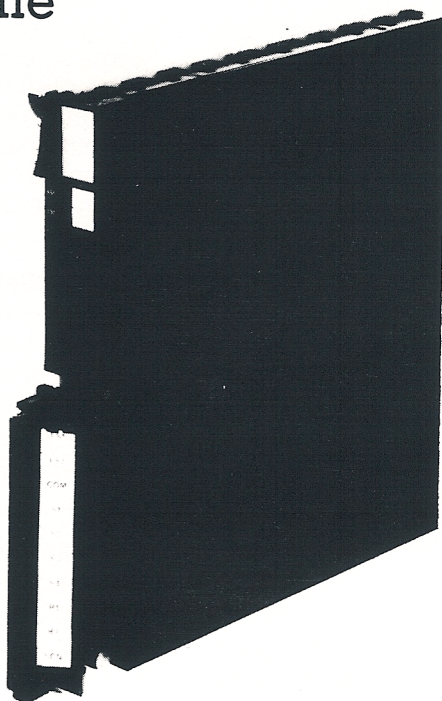


Resolver Input Module

8144



1. Edge connector for plant signals
2. Edge connector for logic signals
3. Plant connector retaining clips
4. Limit switch indication
5. Colour code and type number
6. Ejection handle
7. Moulded enclosures

DESCRIPTION

The Resolver Interface Module is a compact input module which connects between a resolver and the Basic I/O highway of a GEM80 Controller. It is suitable for position controls where the resolver is directly coupled to the motor (without reduction gearbox) or indirectly coupled (with reduction gearbox), and accepts resolvers up to 4000 revolutions per minute.

The module includes resolver excitation for either brushless or slipping designs.

The 8144 module locates securely into the 8869 Compact I/O subrack and occupies a single slot width.

FEATURES

- Requires no external supply (powered from host controller)
- Ruggedly constructed plug-in module with moulded side covers
- Plant terminals easily accessible from the module front panel with the mechanically coded plug-in plant connector

SPECIFICATION

Resolver excitation	: Sinewave 20V peak-to-peak 2.5kHz 4mA max.
Resolver inputs	: Two separate pairs of input terminals for sin and cos windings : Separate terminal for cable screen : Transformer coupled for noise immunity
Zeroing	: Three terminals allow two signals from zeroing limit switches : Opto isolated : Operation independent of controller scan time : Signal level 24V $\pm$ 6V
Input read by GEM 80 controller	: 4 bytes, contiguous when read into A-table : Lowest byte contains the least significant 8 bits of the fractions of a rev : Next byte contains the least significant 4 bits of the rev count, and the 4 most significant bits of the fraction of a rev : Next byte contains the sign bit and the most significant 7 bits of the rev count : Highest byte uses 4 bits only, for zeroing limit switch signals, for "zeroed" signal, and a direction of travel signal
Operating method	: Null seeking tracking closed loop system : Data available to Basic I/O updated every 1/4096 of a revolution
Supplies	: +15V @ 350mA from Basic I/O ribbon

APPLICATION NOTES

1. The recommended resolver is a Moore Reed brushless resolver type 11RS207.

2. Output Bits

Although the module provides 24 bits, most applications will only require that 16 of these bits are selected. For example, if a resolver is direct coupled to a motor and full travel is 125 revs, then 7 bits could be selected from the rev count and 8 bits from the fractions. On the other hand, if the resolver were geared down such that its full travel were less than one rev., all 12 bits of the fractions of a rev would be selected.

3. Bit Selection Methods

3.1 In terms of program operating time, the quickest method will generally be to transfer one bit at a time, using a set of rungs each containing one contact and one coil.

3.2 With controllers including the Special Functions SHIFT or ROTATE, the required bits can be shifted more simply without recourse to DIV and MULT.

4. Byte Addresses

The bottom three bytes are arranged as one and a half words as below:

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Lower word : R R R R F F F F F F F F F F F F
Higher word :                               S R R R R R R R
  
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where S = sign bit
R = revs
F = fractions of revs

The top byte uses 4 bits only:

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Bit 0 : Direction of travel (dynamic)
Bit 1 : Limit switch 1
Bit 2 : Limit switch 2
Bit 3 : 0 "Zeroed"
  
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Bit 3 is set when Bit 1 is on and Bit 2 is off

5. Mounting

Since this module provides 4 bytes of input data to the GEM80 Controller, it will "occupy" two A table locations. Normally this module will be housed in a Compact I/O subrack, however, the user should note that if used within an 8869 or 8866 Compact I/O subrack, although the module only occupies a single slot, the adjacent 3 slots in the group of 4 controlled by one decoder switch cannot be used.

6. Warning

On power-up of the module the rev. count is not cleared and can assume any value. the user must drive into datum to reset the rev. count.

Also on powering-up of the Resolver Input module for between 1 and 2 seconds the part rev. data will be constantly changing; this is due to the tracking resolver calculating its position.

ORDERING CODES

Resolver Convertor Interface
Compact Input Module with Plant Connector Kit

comprises:- 1 Module
1 Plant Connector
2 Coding Keys
1 Connector Shroud

8144-4001

These modules are available to special order only.

ADDITIONAL INFORMATION

If you require any further information or wish to discuss an application in detail, do not hesitate to contact our GEM 80 Representative.



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