User Manual

True RMS Current Transmitter

PM-CTR11A

Version: 1.1 Release Date: 01/30/2023

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Contents

1 Introduction

1.1 Purpose of the manual

This manual contains all the information needed to set up, install, wiring and communicate with the PM-CTR11A module.

1.2 Technical knowledge required

In order to understand this booklet, a basic acquaintance with electrical topics is required.

1.3 Manual validation

This booklet is valid for this specification.

MODEL	Hardware	Software
PM-CTR11A	V1.1	V1.1

1.4 technical support

To get technical support through the following contact:

- Email: **info@parsmega.com**
- Phone: **+98 21 91009955**
- WhatsApp: **+98 9981122566**

2 safety tips

- Starting the module by non-experts and ignoring the commands may cause serious damage to the module.
- This module does not directly pose a risk to human life.
- The use of this module is not approved for use in life-threatening devices.

3 Description

3.1 Basic description

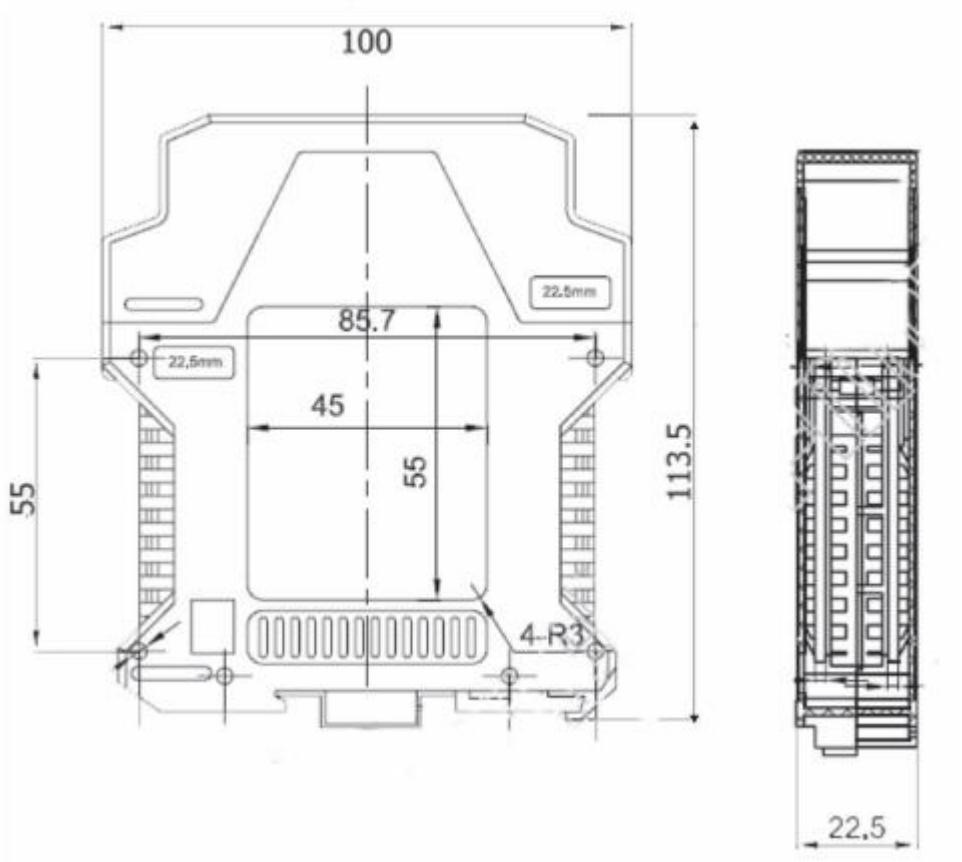
PM-CTR11A is a CT current transformer converter to standard analog signal and digital value. This module, using a True RMS converter chip, has the ability to measure currents with different waveforms (waveforms with different cutting types) and by default It is for connecting to a current transformer with an output of 5 amps. This module has the ability to connect to the computer and control equipment such as (HMI and PLC) through the RS485 serial port. It also has the ability to convert the output current of the current transformer to the following standard analog signals.

- 0-10V
- 0-5V
- 0-20 mA
- 4-20 mA

3.2 Technical Specifications

- Wide range of port 485 baud rate (from 2400 to 230400)
- Module status LED Indicator
- 10-bit Analog to Digital converter
- 1 CT input
- Working temperature range: -30 ~ +75 degrees Celsius
- RS485 serial communication with MODBUS protocol support
- Current and voltage analog output

3.3 Module dimensions



4 Installation

4.1 Observe EMC items

This product is designed and manufactured to work in industrial environments. However, for proper operation, you should check and eliminate the issues that cause the module to malfunction.

4.2 Cases that cause system malfunctions

- Electromagnetic field
- Telecommunication cables

4.3 Things to consider

4.3.1 Convenient ground connection

- When installing the module on the panel body, make sure that the panel body is connected to the ground.
- All ineffective metal parts are (firmly) grounded.
- When connecting varnished wires to ground connection, remove the varnish from that part.

4.3.2 Appropriate wiring method

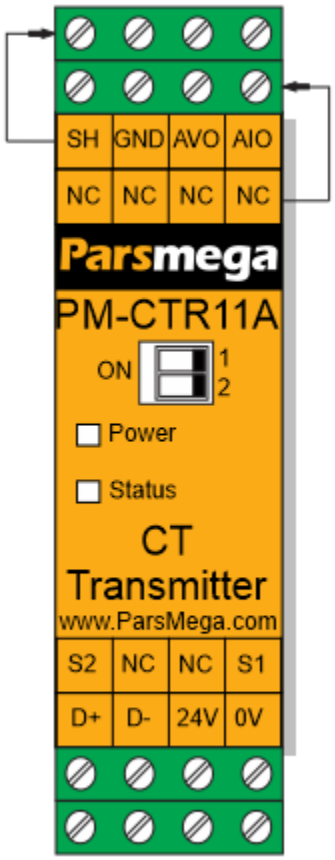
- Divide your system cables into different groups (high voltage, power supply, and signal, analog).
- Always transfer the power cable from another duct.
- Always place your analog cables close to the body of the panel and rails (which are grounded).

4.3.3 Cable shield connection

- Make sure the shields are properly grounded.
- Try to keep a small part of the cable without a shield.

5 connections

All connections of this module are screws



5.1 Connections group

The connections of this module include 4 main groups :

- Power
- Current input (connection to current transformer)
- Analog output
- RS485 serial

5.2 Power supply connection

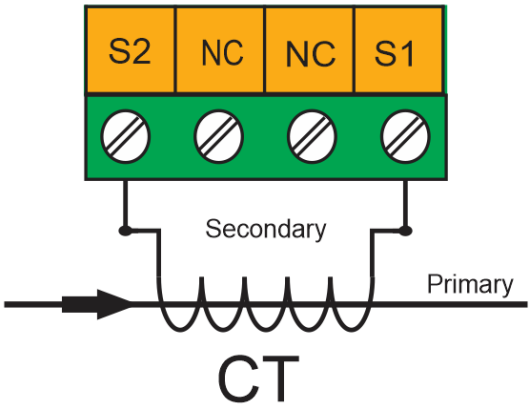
The proper power supply for this module is 24 v dc, otherwise the device will not function properly.

Terminal 0 V
terminal 24 V

5.3 Current input (connection to current transformer)

The PM-CTR11A module has the ability to connect to the output of a current transformer (by default, a transformer with an output of 5 amps). The labels of the terminals as well as the function corresponding to each terminal are as follows:

Label	Function
S1	Input number one of the current transformer(COM)
S2	Input number two current transformer



5.4 Analog output signal

Analog output has several modes:

- 4~20 mA
- 0~ ٢٠ mA
- 0~ ٥ V
- 0~ ١٠ V

Terminals for analog output signal:

Label	Function
AVO	Analog voltage output
AIO	Analog current output
GND	Output analog return path
Sh	shield

Note: In current mode, the **maximum** resistance in series with the loop is 300 ohms.

Note: In voltage mode, the **minimum** load resistance is 1 kilo ohm.

By using the dip switch on the transmitter panel, you can determine the type of analog output signal:

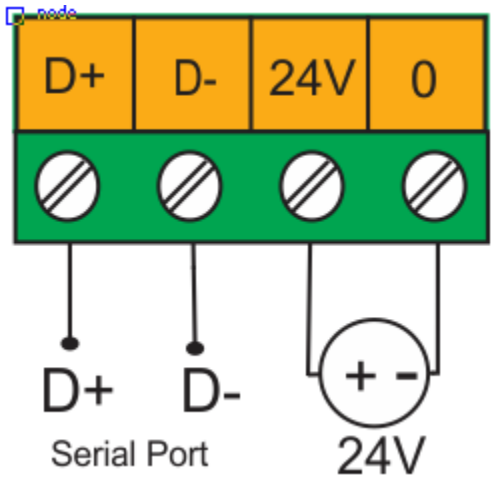
Output analog signal type	Dip switch one	Dip switch two
4-20mA	Off	Off
0-20 mA	Off	On
0-5V	On	Off
0-10V	On	On

5.5 RS485 connection

This module is equipped with an RS485 serial port on which the MODBUS RTU protocol is implemented.

Label	Function
D+	Positive data
D-	Negative data

Below is how to connect the power supply and serial port to the module:



6 parameters

All parameters are set with default values at the time of purchase.

For ease of work, the parameters are divided into different groups.

• The length of all variables is word

• Some parameters need to be restarted to apply changes.

6.1 communication parameter

Title	Variable type	length	Reading Writing	Address	explanation	Default
ID	Unsigned int	1	R/W	0 40001	1~247	1
Baud Rate	Unsigned int	1	R/W	1 40002	0~10 0=2400 1=4800 2=9600 3=14400 4=19200 5=28800 6=38400 7=57600 8=76800 9=115200 10=230400	2
parity	Unsigned int	1	R/W	2 40003	0=none 1=odd 2=even	2
Stop bit	Unsigned int	1	R/W	3 40004	0=1 1=2	0
Comm Mode	Unsigned int	1	R/W	4 40005	0=RTU 1=ASCII(8bit) 2=ASCII(7bit)	-

Note that the converter is reset once to apply the above parameters.

6.2 Module information parameter

All the following parameters areread only

Title	Variable type	the length	/Read Write	Address	Description	Default
Firmware ver	Float	2	R	6 40007		
Hardware ver	Float	2	R	8 40009		
Model	Unsigned int	1	R	10 40011		
Serial number	Unsigned long	2	R	11 40012		

6.3 Parameters of current digital values

Title	Variable type	length	/Read Write	Address	Description	Default
ADC raw data	Unsigned int	1	R	۱۴ 40015	0~1023	
			R			

ADC raw data parameter displays the converted value of 0-5A current as 0-1023.