

STARLOG

Digital Input Module (16-Bit)

Model 6113A



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1. INTRODUCTION

The Model 6113A Digital Input Module is used to record the status of electrical contacts, eg., for pump on/off status or event recording. It can also be used to interface the Data Logger to a transducer which gives an output in the form of parallel digital data.

The Data Logger can only accept data in the form of either an analog signal, pulsed signal or a serial digital signal. This module will convert the non-accepted parallel data into a serial form, thus enabling the transducer to be monitored by the Data Logger.

Each module can accept up to 16 bits of data (2 bytes) with an ability to cascade modules if the input data is greater than 16 bits. Up to 8 modules can be cascaded. eg, 32 bits of data requires 2 modules and 64 bits requires 4 modules.

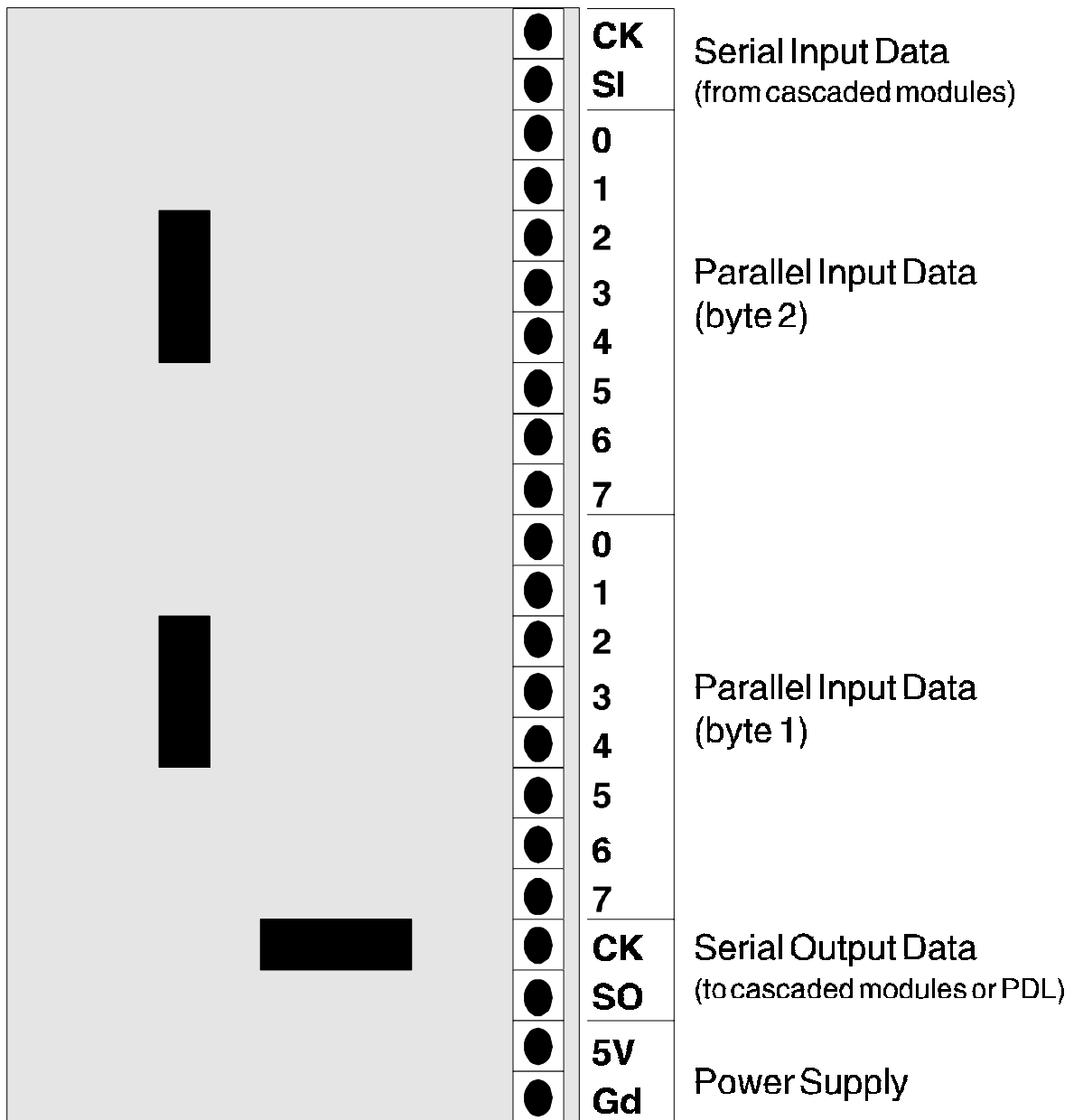
1.1. Inputs

Each of the 16 inputs is protected from over-current by a 10k series resistor and is protected from noise by a filtering capacitor. The module will accept any TTL or CMOS compatible signal and has an internal 100k Ohm pull-up to 5 Volts. Hence, any unused input is read as Logic 1.

2. CONNECTION OF A SINGLE MODULE

This requires four wires to be connected between the module and the Data Logger.

Terminal	Description	STARLOGGER /PDL		MACRO Logger	
		Pin	Term.	Pin	Term.
CK	Clock output to cascaded module	not applicable			
SI	Serial input data from cascaded module				
0-7	Parallel input (byte 2)				
0-7	Parallel input (byte 1)				
CK	Clock input from Logger or cascaded module	9 or 22	12 or 13	14 or 13	12 or 16
SO	Serial output data to cascaded modules or Data Logger	21 or 10	11 or 45	32 or 31	11 or 15
5V	Power supply from Data Logger	13	15, 16, 17	18	49
Gd	Ground from Logger	23	14	28	13



3. PROGRAMMING OF A SINGLE MODULE

The Data Logger must be programmed to extract data from the module. This is achieved using the SERIN instruction. The form of this instruction is;

```
SERIN x,y,z
```

which will obtain x bytes from the active serial data line (DATA 0 or DATA 1) and place them at Block z, Location y

```
eg, SERIN 2,222,0
```

will place the first byte at Block 0, Location 222 (Address 222) and the second byte at Block 0, Location 223 (Address 223).

The data and clock lines used must also be defined. This is done by placing particular data in addresses 8,9, and 10.

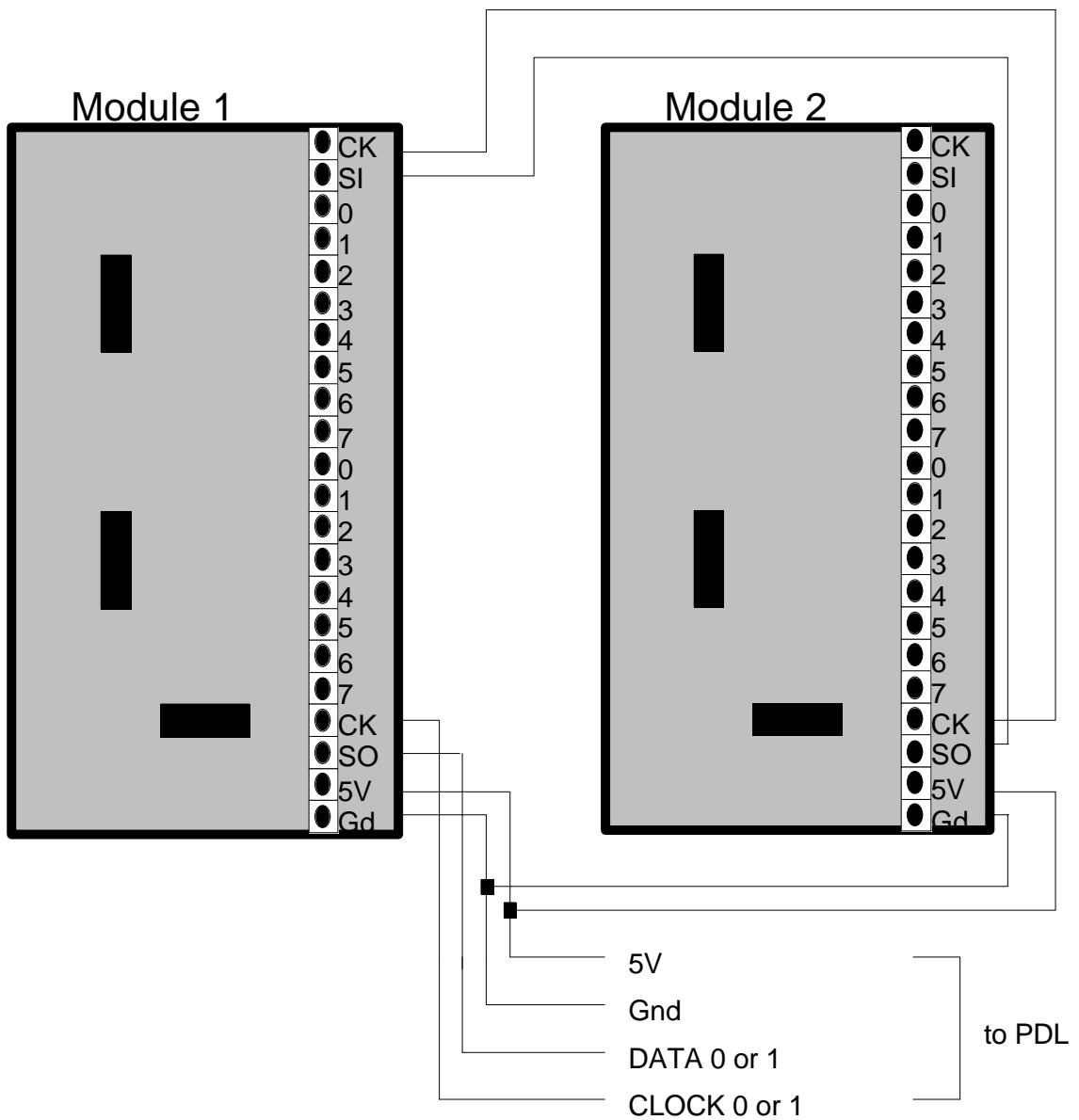
Address 8 = 32 if CLOCK 1 is used, (A8=0 if not)

Address 9 = 16 if DATA 1 is used,

Address 9 = 128 if DATA 0 is used,

Address 10 = 64 if CLOCK 0 is used, (A10=0 if not)

This tells the Data Logger where to get the data from and which clock to use.



4. CONNECTION OF MORE THAN ONE MODULE

To cascade two or more modules, take the following steps;

1. Connect module 1 to the Data Logger as before.
2. Connect 2 lines between modules, i.e.,

SI (module 1) to S0 (module 2)

CK (terminal next to SI on module 1) to CK (terminal next to SO on module 2).

3. Connect Gd and 5V terminals of both modules together.

To read data from two modules requires that the SERIN instruction specify 4 bytes, ie, 2 bytes per module.

5. TEST PROGRAM

The following may be used to test the operation of the module:

Address 384 : 72,2,222,0 (serial in 2 bytes and store them in Block 0, Locations 222 and 223, ie, addresses 222 and 223).

Address 8 : 0,128,64 (define the data line as DATA 0 and the clock as CLOCK 0).

The data can be inspected at addresses 222 and 223.

The module can be tested by grounding each input in turn. The following data will appear in the appropriate address:

terminal 0 grounded	- 254
terminal 1	- 253
terminal 2	- 251
terminal 3	- 247
terminal 4	- 239
terminal 5	- 223
terminal 6	- 191
terminal 7	- 127

6. SPECIFICATIONS

Input: 16 parallel digital noise-filtered inputs

CMOS, non-latching with 100k Ω pullup to 5V
suitable for potential free contacts and 5–12V dc
signals

Output: high speed serial

Enclosure: UV stabilised polycarbonate, IP67

Dimensions: 125mm x 75mm x 75mm

Weight: 300 grams

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