

DELARAY S15

DESCRIPTION

The DELARAY special function provides an efficient method of generating multiple delay functions from a single instruction.

The input to each delay function is a bit from a user specifiable array. When the array input bit sets high it initiates its associated delay timeout. The function operates in either common delay mode or individual delay mode. In the common delay mode all delays share a common time value; in individual delay mode each specified delay has its own unique delay time value.

The output of each delay is a bit from a user specifiable array which sets high when the delay times out. The output bit re-sets when the input bit re-sets.

FEATURES

- INPUT and OUTPUT ARRAY locations specified by the user.
- Able to process up to a maximum of 32,767 delays in one instruction, limited by GEM80 instruction and data table capacity.
- User definable modes of operation.
- Selectable time base either 1ms or 100ms resolution delays.
- Ideal for applications such as valve diagnostic routines.

SPECIFICATION

Control language:-

```

      DELARAY
X-----SPEC-----VALUE-----Q
      S15           Zm
  
```

Table 1 Program rung data

Sym	Location	Use	Range
X	Rung Input	Internal GEM80 address of input array	Address of data table obtainable by locate.
Zm	Value location	Start of parameter list. See table 2	Any write enabled table usable by special functions
Q	Rung Output	Fault Indication	-1 for no errors

Table 2 Value Data

Location	Use	Range
Zm	Error code	See table 3
Zm + 1	Mode Word	Bit 0 = 0 For common delay mode Bit 0 = 1 For individual delay mode Bit 2 = 1 For 1ms resolution Bit 2 = 0 For 100ms resolution Bit 1 = 1 Reset all delays
Zm + 2	Input and output array lengths	1 to 2,048 data table locations
Zm + 3	Internal GEM80 address of delay setup values. See notes 1 & 2	Address of either working or P-Table locations obtained by locate (\$20)
Zm + 4	Internal GEM80 address of delay tables	Address of write enabled data table locations obtained by locate (\$20)
Zm + 5	Internal GEM80 address of output array	Address of write enabled data table locations obtained by locate (\$20)

Note

1. When working in Common Delay Mode the user has only to set a single value into this table.
2. When working in Individual Delay Mode the user has to specify a value into consecutive tables up to the specified array length starting from this address.

Table 3 Fault codes

Condition	Result Q	Code in Zm	
		Numeric	States ON
Programming Error Array length invalid	0	3	0 & 1
Programming Error Invalid input array address (a) Input array not in table usable by special functions (b) Input array extends beyond end of data table area	0	5	0 & 2
Programming Error Invalid delay setup values address (a) Tables not usable by special functions (b) Table group extends beyond end of data table area	0	9	0 & 3
Programming Error Invalid delay table address (a) Tables not usable by special functions (b) Table group extends beyond end of data table area	0	17	0 & 4
Programming Error Invalid output array address (a) Tables not usable by special functions (b) Table group extends beyond end of data table area	0	33	0 & 5



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