

DESCRIPTION

The thumbwheel input units are intended for operator entry of numeric data to a GEM 80 controller.

They mount in the surface of desks or control panels, and connect directly to the GEM 80 basic I/O highway ribbon cable.

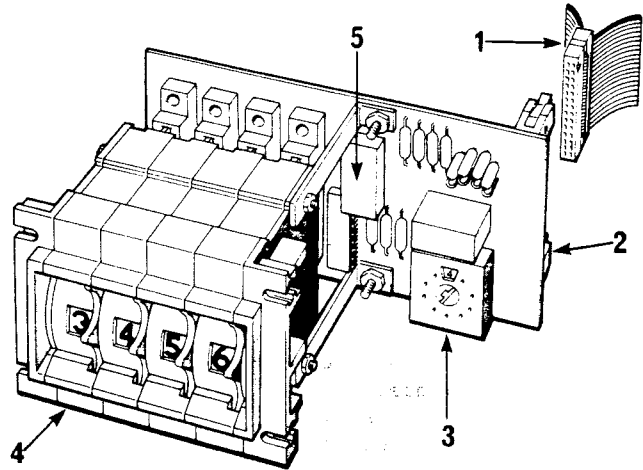
FEATURES

- Simple, low cost wiring.
- No external power supplies.
- Number of decades to suit application.

SPECIFICATION

Decades	: 1 to 8
Code	: 8, 4, 2, 1, weighted Binary Coded Decimal (B.C.D.)
Digit height	: 6.3 mm
Colour	: black moulding : white numerals
Panel area required (high x wide)	: 57 x 115 mm (1 to 4 decades) : 57 x 165 mm (5 to 8 decades)
Front projection	: 6 mm less panel thickness
Rear projection	: 120 mm including clearance for ribbon cable
Mounting	: unit inserted from rear of panel : fixed by 4 screws through panel
Connections	: plug/socket to basic I/O highway ribbon cable
Power consumption	: 8 mA @ +15V (from host controller ribbon cable)
Temperature	: 0 to 70°C operating : -20 to 70°C storage
Humidity	: 10 to 90% non-condensing
Weight	: 0.10 to 0.32 kg

8941-8948 Thumbwheel Input



1. Basic I/O highway ribbon cable.
2. Connector fixed to unit.
3. Unit address setting (rotary switch).
4. Thumbwheels (quantity 1 to 8).
5. Sub address setting (1 to 4 decade units only).

Mounting details:

Type	Decades	A	B	C	Weight
8941	1	115	33.65	28.95	0.10
8942	2	115	46.35	41.65	0.13
8943	3	115	59.05	54.35	0.15
8944	4	115	71.75	67.05	0.18
8945	5	165	84.45	79.75	0.24
8946	6	165	97.15	92.45	0.27
8947	7	165	109.85	105.15	0.29
8948	8	165	122.55	117.85	0.32

Note... 4

Subtract 6.35 from dimensions B & C for all units supplied before March '81. Latest units can fit in previous cutouts if user removes spacer adjacent to Right hand digit of thumbwheel assembly.

APPLICATION NOTES

1. UNIT ADDRESS SETTING

The setting of the decoder switch determines which pair of adjacent data table locations correspond to the unit. Five to eight decade units use both locations; one to four decade units use a single location according to the setting of a sub address switch, leaving the other location available for another unit e.g. a 4 decade display or a second thumbwheel unit.

Table 1 Decoder switch settings

First ribbon cable			Second ribbon cable		
Unit references		Decoder switch setting	Unit references		Decoder switch setting
Upper half	Lower half		Upper half	Lower half	
A 1	A 0	0	A17	A16	0
A 3	A 2	1	A19	A18	1
A 5	A 4	2	A21	A20	2
A 7	A 6	3	A23	A22	3
A 9	A 8	4	A25	A24	4
A11	A10	5	A27	A26	5
A13	A12	6	A29	A28	6
A15	A14	7	A31	A30	7

Note: If switch position 8 or 9 is used then unit cannot be addressed.

Table 2 Sub address setting (1 to 4 decades only).

Pole no. on dual-line switch SW5	Setting for upper half	Setting for lower half
1, 3	OFF	ON
2, 4	ON	OFF
5 to 8 (if fitted)	Setting immaterial (not used).	

2. CONFIGURATION DATA

Configuration data in the preset data table of the host GEM 80 controller defines which addresses are scanned on the basic I/O highway. A 1 to 4 decade thumbwheel unit is equivalent to a half panel full of logic input blocks. A 5 to 8 decade unit is equivalent to a whole panel full of blocks. Thumbwheel units will not respond to block presence sensing, so this facility should be suppressed.

3. CODE CONVERSION

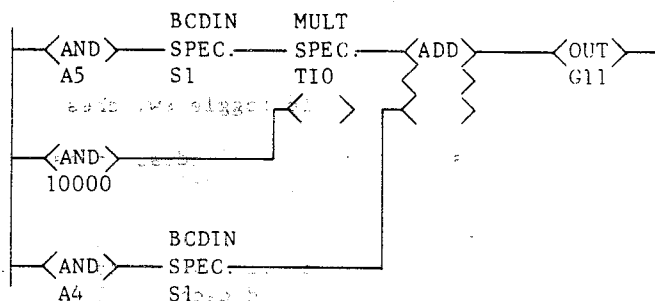
The data from a thumbwheel unit is in Binary Coded Decimal (BCD). Special function S1 (BCDIN) may be used to convert to standard numerical form before using the data in the control program.

Program example for 4 decade unit (A3):-



For 5 to 8 decade units the data goes into two separate data table locations, which have to be handled independently. The lower location corresponds to the lower four decades, the higher location to the remaining decades.

Program example for 5 decade unit (A5/A4):-



Note that control language limits number range to 0 to 32767.

ORDERING CODES

Each unit consists of a thumbwheel switch assembly plugged into and bolted to a printed circuit board, and is supplied with a set of four mounting nuts and screws.

Thumbwheel input units:-

1 decade	8941	5 decade	8945
2 decade	8942	6 decade	8946
3 decade	8943	7 decade	8947
4 decade	8944	8 decade	8948

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INDUSTRIAL CONTROLS

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