

VIO 12A External RTD input modules for VAMP relays

This application note applies to Vamp 40, Vamp 50, Vamp 200 and Vamp 300 series

General

External analog inputs (e.g. RTD) can be added to VAMP relays via external VIO 12AA, AB, AC and AD modules. VIO modules can be connected to the 200 series relay's EXTENSION port (located in the same D - connector on the relay as the LOCAL port) via VSE001 module (fiber connection) or VSE003 module (RS485 connection, more specific instructions later in this document) or by using dedicated fiber communication module VCM RTD for VAMP 257 and 259. VIO module can be connected to VAMP 40 relay by RS232 communication. VIO 12 AA and AB support 12 RTD inputs with 4-wire connection and additionally VIO 12 AC and VIO 12 AD support one PTC input with 2-wire connection and four mA inputs and outputs via 2-wire connection.

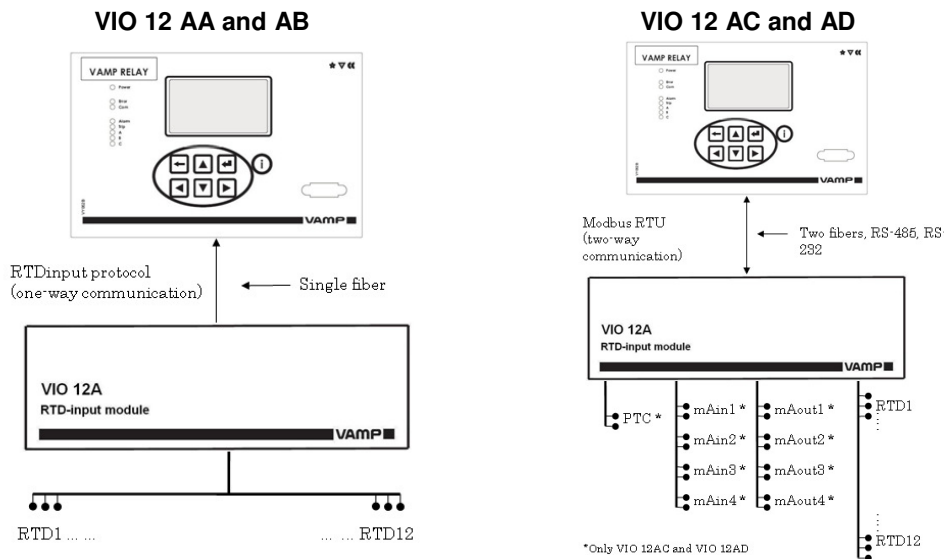


Figure 1. A system with VAMP relay and different models of VIO 12 A applications.

Power supply

- The VIO 12A module requires auxiliary power supply. For VIO 12 AA and 12 AB modules auxiliary voltage of 24 – 230 VAC / DC can be supplied. VIO 12AC can be supplied with 24 VDC and VIO 12 AD with 48 – 230 VAC/DC.
- Communication modules voltage is supplied by the protection relay.

Supported sensors

VIO 12A modules support Pt100, Ni100, Ni120 and Cu10 type of temperature sensors directly. For different type of thermoelements the scaling of the RTD:s can be made freely.

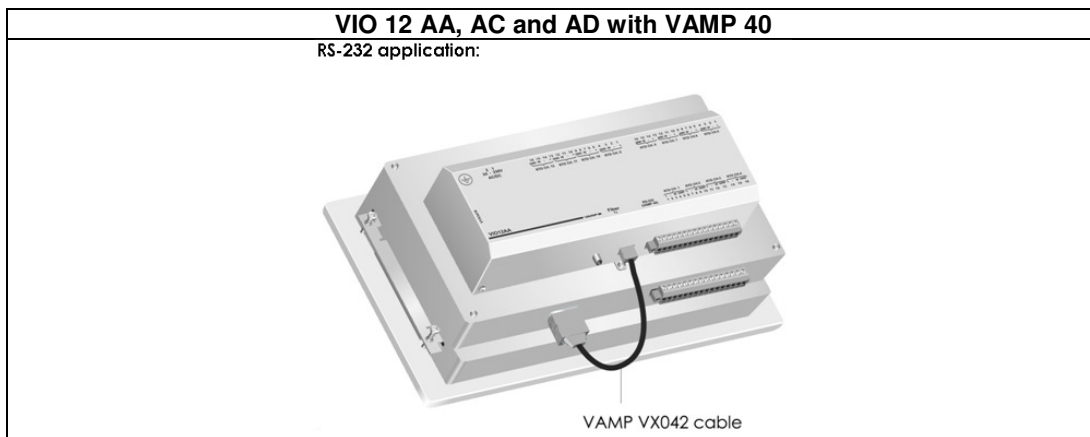
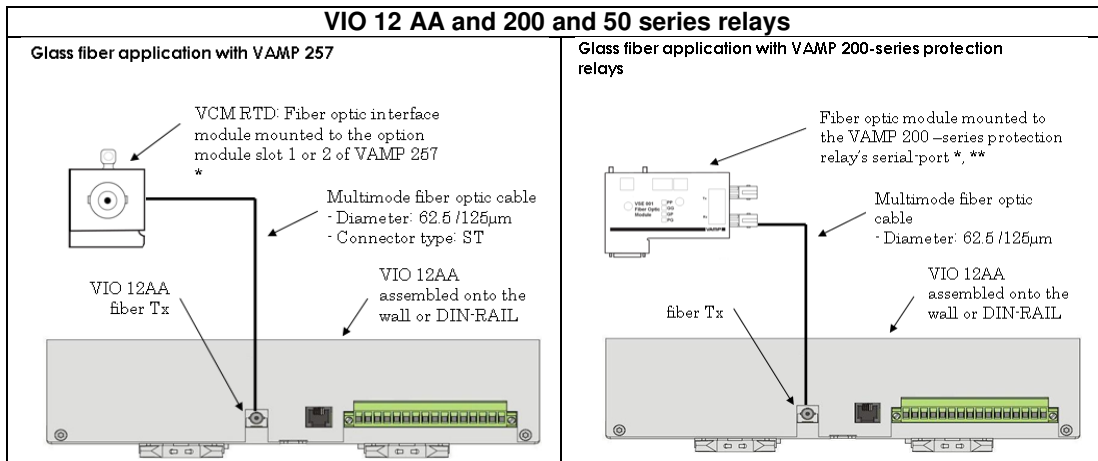
Ordering

When ordering of VIO 12 A RTD module, please state:

- Type designation: VIO 12AA, VIO 12AB, VIO 12AC or VIO 12AD
- Available for ordering from 1.12.2009

Configuration of the modules

1. Communication between of the VIO module and protection relay can be arranged by using Modbus (VIO12 AB, AD and AC) or RTDinput protocol (VIO12AA, AC or AD). When using modbus connection set the address dip-switch to the address which is planned to be set to the VIO12 AB module. If RTD protocol is used there is no need to make settings for the communication in the VIO module.
2. Make necessary connections according to your application presented in the figure 2.



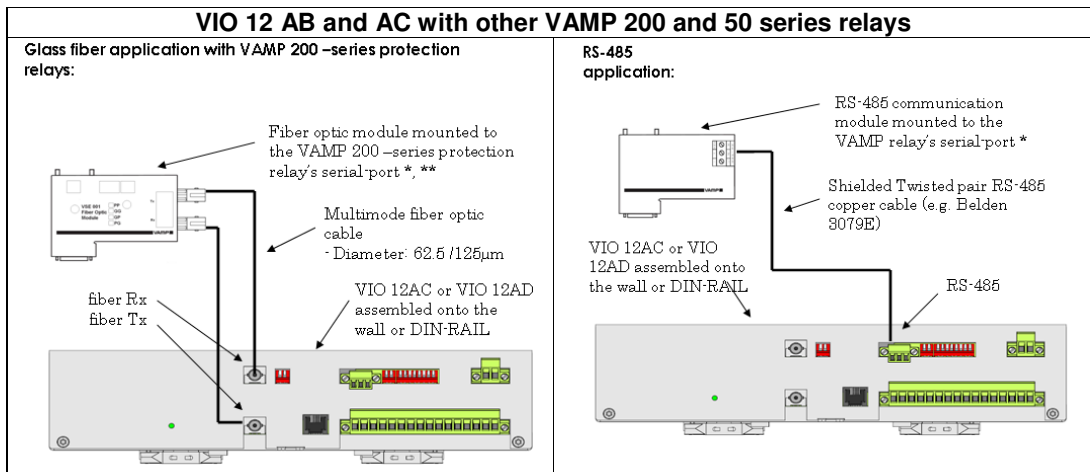
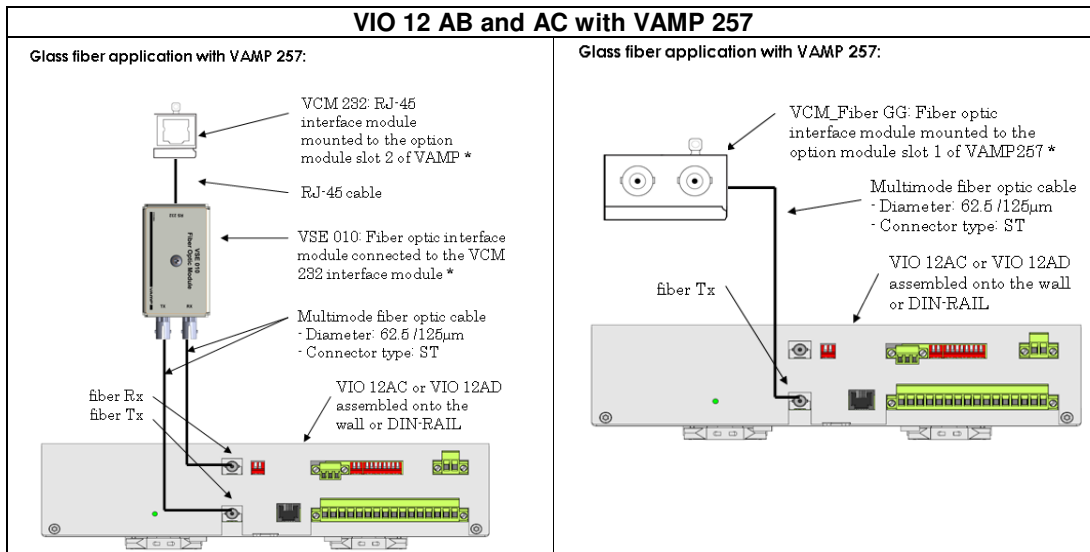
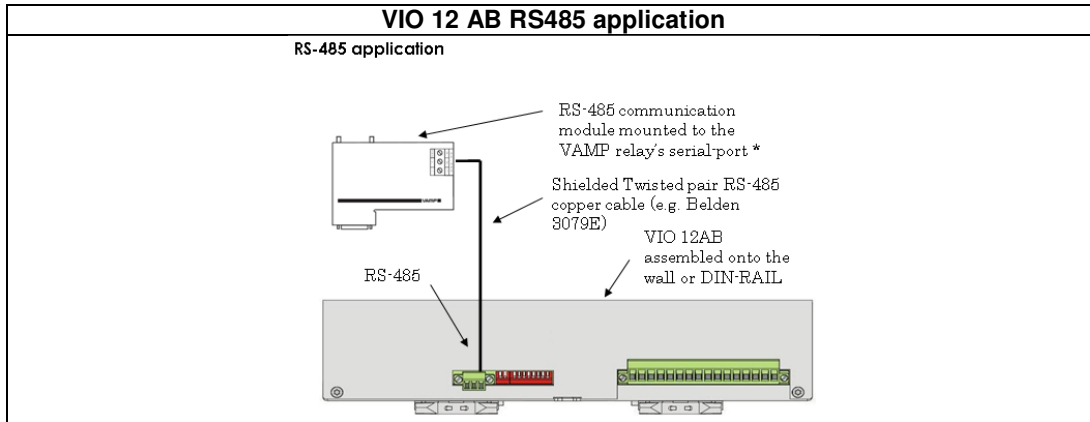


Figure 2. The connection.

All of the modules must be configured with VAMPset before use. When using Modbus communication protocol the settings of the relay vary slightly in comparison when using RTD communication protocol.

3. The following describe the installation processes for Modbus communication:

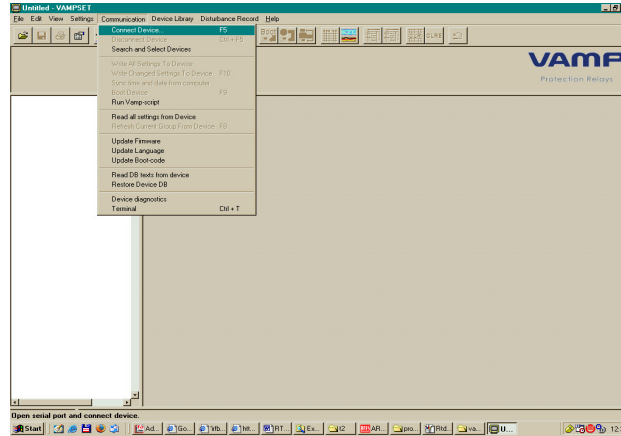


Figure 3. Loading the device settings.

- a. Select Communications/Connect device (or press F5)
- b. The program will start loading data from the relay.
- c. Answer yes to all queries and select access level to “CONFIGURATOR” (default password “2”) when prompted.

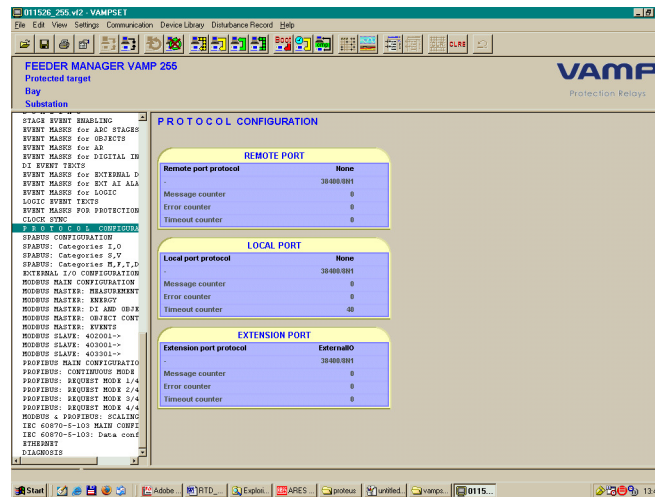


Figure 4. Selecting the correct data transmission settings.

- d. When VAMPSET has finished loading the data, select PROTOCOL menu
- e. Set up the correct protocol for EXTENSION PORT (ExternalIO).

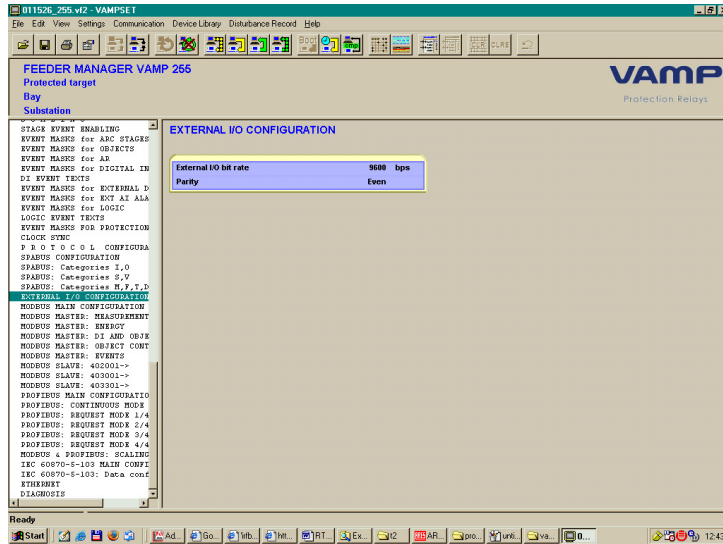


Figure 5. Setting up the correct speed and parity.

- f. Select EXTERNAL I/O CONFIGURATION menu and set up the correct communication parameters (speed and parity)

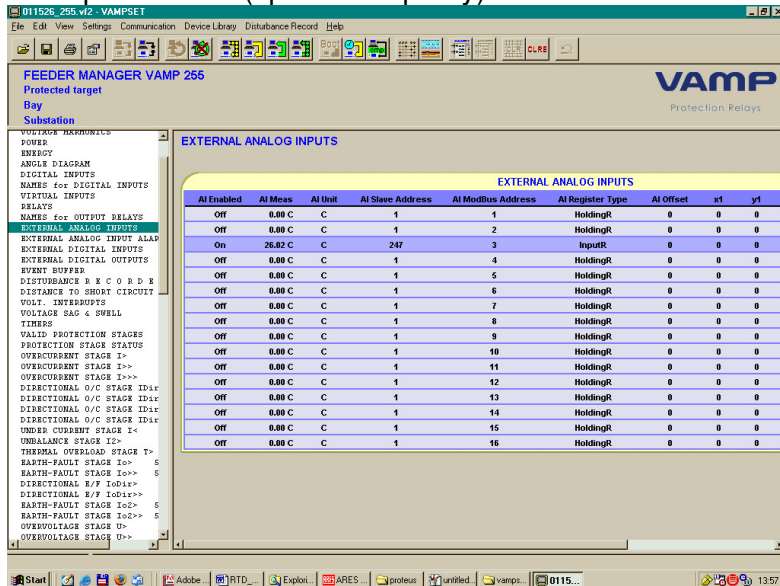


Figure 6. Setting the RTD address to the polling list.

- g. Select the desired EXTERNAL... menu and set the correct module address to the "Slave Address" column and the register address to "Modbus Address" column.
- h. Select also the correct register type.

Once done, the relay should start receiving data from the RTD module (error- and timeout counter should be constant in both External... and PROTOCOL menus).

In the relay is also possible to use the external I/O configuration setup as follows.

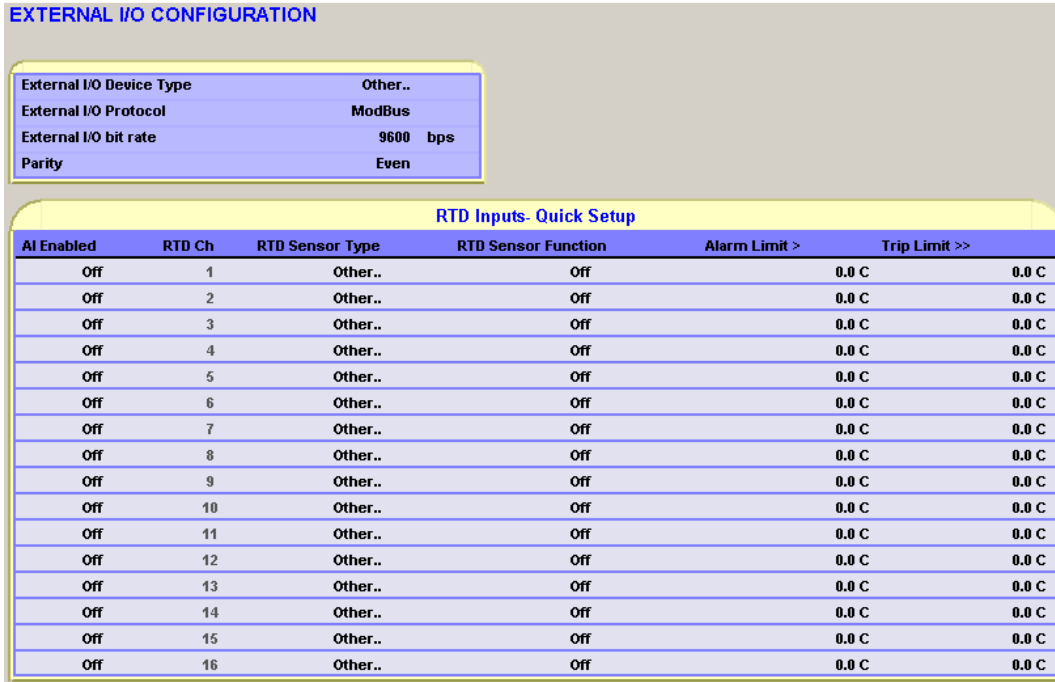


Figure 7. RTD inputs Quick Setup window.

- a. With this configuration setup the VIO module type is selected first from the drop-down menu

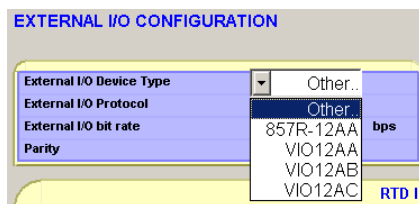


Figure 8. VIO device type selection drop down menu.

- b. The used communication protocol in between VAMP relay and VIO module is selected from the drop down menu

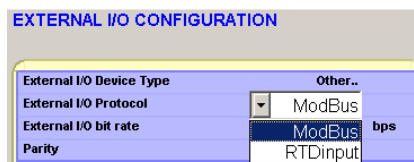


Figure 9. VIO protocol selection drop down menu.

- c. The bitrate in between of the relay and VIO module is selected from the drop-down menu

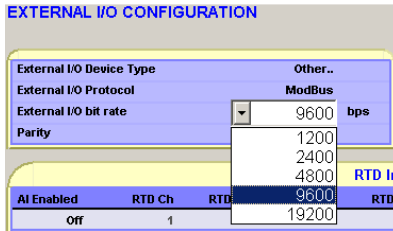


Figure 10. VIO protocol baud rate selection drop down menu.

- d. Also the used parity in the communication is selected from the drop down menu.

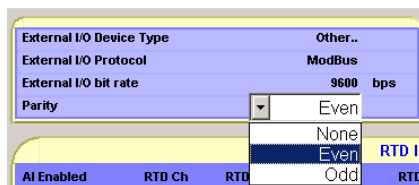


Figure 11. VIO protocol parity selection drop down menu.

- e. After the general settings have been made the individual RTD configurations can be made from the Quick Setup window. From the Quick Setup the RTD inputs which are about to be utilized are selected to “On”. Also the type of the RTD sensor is selected. By selecting the used RTD type the input data from the RTD scanner is automatically scaled to correct temperature value. RTD sensor function can also be selected. This is informational setting only and it does not affect into the temperature measurement or scalings.

RTD Inputs- Quick Setup						
AI Enabled	RTD Ch	RTD Sensor Type	RTD Sensor Function	Alan Limit >	Trip Limit >>	
On	1				0.0 C	0.0 C
Off	2				0.0 C	0.0 C
Off	3				0.0 C	0.0 C
Off	4				0.0 C	0.0 C
Off	5				0.0 C	0.0 C
Off	6				0.0 C	0.0 C
Off	7	Other..	Off		0.0 C	0.0 C
Off	8	Other..	Off		0.0 C	0.0 C
Off	9	Other..	Off		0.0 C	0.0 C
Off	10	Other..	Off		0.0 C	0.0 C
Off	11	Other..	Off		0.0 C	0.0 C
Off	12	Other..	Off		0.0 C	0.0 C
Off	13	Other..	Off		0.0 C	0.0 C
Off	14	Other..	Off		0.0 C	0.0 C
Off	15	Other..	Off		0.0 C	0.0 C
Off	16	Other..	Off		0.0 C	0.0 C

Figure 12. RTD inputs Quick Setup settings.

From the last two columns can be set the alarm and trip limits for each individual RTD measured temperatures.

Keywords : External RTD input module, External I/O module, VIO 12 AA, VIO 12 AB, VIO 12 AC, VIO 12 AD

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