corresponding sign).
With this obtained values of N and P, find out in tables [1] and [2] the appropiate jumper wirirng for the groups S1, S3 and S4.

EXEMPLE OF CONFIGURATION

It is required to have a display span of 50.0°C to 150.0°C corresponding to a standard signal span of 0-10V.

VSD = 1500
VID = 500

Gain
N = (1500 - 500)/(10 - 0) = 100

Zero offset
P = 1500 - 100*10 = 500

For **N=100** (positive) plug in the jumpers **J2, J3 and J4 in S3 and no jumper in S4** according to the table [1] (the nearest value is 96).

For **P = 500** plug in the jumper **J3 in S1** according to table[2].

CONFIGURATION PROCEDURE FOR 0-1, 0-5, 0-20 AND 4-20mA INPUT

A = 1 (for 0-1mA, 0-5mA or 0-20mA input)
A = 0.8 (for 4-20mA input)

GAIN CALCULATION:
Apply the formula:

N = (VSD - VID)/A

Where **BSD** is the display value corresponding to the top of the input signal (VSE) and **VID** is the value corresponding to the bottom of the input signal (VIE).
The display value must be taken with its sign and disregarding decimal point, that is; a display of 100.0 shall be considered in calculation as 1000.

ZERO OFFSET CALCULATION
For positive values of N, apply the formula:

P = VSD - N

For negative values of N, apply the formula:

P = -(VSD - N)

(VSD and N with its sign).
With these values of N and P, find out in tables [1] and [2] the appropiate jumper configuration of groups S1, S3 and S4.

EXAMPLE OF CONFIGURATION

It is required to have a display readout from -10.0°C to + 200.0°C corresponding to a standard input of 4-20mA.

VSD = 2000
VID = -100

Gain:

N = (2000 - (-100))/0.8 = 2625

Zero offset

P = 2000 - 2625 = -625

For **N = 2625** (positive), the nearest value listed in table [1] is 2406; place the jumper **J2 in S4 and no one in S3**

Place also the jumpers **(ad+bc) of group S5.** For **P=-625** place the jumper **J1 in S1** according to the table [2].

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