

DESCRIPTION

The 8842 Pulse Input Equipment interfaces two bi-directional pulse generators to GEM 80. Outputs are available which can be activated at user defined preset counts. Typical applications for this equipment include speed measurement, digital speed trim and stepper motor drives systems.

This equipment comprises a module which plugs into the GEM 80 Fast I/O Highway connected to a Termination Panel by a ribbon cable. Mounted on the terminal panel are terminals for plant signals.

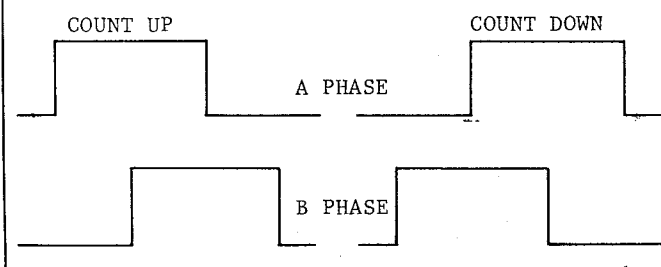
The input signals are routed to the counters via module mounted switches which can be configured by the control program. There are four output signals available; counter 1 has reached its preset limit, counter 2 is in limit, counter 1 or 2 in limit and pulse outputs.

FEATURES

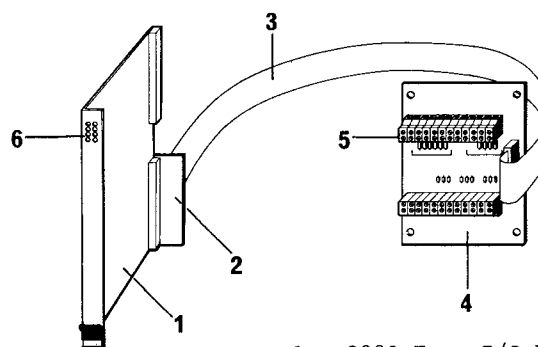
- Inputs and outputs monitored and driven independent of GEM 80 scan times.
- User configurable rate multipliers for pulse scaling.
- User configurable counters and control outputs.
- Crystal oscillator for accurate timing measurements.
- 50kHz test and timing signal available to both counters.
- Low cost.

SPECIFICATION

FIGURE 1. TYPICAL INPUT WAVEFORMS



8842 Pulse Trains Counter



1. 8330 Fast I/O Module.
2. 8079 Backplane.
3. Ribbon Cable.
4. 8039 Termination Panel.
5. Plant Terminals.
6. Monitor Points.

Number of Pulse Train inputs	:	5 from two bi-directional pulse generators, one with a marker pulse.
Pulse inputs signal levels	:	> 8.5 volts for logic 1 < 4.8 volts for logic 0
Absolute maximum signal levels	:	≤ 30 Vdc ≥ -15 Vdc
Output voltage to pulse generators	:	+15 Vdc (this is the GEM 80 +15Vdc)
Power consumption from host controller	:	100mA (+ Pulse Gen supply) @ + 15V 35mA @ - 15V
Maximum pulse repetition frequency	:	50kHz
Internal response time	:	20 μ s maximum
Minimum pulse width	:	5 μ s
Pulse output	:	20mA switched current. Frequency is user defined.

Number of control outputs : 3, these are counters 1, 2 and 1 or 2 have reached their preset limit. These outputs are taken from CMOS devices operating at 15V levels which can source 1 mA and sink 3mA

Counter 1 : 16 bit bi-directional

Counter 2 : 12 bit bi-directional with an overflow indication.

Frequency multiplier : 16 bit. Pulses are multiplied by a factor of $\frac{N}{65536}$
Where N is user defined.

Internal oscillator : 50kHz $\pm$ 30 ppm

Temperature : 0 to 60°C operating
-20 to 70°C storage

Humidity : 10 to 90% non condensing

Module dimensions : 0.8" (20mm) width
(Plugs into 6U high GEM 80 subrack)

Monitor sockets : Single pole, 2mm dia plug.

Termination Panel : 156 x 118 x 40 mm
(high x wide x deep)
: rack mounting, $\frac{1}{2}$ rack width on two mounting channels at 222mm centres

Mechanical coding (module) : Upper 2,9
Lower 1,2

APPLICATION NOTES

1. Data Table Locations

Fast I/O input data is assigned to data table C whilst output data is located in table D. The data concerning this module occupies 8 adjacent table locations starting from a base location determined by the position of the module in the subrack.

Assuming the module occupies the first fast I/O slot.

D0.0 to D0.3 : Clear counter 1
Clear counter 2
Load register 1 with counter 1 contents
Load register 3 with counter 2 contents

D0.4 to D0.15 : Not used

D1.0 to D1.15 : Pulse trains routing selection

D2.0 to D2.15 : Marker pulse routing selection

D3.0 to D3.15 : Rate multipliers factor

D4.0 to D4.15 : Counter 1 limit

D5.0 to D5.11 : Counter 2 limit

D5.12 to D5.15: Not used

D6 and D7 : Not used

C0.0 to C0.2 : Not used

C0.3 to C0.6 : Marker pulse
Counter 1 in limit
Counter 2 in limit
Counter 2 overflowed

C0.7 to C0.15 : Not used

C1.0 to C1.15 : Register 1 contents

C2.0 to C2.15 : Register 2 contents

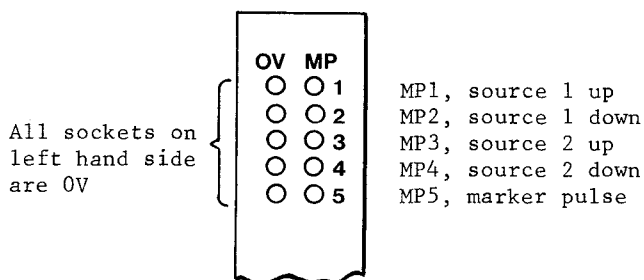
C3.0 to C3.11 : Register 3 contents

C3.12 to C3.15: Not used

C4 to C7 : Not used

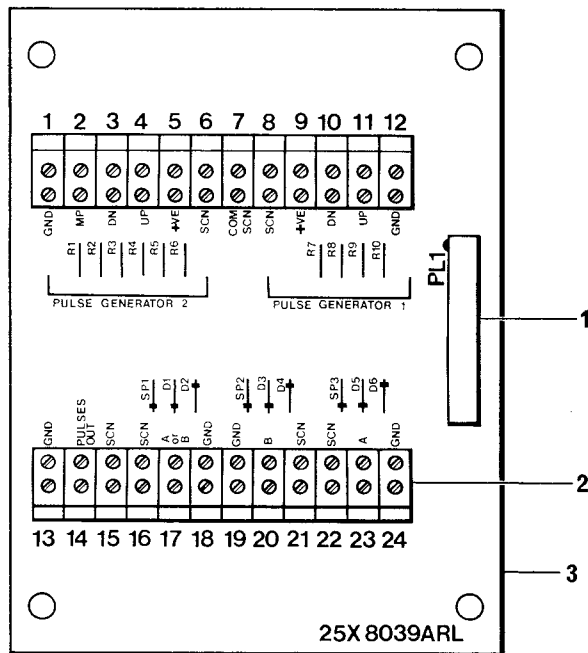
2. MONITOR POINTS

Five monitor points are available on the front panel of the module. These sockets enable the monitoring of the 4 input pulses and the marker pulse at 5V logic levels.



There is a resistive potential divider between each plant terminal and the monitor point; monitor only with high impedance instruments.

3. TERMINATION PANEL LAYOUT



1. Ribbon Cable Connector
2. Plant Terminals
3. 8039 Termination Panel

GND : GEM 80 OV

+VE : GEM 80 +15V

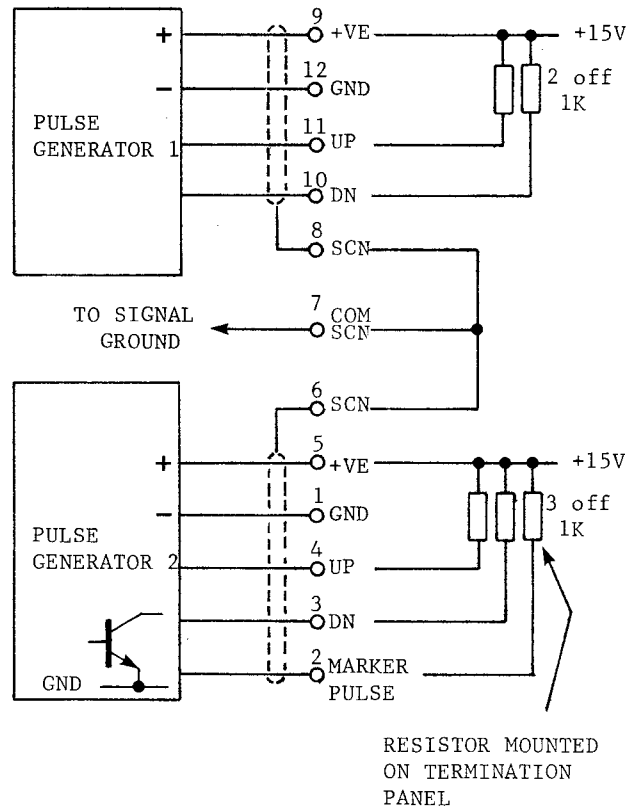
A : Logic 1 when counter 1 has reached its preset limit.

B : Logic 1 when counter 2 has reached its preset limit.

A or B : When D1.12 is logic 1 output A appears at this terminal. With D1.12 at logic 0, output B is present at this terminal.

SCN : Screen. All SCN terminals are linked together and taken to common.

4. WIRING



ORDERING CODES

1. Equipment

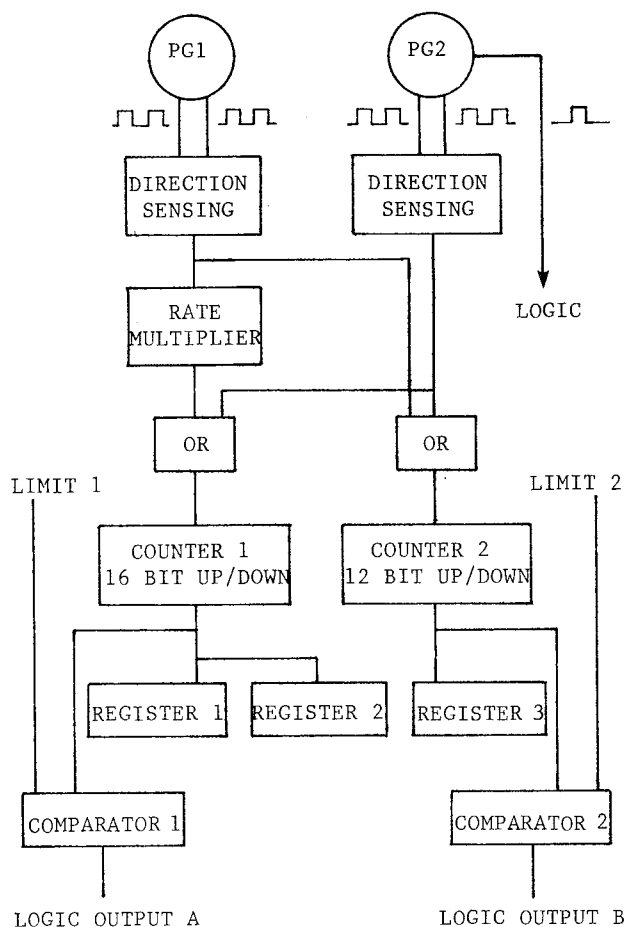
Pulse Trains Counter : 8842-4001

Which consists of;

Pulse Input Module
Backplane Connector Assembly (8079 4001)
Ribbon Cable with Connectors
Termination Panel

2. Spares

Pulse Input Module 8330-4001
Pulse Input Termination Panel 8039-4001



SIMPLIFIED BLOCK DIAGRAM

Note The Company's policy is one of continuous development and improvement and therefore the right is reserved to supply products which may differ in detail from those described and illustrated in this publication. All our products and materials are sold subject to Conditions of Sale available from us on request

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