4.7 PT8AIVS - ISOLATED ANALOG VOLTAGE INPUTS

4.7.1 Description

The PT8AIVS module is an 8 channel isolated voltage input module. The module uses differential inputs to reduce effects of electrical noise and mains pickup. The voltage inputs are isolated from the logic and from each other.

The voltage input can be represented in a number of formats according to the type which is setup by writing a value to the Type register. The value is obtained from the table below.

The standard setting for the PT8AIVS module is 0 – 10V input voltage which represents an output value of 0 - 4095 (12 bits) in the corresponding Modbus register. 2V would give a reading of 819 ± 1LSB.

The module can also be configured for a 0 – 10.000V input range or +/- 10.000V input. The module also supports 14 bit and 16 bit ranges.

Each PT8AIVS Module has a unique Ethernet IP address which must be programmed into the PC or PLC. The IP address in the PT8AIVS Module is configured via the Web Server. Any standard Web browser such as Internet Explorer can be used to access the web pages were configuration is carried out. The modules are factory programmed with a default IP address of 169.254.111.111. This address must be changed before the module is added to an existing network.

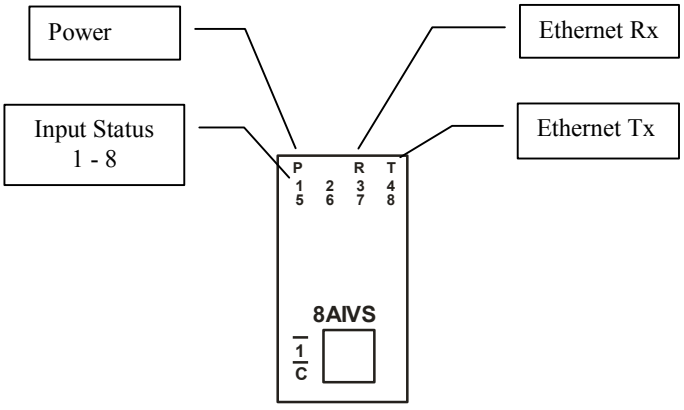
The web page address for viewing the input parameters is http://169.254.111.111/index.htm and the address for viewing the configuration data is http://169.254.111.111/tconfig.htm.
The web page address for configuring the module is http://169.254.111.111/ip.htm .

4.7.2 Technical Specification of PT8AIVS

Power Supply	Logic Supply Voltage		12 -24 Vdc
	Logic Supply Current		105mA @ 12V / 54mA @ 24V
Voltage Inputs	Input Points		8
	Input Voltage		0(2) - 10 Vdc
	InputType	**Range**	**Resolution**
	1	0 – 4095	12 bits
	2	0 – 10.000 V	1mV
	3	+/- 10.000 V	1mV
	4	0 – 1.0000 V	0.1mV
	5	+/- 1.0000 V	0.1mV
	6	0 - 16383	14 bits
	7	0 - 65535	16 bits
	Drift		100ppm/°C
	Isolation		1500Vrms between field and logic 350Vpeak between each input
Ethernet	10/100Mbits/s		Twisted pair.
Temperature	Operating Temperature.		-40°C to + 80°C
	Storage Temperature		-40°C to + 85°C
Connectors	Logic Power and Comms.		4 Pin Connector on underside of unit
	Inputs		18 Way screw connector on front
	Ethernet		RJ45 on top side of unit.

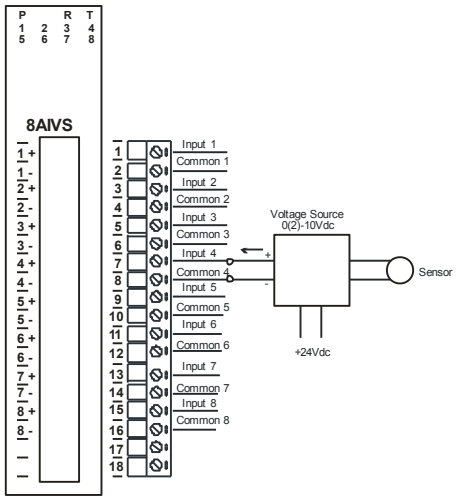
4.7.3 Status Indicators

Power: Flashes to indicate the CPU is running.
Ethernet Rx: Flashes to indicate the unit has received a valid Modbus message.
Ethernet Tx: Flashes to indicate the unit has sent a Modbus message.
Input Status: "ON" when the input is zero.
"OFF" when the input is greater than zero and less than 10V.
"Flashing" when the input is over range, greater or equal to 10V.

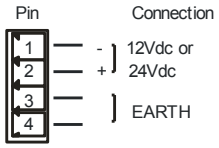


4.7.4 Wiring

The following diagram shows how the analog inputs are connected to a 0(2)-10Vdc source. All of the common terminals are isolated from each other.

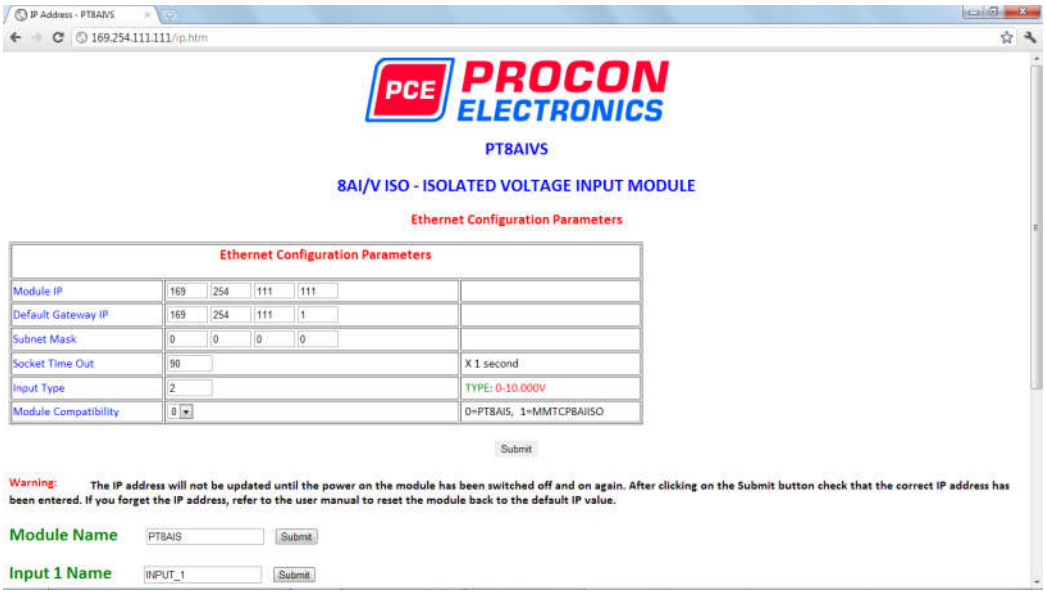


The following diagram shows the wiring for the power.



4.7.5 Configuration

The Web page address "**169.254.111.111/ip.htm**" is entered into the address line of the browser window to access the configuration page. This page allows you to change the IP address, default gateway and subnet mask of the PROMUX TCP Module, select the Input type, and to enter a Module Description Name and Input Names for identification/maintenance purposes.



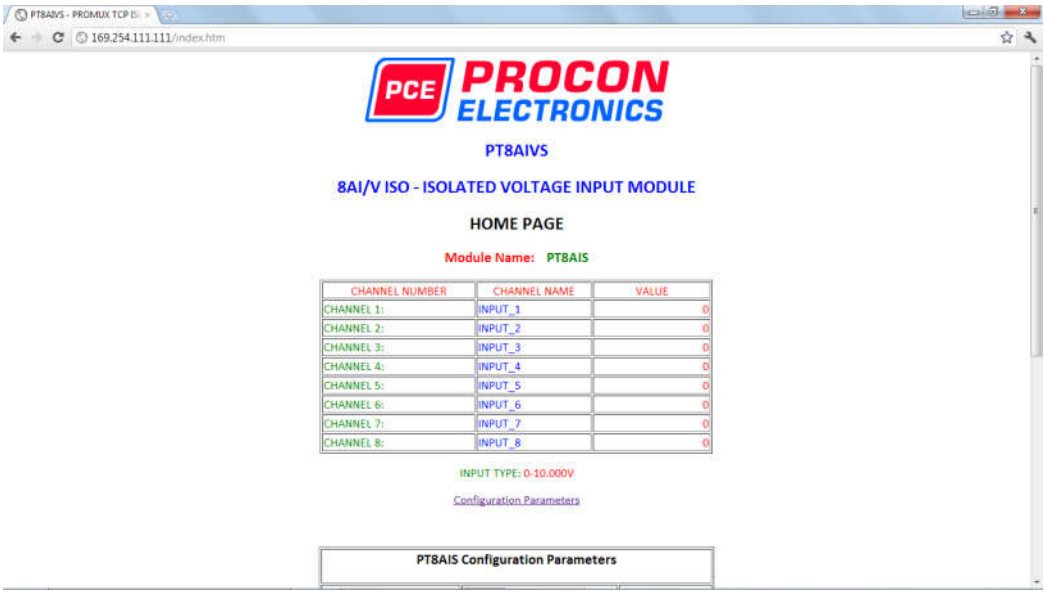
- **IP Address:** The new IP address can be entered into the web page as shown above. After this has been done, you must click the Submit button to send the values to the Module. The screen will now be updated and if successful will continue to display the new IP address. The new IP address will only be effective after the Module power has been switched off and on again. This feature allows you to check that the correct IP address has been entered before being activated. If the IP address has been entered incorrectly and the power has not been switched off, it is possible to re-enter the correct IP address. If the power has been switched off and back on again, the Module will not communicate until you enter the new IP address into the address line of the browser window.
- **Default Gateway IP Address:** A **default gateway** is a node (a router) on a computer network that serves as an access point to another network. In enterprises, however, the gateway is the computer that routes the traffic from a PC to the outside network that is serving the Web pages. It is only necessary to configure the default gateway IP address if the PC that is accessing the Module is on a different network.
- **Subnet Mask:** In computer networks, a **subnetwork** or **subnet** is a range of logical addresses within the address space that is assigned to an organization. The subnet mask is used to inform the Module that it must send its replies to the gateway if the IP address of the PC is on a different network. When the subnet mask is set to “0.0.0.0” then it is effectively disabled and the default gateway is not used. A typical subnet mask would be “255.255.255.0”.
- **Socket Timeout:** If a socket connection is broken, say due to a network fault, it must timeout to free it up so that it can be used again. This timer is triggered by activity on the module, so if there is no communications activity for longer than the timeout period, the socket will close.
- **Input Type:** The type for the module can be configured by entering the corresponding number from the list in the specifications.
- **Module Compatibility:** When the value is zero “0”, the Modbus registers are configured in the format for a PROMUX TCP module. When the value is set to one “1”, the Modbus registers are reconfigured to match the format of the MOD-MUX TCP modules. This is useful

if a new PROMUX TCP module is being used to replace an old MOD-MUX TCP module in an existing system.

- **Module Name:** This field allows you to enter a module description name into the PROMUX TCP Module. This is an identifier for diagnostic/maintenance purposes and is chosen to best describe the PROMUX TCP Module in the system by name or number.
- **Input Names:** These fields allow you to enter an input description name into the PROMUX TCP Module. This is an identifier for diagnostic/maintenance purposes and is chosen to best describe the particular input by name or number.

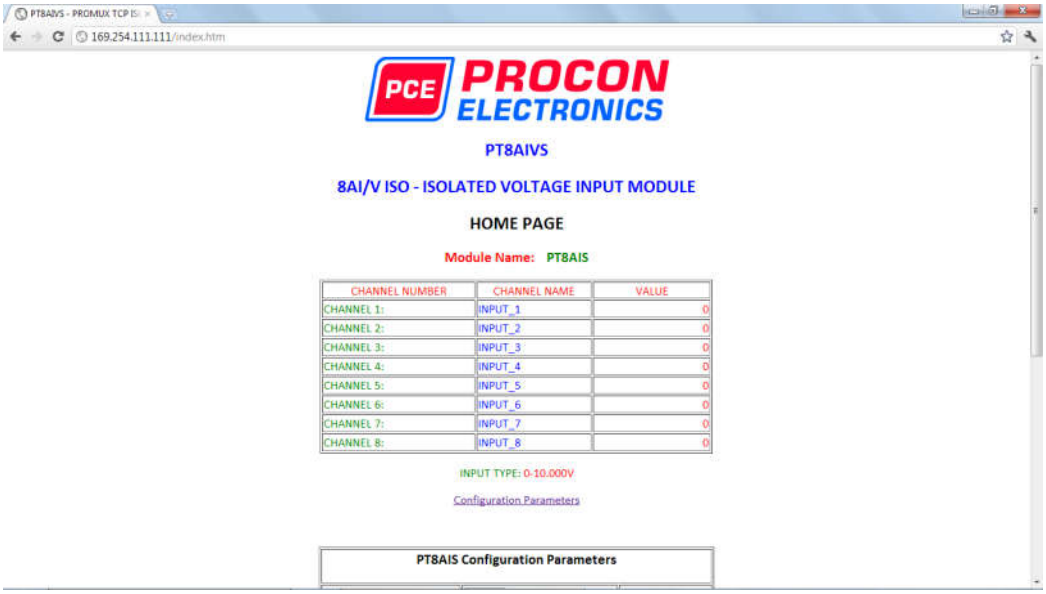
4.7.6 Viewing web pages

To view the default Web page in the PROMUX TCP Module, start the Web browser and type "169.254.111.111" into the address line of the browser window. The main page will now be displayed in the browser window.



- **Channel Number:** This refers to the actual input number on the terminals of the module.
- **Channel Name:** This is the name that was entered in the configuration page to best describe the inputs.
- **Value:** This is the current value of the inputs. To get an updated reading it is necessary to refresh the browser window to upload the web page again.

To view the Configuration Web page in the PROMUX TCP Module, start the Web browser and type "**169.254.111.111/tconfig.htm**" into the address line of the browser window.



- **Input Type:** This is the format that the module has been configured to operate with.

4.7.7 PT8AIVS Data Registers (MODULE TYPE = 138)

Modbus Address	Register Name	Low Limit	High Limit	Access	Description
30001	S/W Version / Module Type	N/A	N/A	R	High Byte = Software Version Low Byte = 138
30002	Analog Input 1	0	65535	R	Analog Input lower 16 Bits
30003	Analog Input 2	0	65535	R	"
30004	Analog Input 3	0	65535	R	"
30005	Analog Input 4	0	65535	R	"
30006	Analog Input 5	0	65535	R	"
30007	Analog Input 6	0	65535	R	"
30008	Analog Input 7	0	65535	R	"
30009	Analog Input 8	0	65535	R	"
30010	Input Status	0	65535	R	bit2 = 0(open circuit or < 2), bit2 = 1(over range) bit1 = 0(OK),bit1 = 1(error)
30011	Input Alarm Status	0	255	R	bit1 = 0(OK),bit1 = 1(input < 1V)
40101	Input Type	1	7	R/W	See specification table.