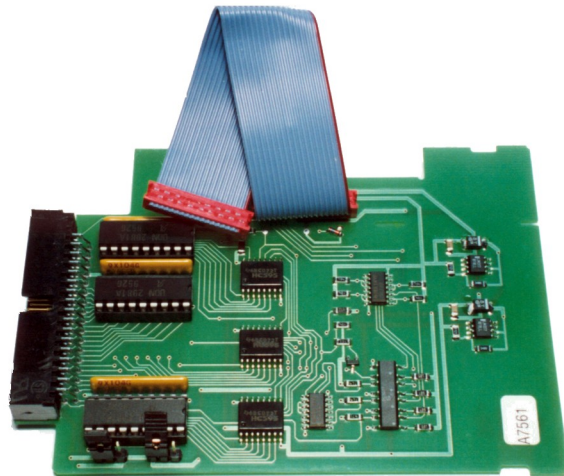


KOSMOS SERIES

CÓDIGO: 30727010 EDITION: 15-09-2005



INSTRUCTIONS MANUAL PARALLEL OUTPUT OPTION



BCD



BCD OUTPUT OPTION

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1. BCD PARALLEL OUTPUT OPTION

1.1 INTRODUCTION

The BCD output delivers 5½ digits (BETA model) or 4 digits (ALPHA models) in BCD (8.4.2.1) from through a 34-pin connector that provides 21 output DATA lines, DATA VALID, POLARITY, OVERRANGE and TRIESTATE signals, plus power inputs to feed the circuit card. The 34-pin rear connector can be adapted to interface with 37-pin SUB-D terminals by means of a cross-wire adaptor supplied with the option.

The TRIESTATE input is used to put the BCD outputs in high impedance state so that several units can share the same communications bus.

All the outputs are compatible with TTL and 24V logic and they are opto-isolated with respect to the input signal whenever the card is powered from an external source of 5V or 24V.

The data output is updated at the same rate as the display reading whenever the TRIESTATE input is held at low level. When the TRIESTATE input is pulled up to the high level, all the outputs including DATA VALID go to high impedance state, thus allowing the communications bus to be utilized for other purposes.

The DATA VALID signal goes active each time the data is available at the output.

When a display HOLD is produced, it also freezes the BCD data output.

The output signals can operate with positive or negative true logic configuration. Selection is made by changing internal IC's and plug-in jumpers. No keyboard programming is necessary for the BCD board configuration.

2. SETUP AND CONFIGURATIONS

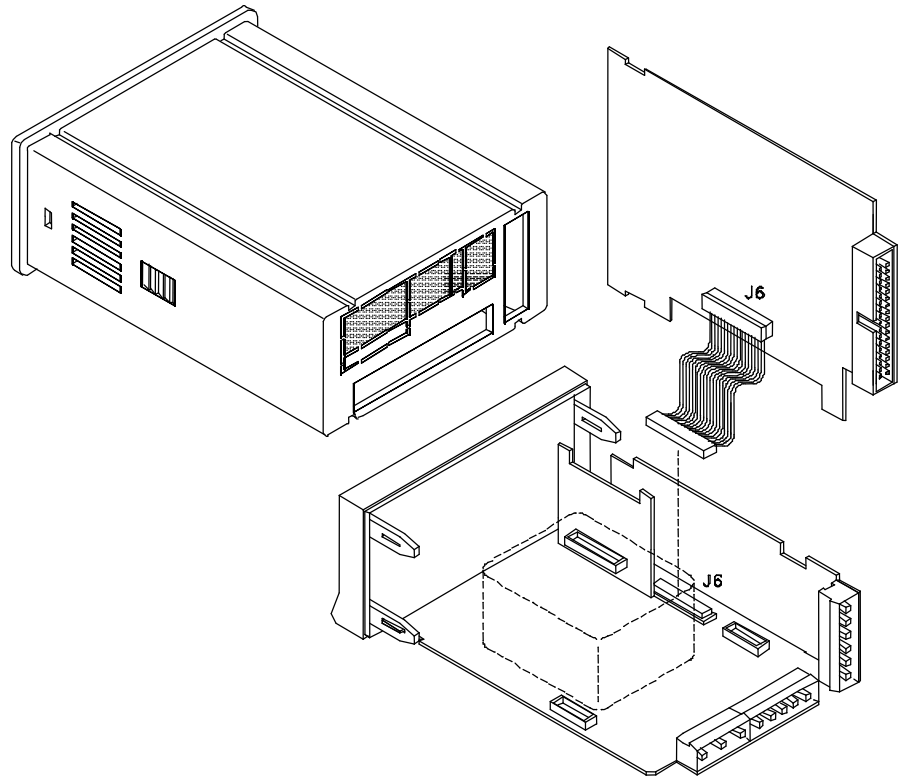
Lift the electronics assembly out of the case and use a screwdriver to push on the junctions between the case and the grey marked areas (figure 1) to detach them from the case.

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

The BCD output board is installed by plugging the flat cable terminal connector into the main board J6 (figure 2).

It is recommended to remove the input card to facilitate the installation of the connector. Once connected to the main board, the BCD circuit is installed horizontally and parallel to the main, with the front protrudings inserted in the slots of the upper retainers of the bezel.

Prior the installation of the BCD board, make sure that the IC's and jumper positions on the component side match the desired true logic configuration (see page 8).



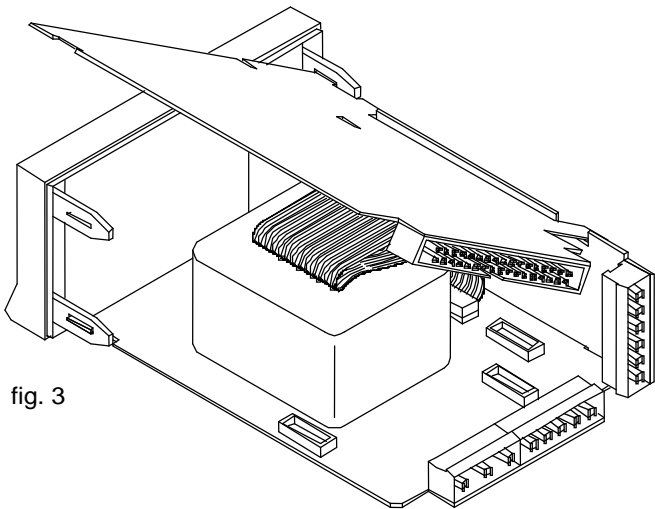


fig. 3

The card is installed so that one of the front protrudings fits into the slot of the circuit retainers of the bezel while the same card side lean on the upper edge of the input circuit as shown in figure 3. The A/D converter circuit pins must protrude through the slots of the BCD card when it is placed horizontally. The flat cable must be feld up to accommodate on top of the transformer (see figure)

The figure 4 shows the electronics assembly with the BCD output card installed. The following operation is to slide the assembly back into the case. The inside guides ensure proper circuit location. Since this option does not require software configurations, the instrument is now ready to make wiring connections and go to normal operation.

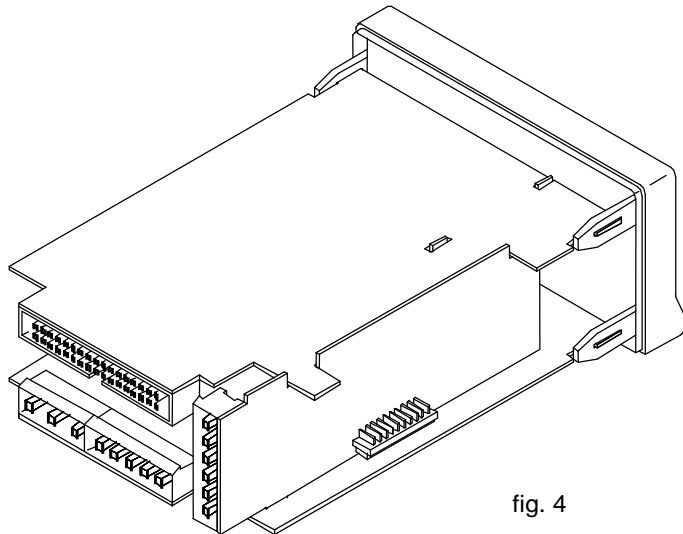


fig. 4

2.2. CONNECTIONS

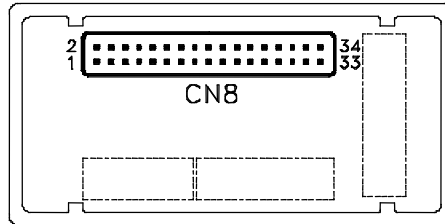
The BCD output card is supplied with an adhesive label that indicates the proper wiring connections. To help identifying the output terminals, this label should be placed on the lower side of the meter case, beside the basic functions label.

For the outputs to be isolated with respect to the input signal, the board must be powered from 5V or 24V external source supplied to pins 31/32 and 28.

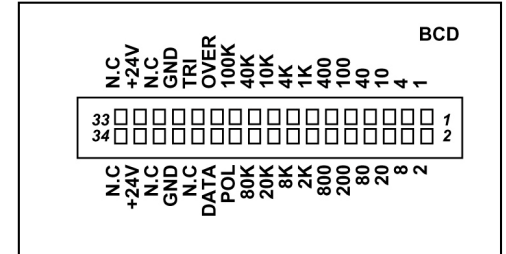
Pin assignment

1	1	2	2
4	3	4	8
10	5	6	20
40	7	8	80
100	9	10	200
400	11	12	800
1K	13	14	2K
4K	15	16	8K
10K	17	18	20K
40K	19	20	80K
100K	21	22	Polarity
Overrange	23	24	Data Valid
Tristate	25	26	N.C.
GND	27	28	GND
N.C.	29	30	N.C.
+24V/TTL	31	32	+24V/TTL
N.C.	33	34	N.C.

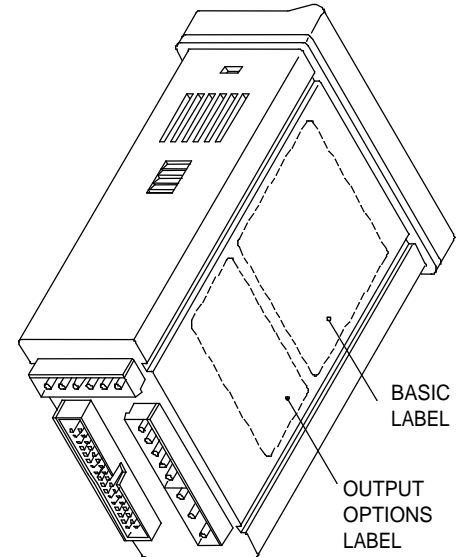
N.C. = No connect



BCD OPTION LABEL



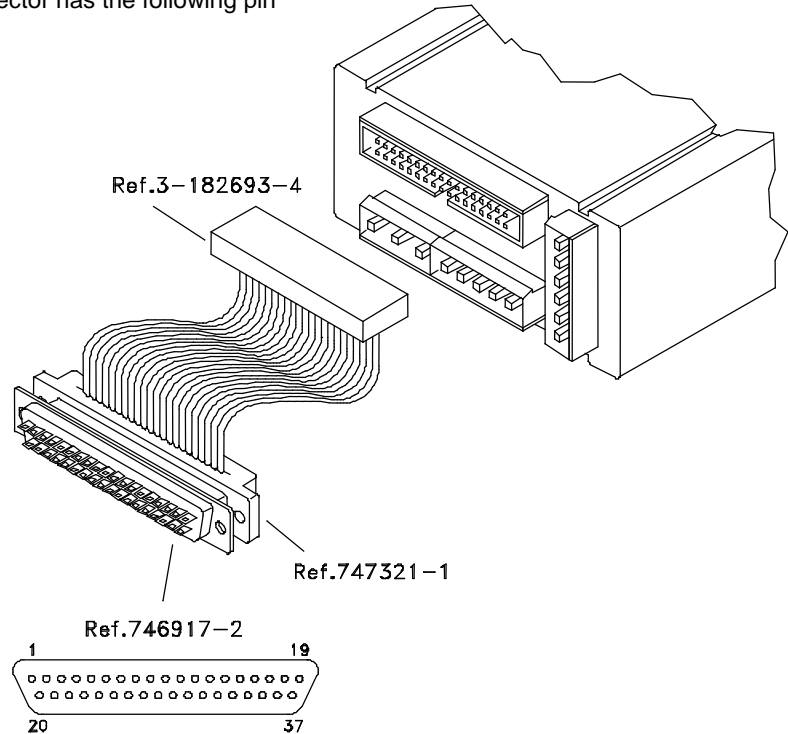
LABEL LOCATION



An extra 37-pin SUB-D adaptor is furnished with the bcd circuit card. The adaptor assembly is composed of a 34-pin connector (AMP LATCH ref. 3-182693-4) which can be directly plugged in the BCD board output connector. A Flat cable ties this one to the 37-pin SUB-D connector (AMP SUB-D ref. 747321-1) which is terminated in a removable lug terminal connector (AMP LIMIT ref. 746917-2) of 37 pins (see figure). The 37-pin connector has the following pin assignment:

1= 1	20= 2
2= 4	21= 8
3= 10	22= 20
4= 40	23= 80
5= 100	24= 200
6= 400	25= 800
7= 1K	26= 2K
8= 4K	27= 8K
9= 10K	28= 20K
10= 40K	29= 80K
11= 100K	30= Polaridad
12= Sobreescala	31= Data Valid
13= Triestate	32= N.C.
14= GND	33= GND
15= N.C.	34= N.C.
16= +24V/TTL	35= +24V/TTL
17= N.C.	36= N.C.
18= N.C.	37= N.C.
19= N.C.	

N.C. = No connect



2.3. CHANGING THE LOGIC

The BCD output option can be configured for operation with positive true logic (the bit is active when it is at a high level related to GND) or negative true logic (the bit is active when it is at a low level related to GND).

When connecting the instrument to a programmable logic controller (PLC) the BCD outputs must be configured so that the logic be the same for both devices.

To change the logic, it is necessary to change the integrated circuits IC6, IC7 and IC8 (supplied with the option) and to modify the J1 and J2 jumper positions according to the following indications:

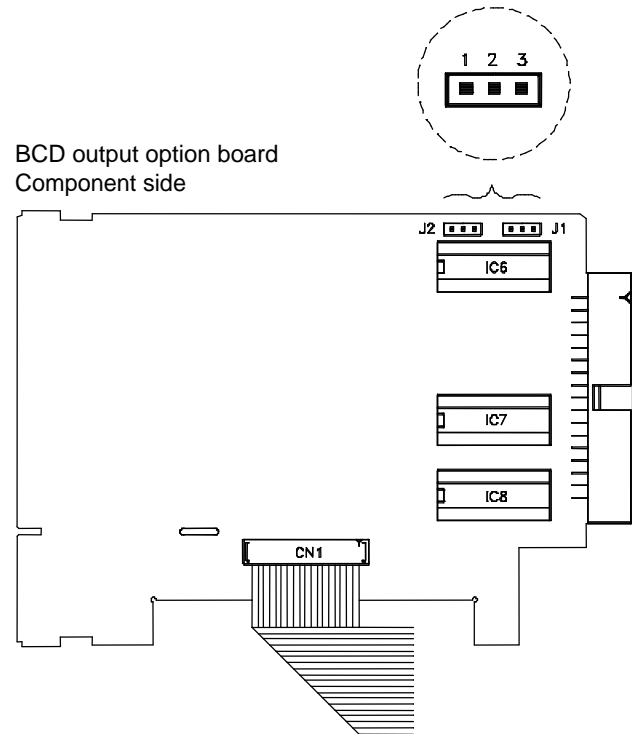
POSITIVE LOGIC :

Jumpers J1 and J2 in the 2-3 position
IC6, IC7, IC8 : UDN2981

NEGATIVE LOGIC :

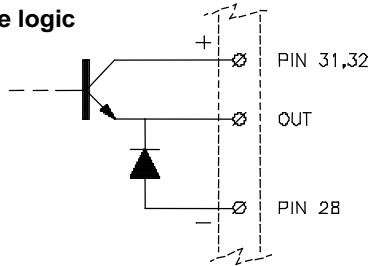
Jumpers J1 and J2 in the 1-2 position
IC6, IC7, IC8 : ULN2803

These changes affect the logic of all the BCD output signals including data bits, data valid, polarity and overrange.

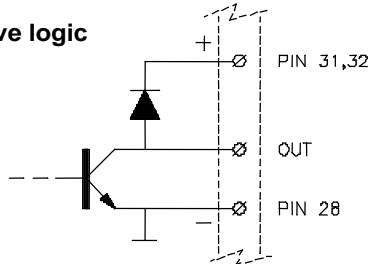


The following drawings represent one of the BCD outputs for the cases of positive or negative true logic configuration.

Positive logic



Negative logic



All CN8 terminals except the tristate input have the same internal configuration, that corresponds to the integrated circuits UDN2981 for positive logic or ULN2803 for negative logic

Transistor outputs ratings :

$$V_{\max} = 40V \quad I_{\max} = 100mA$$

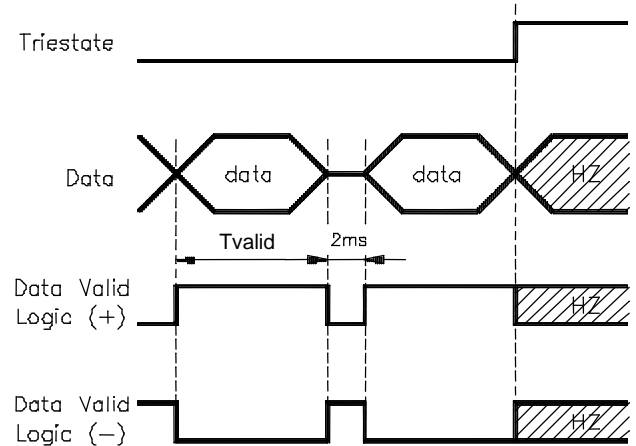
The type of logic as selected by changing internal components affects all signals (DATA bits, DATA VALID, POLARITY and OVERRANGE) except the TRIESTATE.

The TRIESTATE input is controlled externally and always goes active by pulling it to the "1" state.

For positive true logic, the outputs are active at the "1" state and for negative true logic, they are active at the "0" state.

The POLARITY is positive (+) when the corresponding bit is high and is negative (-) when the bit is at low level.

The OVERRANGE is positive when the corresponding bit is at high level and is negative when it is at low level. When overrange occurs, the four least significant digits (D0,D1,D2 and D3) are FFFF.



Model	Tvalid
ALPHA-C	62 ms
ALPHA-P	62 ms
ALPHA-T	124 ms
ALPHA-D	100 ms
ALPHA-L	248 ms
BETA-M	62 ms
BETA-M (temp.)	124 ms



INSTRUCTIONS FOR THE RECYCLING

This electronic instrument is covered by the **2002/96/CE** European Directive so, it is properly marked with the crossed-out wheeled bin symbol that makes reference to the selective collection for electrical and electronic equipment which indicates that at the end of its lifetime, the final user cannot dispose of it as unsorted municipal waste.

In order to protect the environment and in agreement with the European legislation regarding waste of electrical and electronic equipments from products put on the market after 13 August 2005, the user can give it back, without any cost, to the place where it was acquired to proceed to its controlled treatment and recycling.

DISEÑOS Y TECNOLOGIA, S.A.

Polígono Industrial Les Guixeres

C/ Xarol 8 C

08915 BADALONA-SPAIN

Tel : +34 - 93 339 47 58

Fax : +34 - 93 490 31 45

E-mail : dtl@ditel.es

www.ditel.es