Product Engineering Guide

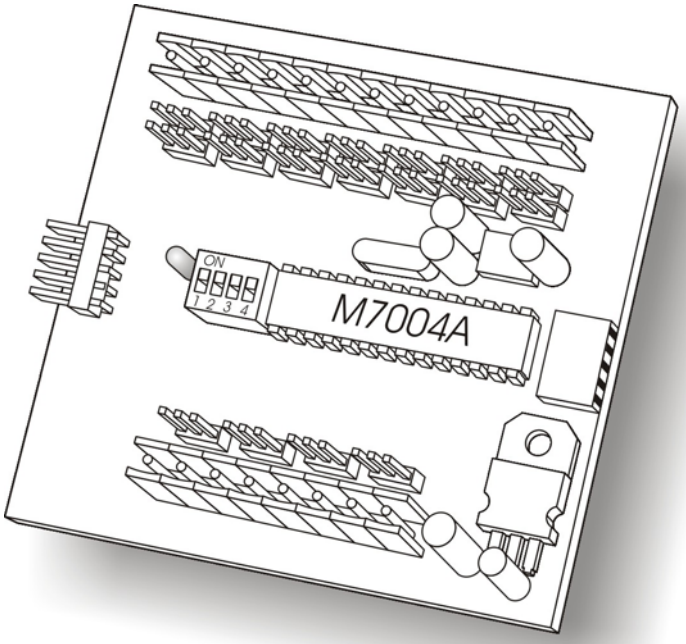
ZIP Module 7004A

Introduction

With the decrease of large programmable controllers and the increase of 'fixed function' controllers being used in buildings there is a growing need for a cost effective way of picking up extra inputs and outputs. ZiP is a modular data acquisition system. It is designed to operate either within a control panel or stand-alone.

A 'ZIP System' is a collective term for the connection of ZIP Modules, ZIPNet, and a ZIPMaster. The ZIP Modules link together in a 'daisy chain' style using PowerZIP connectors. One of the modules in the 'daisy chain' is the M7004A.

ZIP M7004A

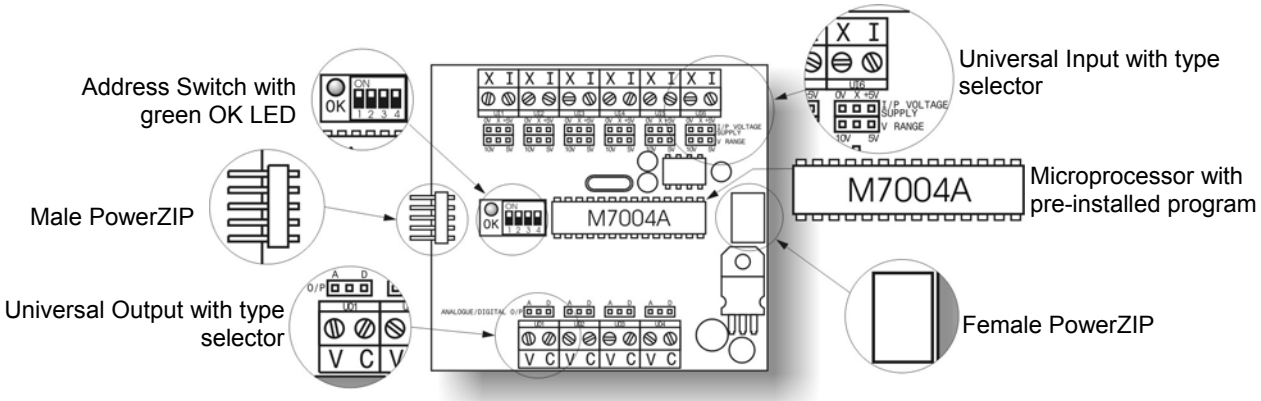


(79mm x 72mm)

The ZIP Module 7004A is a 6 universal-input, 4 universal-output module. It has male and female Power ZIP connectors and can be connected to any device that has a female PowerZIP connector, for example a ZIP NetCard.

Before the module is connected to the ZIPNet, the module's address needs to be set. This is done using the Address Switch. The address of a module is in the range of 0-15, and must be unique on the ZIPNet.

With the module connected and power running through the module the green LED beside the Address Switch will be permanently on or flashing. The flashing shows the module is working properly, and as soon as the master has started to communicate with the module the LED will remain continuously lit.



Engineering

Step 1 – Power down ZIP System

Before connecting the ZIP Module to a female PowerZIP connector, the device that has the female PowerZIP connector needs to have its power disconnected.

Step 2 – Set the ZIP Module's Address

Set the ZIP Module's unique address using the Address Switch. The address of a module must be in the range of 0-15.

Step 3 – Connect ZIP Module

Using the male PowerZIP connector, connect to the female PowerZIP connector on either a ZIPNet network card or to another ZIP Module.

Step 4 – Connect Sensors and Actuators

Wire the sensors and actuators to the ZIP Module. See section '***Inputs***' and '***Outputs***'

Step 5 – Power up ZIP System

When power is re-applied, the green LED beside the address switch should flash on and off to show the module is working properly, and as soon as the master is communicating with the module the LED will remain continuously lit. If the module fails to communicate with the master the LED will continue to flash.

Step 6 – Object Engineering

Use object-engineering software to access your ZIPMaster and read the data from your ZIP Module to test that it is functioning correctly.

Address Switch

The Address Switch allows the modules address to set. There are 16 different address available, set with different combinations of the 4 switches labelled 1 to 4. Up is on and down is off.

Module Address	Switch Position			
	1	2	3	4
0	Off	Off	Off	Off
1	On	Off	Off	Off
2	Off	On	Off	Off
3	On	On	Off	Off
4	Off	Off	On	Off
5	On	Off	On	Off
6	Off	On	On	Off
7	On	On	On	Off

Module Address	Switch Position			
	1	2	3	4
8	Off	Off	Off	On
9	On	Off	Off	On
10	Off	On	Off	On
11	On	On	Off	On
12	Off	Off	On	On
13	On	Off	On	On
14	Off	On	On	On
15	On	On	On	On

Examples

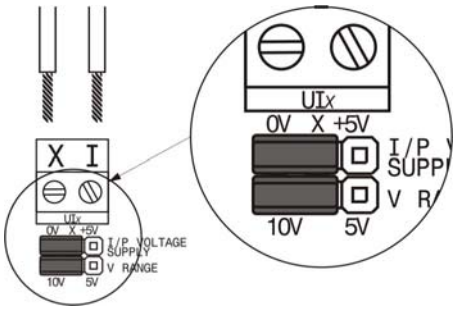
With the Address Switch set with 1=on, 2=off, 3=on, 4=off, the modules address will be 5.

With the Address Switch set with 1=on, 2=off, 3=off, 4=on, the modules address will be 9.

Inputs

The six universal inputs are located across the top of the module and are labelled UI1…UI6 (input 1 being on the left).

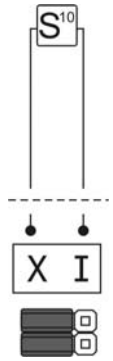
Each universal input is design to be used in a variety of ways. Positioning the two jumpers over the correct pins, and also selecting the matching settings in software configure the input.



The upper row of jumpers sets the voltage on the X- terminal; if the jumper is placed on the left pair of pins, then 0V is connected to the X terminal; if the jumper is placed on the right pair of pins, then +5V is connected to the x terminal.

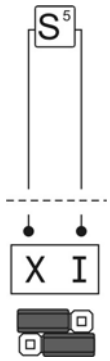
The lower row of jumpers sets the voltage range of the input terminal (marked I): if the jumper is placed on the right pair of pins, then the input signal is passed to the 0-5V A-to-D converter; if the jumper is placed on the left pair of pins, then the input signal passes a divide-by-two circuit before being passed to the 0-5V A-to-D converter – ie the input can support 0-10V

Sensor Type: Analogue 0-10V



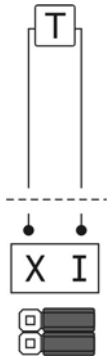
If your sensor is has a 0-10V output, then set the jumpers as the diagram. X will be connected to 0V, and the divide-by-two circuit will convert the 0-10V input to 0-5V before passing it to the 0-5V A-to-D converter.

Sensor Type: Analogue 0-5V



If your sensor is has a 0-5V output, then set the jumpers as the diagram. X will be connected to 0V, and the input is passed to the 0-5V A-to-D converter

Sensor Type: Analogue 10K3 Thermistor

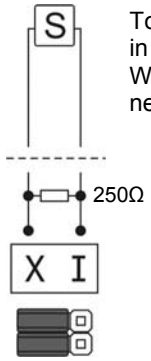


With both jumpers on the right hand pair of pins the terminal X will have an output of 5V, and the terminal I will be set to receive an input in the range of 0 to 5V.

Type of Unit:

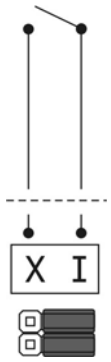
This is the correct configuration for when using a 10K3A thermistor and the thermistor setting in software. This setting is also used for the 0-20mA and Monitored configurations in software. See diagram below for hardware connections for these settings.

Sensor Type: Analogue 4-20mA or 0-20mA



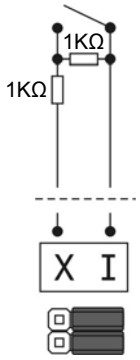
To configure a universal input to receive 0-20mA signal set both jumpers on the left hand pair of pins and in software select the *'input type'* 20mA.
When connecting the device to the input include a 250Ω resistor in series. Software settings will also needs to be configured with the correct input high and low values.

Sensor Type: Digital Switch



To configure a universal input to receive a digital input set both jumpers on the right hand pair of pins and in software select the *'input type'* digital input settings.

Sensor Type: Digital Monitored Switch



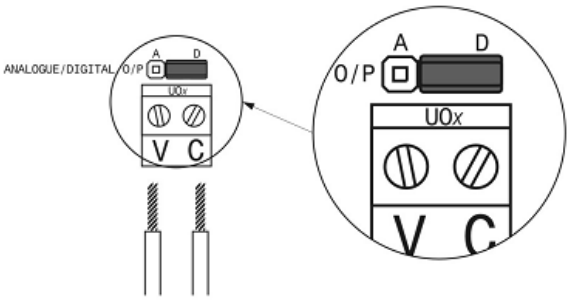
To configure a universal input to monitor the connections to a digital input set both jumpers on the right hand pair of pins and in software select the *'input type'* monitored. When connecting the switch t the universal input two 1KΩ resisters should be included in the circuit, one in series and one in parallel. Two types off alarms will be generated by the monitored input, one type for the closing of the switch and another if the circuit is broken.

Outputs

The four universal outputs are located across the bottom of the module and are labelled UO1…UO6 (output 1 being on the left).

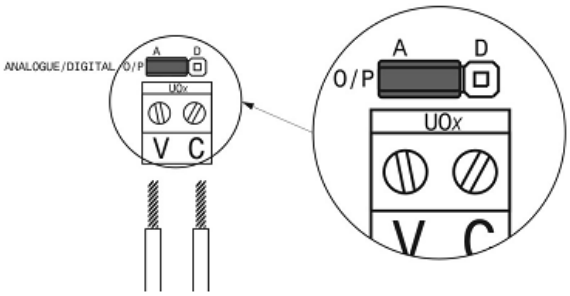
Each universal output can but configured as a digital or analogue output. The output is configured by positioning the jumpers over the correct pins, and selecting matching settings in software.

Digital Output



With the jumper on the right hand pair of pins and software set to '*digital',* the output is configured as a digital output. When the output is required to be off terminal V will set to 0v. When the output is required to be on terminal V is set to 12V@100mA to drive a relay on (providing the Zip Module has sufficient power supply)

Analogue Output



With the jumper on the left hand pair of pins the output is configured as an analogue output. The output can then be in the range of 0V to 10V. In analogue configuration the voltage output is not strong enough to power a relay, it is only to be used as a signal to control another device and will have a max output of 10V@ 5mA.