

# MIRO Auxiliary I/O Module (Miro Aux)

## Quick Start Guide (QSG)



*Figure 1 - Miro AUX (Model: Aux-40)*

## 1. Scope and Objective

This document outlines how to:

- Connect the Miro Aux to the Miro range of Power Quality Analysers (Miro).
- Configure the Miro so it can be utilised with the Miro Aux.
- Connect third party inputs to the Miro Aux module.

## 2. Before you start

It is assumed the user is familiar with the Miro hardware and Citrus software.

Ensure the latest versions of Citrus and Miro firmware are installed. These can be found at the following link: <http://www.chkpowerquality.com.au/downloads/>

## 3. Miro Aux Hardware

The Miro Aux provides additional input and output signal (I/O) capability to the Miro. The Miro monitors and logs these additional I/O signals.

The version in Figure 1 (Aux-40) provides four (4) inputs and no outputs. The inputs are all 4-20mA signal type and are intended to be connected to third-party instruments.

The main hardware features of the Miro Aux shown in Figure 1 are:

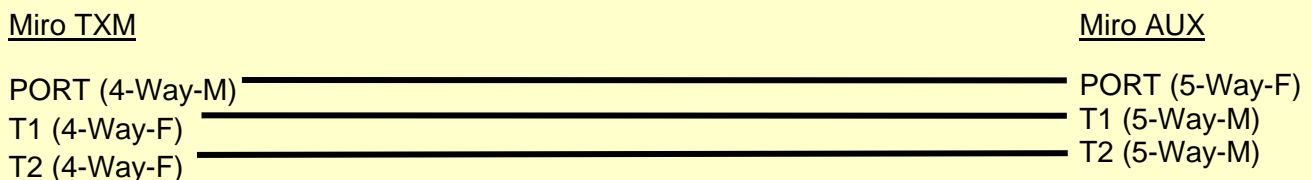
- Pluggable I/O terminals (AI-1, AI-2, AI-3, AI-4);
- Port for communicating with Miro (PORT);
- Two pluggable RTD input ports (RTD-1, RTD-2);
- Temperature connections (T1 and T2); and
- Ground connection (only shown in Figure 7).

Accessories:

- 1 X communication cable (Miro Aux PORT to Miro); and
- 2 X temperature connector cable for T1 and T2.

## 4. Connection Diagram

### 4.1 Miro TxM to Miro Aux

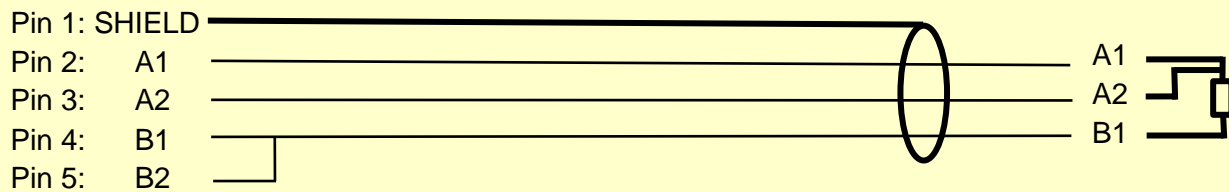


**Figure 2 - Interface: Miro to Miro AUX**

## 4.2 Miro Aux to RTD Sensors

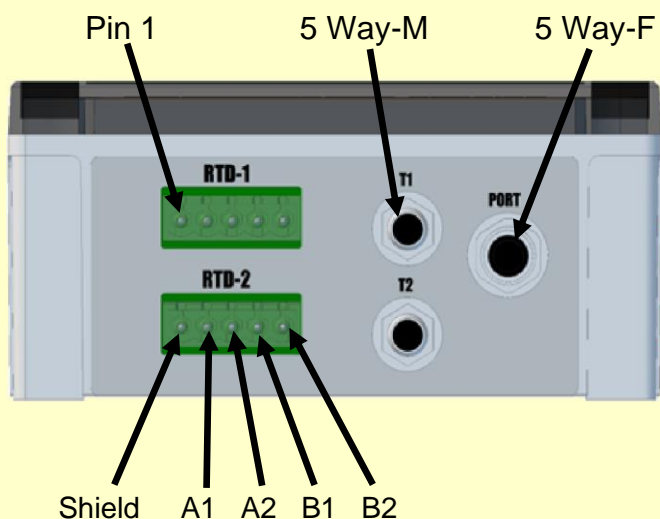
RTD-1 / RTD-2 [5 WAY CONNECTOR]

3 Wire RTD (PT100)



**Figure 3 - RTD Sensor Pinouts**

Note: Pin 4 and Pin 5 are shorted using the shorting link provided. Refer to Figure 5.



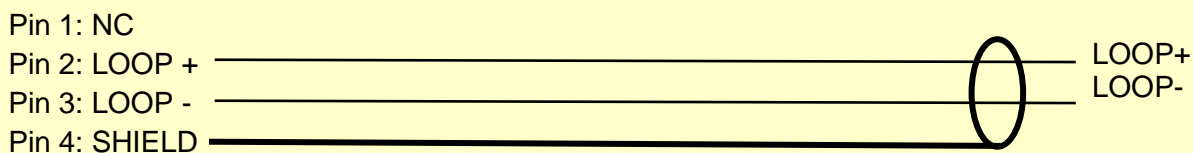
**Figure 5 - 3 Wire RTD Wiring Example**

**Figure 4 - Interface: Miro to Miro Aux**

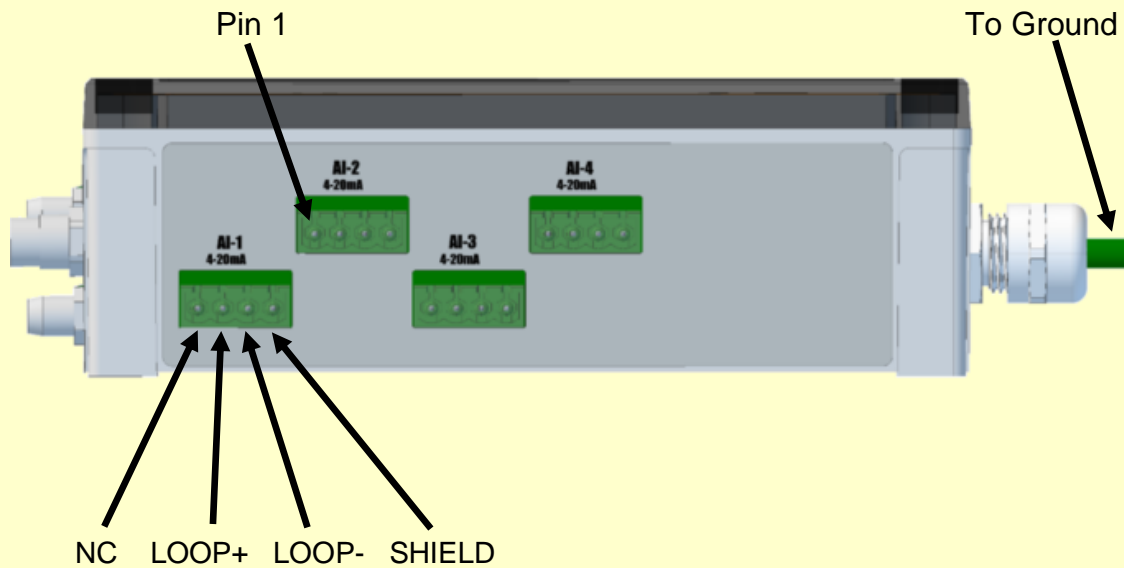
## 4.3 Miro Aux to 4-20mA Sensors

4 WAY CONNECTOR

4-20mA Sensor



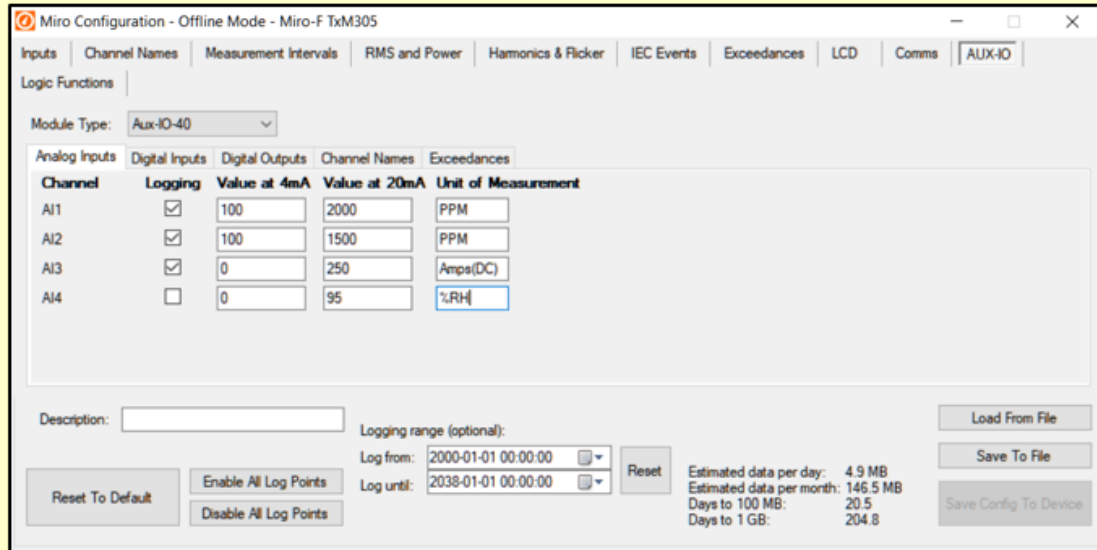
**Figure 6 - 4-20mA Sensor Pinouts**



**Figure 7 - 4-20mA Input Channels**

## 5. Configuring the Miro

Go to the AUX-IO tab and select Module Type. Then fill in the details for Analog Inputs. E.g. see Figure 8.



**Figure 8**

Go to the Channel Names tab and fill in the details. E.g. see Figure 9:

Logical channel	Application-specific channel name	User-set alias	Effective name	User-set alias (short)	Short name
AI1	Not applicable	Hydrogen	Hydrogen	H2	H2
AI2	Not applicable	Acetylene	Acetylene	C2H4	C2H4
AI3	Not applicable	GMD	GMD	GMD	GMD
AI4	Not applicable	Moisture	Moisture	Moistu	Moistu
DI1	Not applicable		DI1		DI1
DI2	Not applicable		DI2		DI2

Figure 9

Go to the Exceedances tab and fill in the details. E.g. see Figure 10:

Exceedance	Channel	Trip Threshold	Reset Threshold	Units	Minimum Duration (s)	Captures to Trigger
Aux Input High	<input checked="" type="checkbox"/> AI1 - H2	1800	1750	PPM	300	<input type="checkbox"/> Waveform <input type="checkbox"/> RMS <input type="checkbox"/> Multi-Parameter
	<input checked="" type="checkbox"/> AI2 - C2H4	1300	1150	PPM	300	
	<input checked="" type="checkbox"/> AI3 - GMD	50	40	Amps(D 60		
	<input checked="" type="checkbox"/> AI4 - Moistu	60	50	%RH	300	
Aux Input Low	<input checked="" type="checkbox"/> AI1 - H2	200	250	PPM	300	<input type="checkbox"/> Waveform <input type="checkbox"/> RMS <input type="checkbox"/> Multi-Parameter
	<input checked="" type="checkbox"/> AI2 - C2H4	200	250	PPM	300	
	<input checked="" type="checkbox"/> AI3 - GMD	5	8	Amps(D 60		

Figure 10

Go to the Logic Functions tab. Select the inputs from the drop-down menu. Then set the Truth Table. Then select the outputs desired. Note: Ticking the DNP3 Point check box maps the output to the DNP3 profile. E.g. see Figure 11:

Function	Input A	Input B	Input C	Input D	Truth Table	Log State Change	Trigger Captures	DNP3 Point	Digital Out
1	EXC-AuxH-AI1	NONE	NONE	NONE	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DO1
2	EXC-AuxH-AI2	NONE	NONE	NONE	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DO2
3	EXC-AuxH-AI3	EXC-THD-VA	EXC-THD-VB	EXC-THD-VC	Set	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	DO3
4	NONE	NONE	NONE	NONE	Set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
5	NONE	NONE	NONE	NONE	Set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
6	NONE	NONE	NONE	NONE	Set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
7	NONE	NONE	NONE	NONE	Set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
8	NONE	NONE	NONE	NONE	Set	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-

Description:

Logging range (optional):  
 Log from: 2000-01-01 00:00:00   
 Log until: 2038-01-01 00:00:00

Estimated data per day: 4.9 MB  
 Estimated data per month: 146.5 MB  
 Days to 100 MB: 20.5  
 Days to 1 GB: 204.8

Figure 11

The Truth Table dictates the output, based on the state of individual inputs. E.g: The Truth Table for Logic Function 3 could be set up as follows. E.g. see Figure 12:

Inputs				Output
A	B	C	D	F
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	0
1	0	0	1	1
1	0	1	0	1
1	0	1	1	0
1	1	0	0	1
1	1	0	1	0
1	1	1	0	0
1	1	1	1	1

Figure 12

The Miro by default is configured for a 4 wire RTD (temperature) measurement. If you intend to use a 3 wire RTD, go to the Inputs tab and tick the PT100 3-Wire Compensation box and enter the DC resistance of the temperature sensor cables. E.g. see Figure 13:

**Figure 13**

Save the configuration by clicking on 'Save Config to Device'

You are now ready to start logging. Data logging will commence when the Miro is energised. The flashing blue LED on the Miro Aux indicates:

- Miro Aux is powered up (slow flashing, 1 flash/second)
- Miro Aux is powered up and being polled by the Miro (fast flashing)