

DESCRIPTION

The low voltage input unit provides a low cost interface from a TTL system into a GEM 80 system.

The unit is housed in a compact steel box designed for easy mounting on control panels or inside desks. It has plug and socket connections for the wiring to the user's input and to the GEM 80 basic I/O highway ribbon cable.

FEATURES

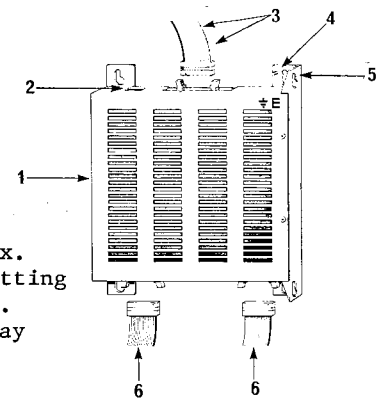
- Simple wiring to user's inputs.
- Easily replaceable.
- Edge or flat mounting.
- No external power supplies.

SPECIFICATION

Number of inputs	: 32 individual TTL level inputs or individual contacts.
Input voltage for ON state (TTL level inputs)	: 0 to 0.8 volts
Input voltage for OFF state (TTL level inputs)	: 2 to 5 volts
Input resistance for ON state (contact input)	: 0 to 1.0 kilohm
Input resistance for OFF state (contact input)	: >10 kilohm
Filter delay	: 1/us
Mounting	: Flat against horizontal or vertical surface. : Edgewise against vertical surface. : Keyhole slots for lift off facility.
Overall dimensions	: 284 x 244 x 39mm (high x wide x deep)
Connections	: Plug/socket (PL1) for basic I/O highway ribbon cable. : Pair of plugs/sockets (PL2 and PL3) for plant cables. : Stud for safety earth.

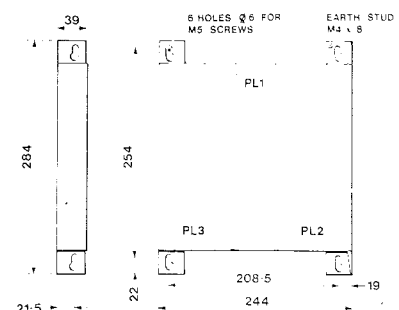
8938

Low Voltage Input Unit



1. Folded steel box.
2. Unit address setting (rotary switch).
3. Basic I/O highway ribbon cable.
4. Earth stud.
5. Mounting flanges.
6. Plant cables each for wiring to 16 inputs.

Plant cables	: 2 off cables (interchangeable) comprising connector wired to 16 twisted wire pairs, woven flat for 1 metre, and 6 metre tails. : Core sizes 16/0.2mm identified by colour code.
Power consumption	: 48mA at +15V (from basic I/O highway ribbon).
Noise segregation	: Plant cables highly sensitive to noise. : Cables must be segregated from mains and other noise radiating wires.
Temperature	: 0 to 60°C operating -20 to 70°C storage
Humidity	: 10 to 90% non-condensing.
Weight	: Unit 0.875kg. : Set of cables 3.3kg.
Mounting details	:



APPLICATION NOTES

1. UNIT ADDRESS SETTING

The setting of the decoder switch determines which pair of adjacent data table locations correspond to the unit. The even reference corresponds to PL2, the odd reference to PL3.

Table 1 - Decoder Switch Settings

First basic I/O ribbon			Second basic I/O ribbon		
Unit references		Decoder Switch Setting	Unit references		Decoder Switch Setting
Cable at PL3	Cable at PL2		Cable at PL3	Cable at PL2	
A1	A0	0	A17	A16	0
A3	A2	1	A19	A18	1
A5	A4	2	A21	A20	2
A7	A6	3	A23	A22	3
A9	A8	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.

2. REFERENCES OF INDIVIDUAL INPUTS

The plant cables contain a twisted pair of wires for each input, with the state number indicated by the wire colours. The common (0V) in each pair is identified by white stripes. For example, the input A2.7 (state No. 7) is coded black with white stripes for the common, violet for the signal.

Table 2 - Colour Coding of Plant Cables

State No.	Wire Colour		State No.	Wire Colour	
	Common (White stripes)	Signal (+ve)		Common (White stripes)	Signal (+ve)
0	Black	Black	8	Black	Grey
1	Black	Brown	9	Black	White
2	Black	Red	10	Brown	Black
3	Black	Orange	11	Brown	Brown
4	Black	Yellow	12	Brown	Red
5	Black	Green	13	Brown	Orange
6	Black	Blue	14	Brown	Yellow
7	Black	Violet	15	Brown	Green

Cable identification: black sleeve distinguishes from similar cables used for lamp driver unit type 8935.

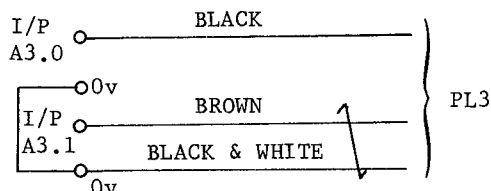
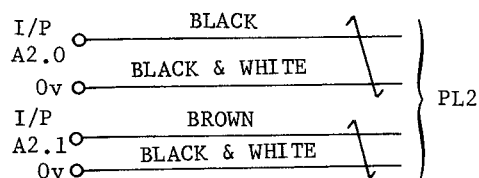
3. USER CONNECTIONS

The plant cables are intended for termination directly on the terminals of the user's input devices. The user can provide intermediate terminals and additional wire for any devices more than 7 metres of cable run from the unit. The practical limit to such extensions is the noise sensitivity of the wiring which requires careful segregation from noisy wiring.

The provision of a common wire for each input simplifies the wiring to devices with individual isolated devices.

If, however, the user's devices are grouped with one side commoned then only one common connection is necessary per group of 8 inputs (states 0 to 7 or 8 to 15). The unused common wires can be cut back and discarded.

4. TYPICAL CIRCUITS



Remarks:

Unit reference A2/A3 assumes unit connected to first basic I/O ribbon and decode setting 1.

5. 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 low voltage input unit is equivalent to a panel full of logic input blocks. It will not respond to block presence sensing so this facility should be suppressed.

6. USER ASSEMBLY OF CABLES

Some users who have the appropriate tools and facilities may prefer to assemble the plant cables specifically for the application.

Table 3 - Pin Numbering of Plant Connectors

State No.	Pin No.		State No.	Pin No.	
	Common	Signal		Common	Signal
0	3	4	8	19	20
1	5	6	9	21	22
2	7	8	10	23	24
3	9	10	11	25	26
4	11	12	12	27	28
5	13	14	13	29	30
6	15	16	14	31	32
7	17	18	15	33	34

Mechanical interlock : position 1

Suitable parts manufactured by Yamaichi:

UFS-34B-01 34 way connector

UFS-34B cover Optional cover

UFS contact One per wire. Suitable for
16/0.2mm

UFS polarising key One per connector for
mechanical interlock

ORDERING CODES

1. EQUIPMENT

Low voltage input unit 8938-0000
(excluding cables)

2. LOOSE ITEMS

Plant cable - 7 metres 40Y2479/20
(for PL2 and PL3)

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