Smart-Bus G4 Power Meter

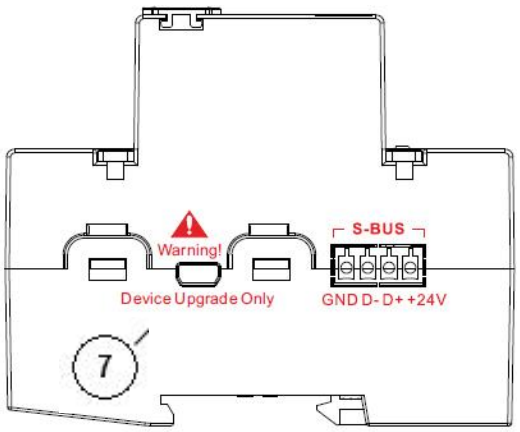
Installation Manual

Features:

- Adjustable output
- PowerBoost™ industrial overload design
- Overvoltage, short circuit protection
- Low output noise
- Screw terminal connections

Applications:

- Industrial control
- Process control
- Machine control
- Building Automation
- Instrumentation



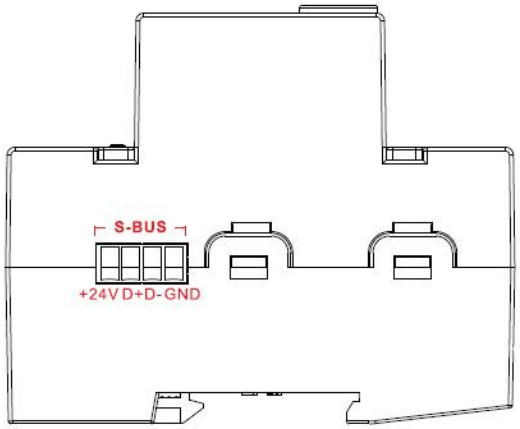


Diagram Layout

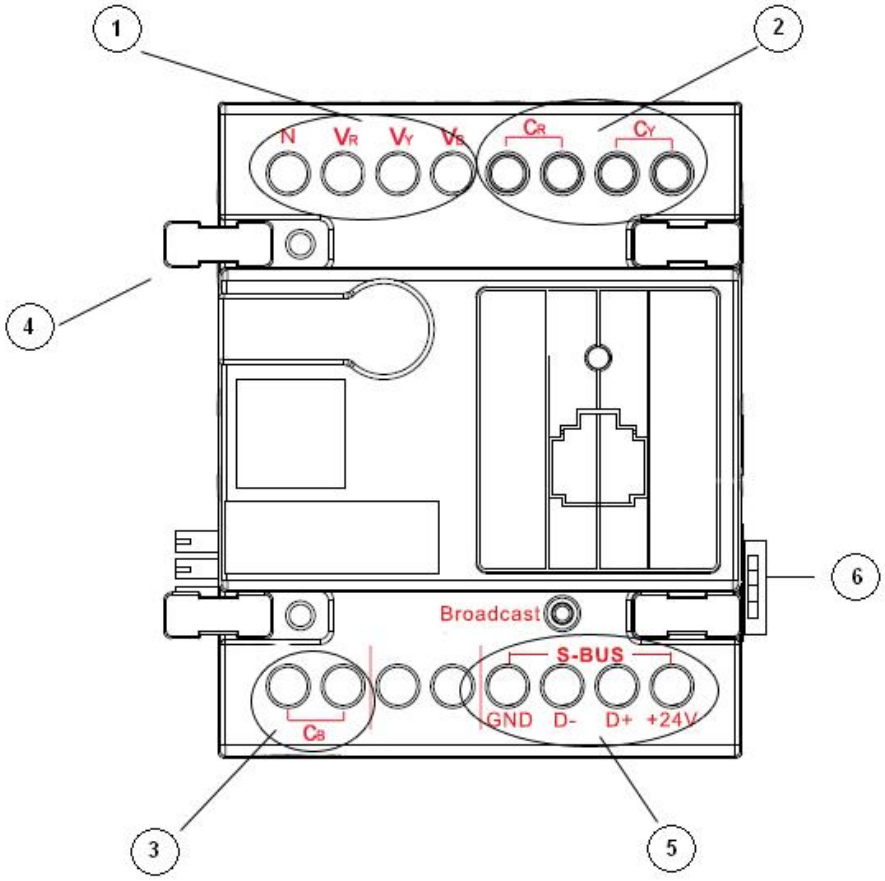
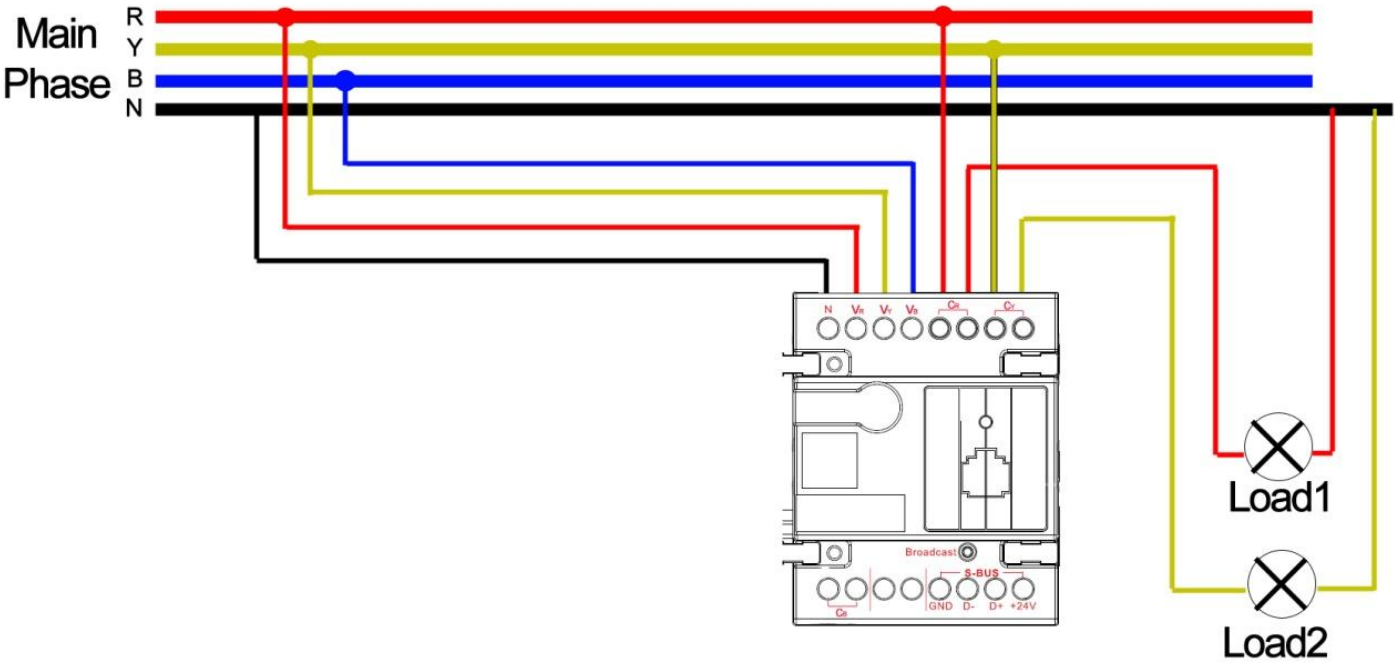


Diagram Layout Description:

1- Single Phase supply terminal: consist of One terminal for Neutral and 3 other terminals for the Three phases (R Y B) that are needed to be monitored. Theses terminal are used to read the AC Voltage value of the phases.
2- Load connection: for Phases R and Y, IN and OUT. The connection terminals for the loads in order to calculate the amount of ampere being consumed per each phase.
3- Load connection for Phase B.
4- Bus connection locker: this Locker used to tight 2 modules together when using the train bus terminal connections, make the bus connection more safe and strong.
5- Normal Bus connation terminal: it is a screw based terminals to connect the module to other bus module in the RS485 bus network using the old G3 terminals type. Recommended Wires to use for this Terminals connection is: 4 wires of the cat5e cable.
6- Train bus connection: it is new method developed in this G4 module to connect 2 G4 Din Rail modules to each other without using any screw drivers or extra wires, making the bus connection faster and more accurate.
7- USB Port: this G4 new Module is provided with USB Port as an upgrading terminal that can easily connect to any PC USB port for any new features upgrading that keep the module up to date.

Connection Diagram:

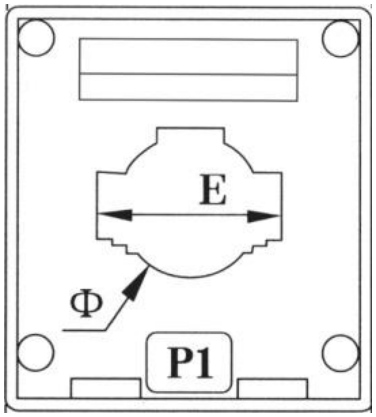


Above is an example of connecting two different loads on different phases to the Smart G4 power meter.
The load power cable is passing through the G4 Power Meter terminal, in order to read the information and process it.

NOTE: The Current terminals of the Smart G4 Power Meter can handle up to 5 Amps only. Do not connect to it load that is more than 5 Amps.

Using Current Transformers:

In cases of higher loads than 5 amps, you can use any current transformer (CT) that would output a decreased current.
See below Photos and description Of one recommended type of CT:

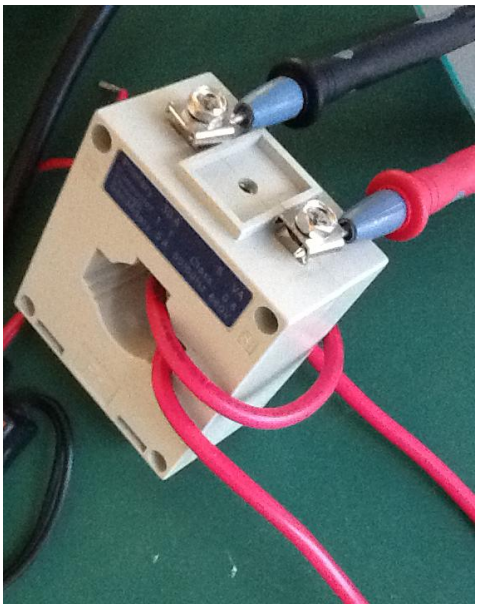


What is Current Transformers (CTs)?

A current transformer is a device for measuring a current flowing through a power system and inputting the measured current to a protective relay system. Electrical power distribution systems may require the use of a variety of circuit condition monitoring devices to facilitate the detection and location of system malfunctions.

A current transformer consists of primary and secondary coils of wire wrapped around a core, usually made of steel or a nickel alloy. Transformer windings are electrically insulated from each other and from the core. The winding connected to the power supply is called the primary winding. The transformer winding in which current is induced is called the secondary winding.

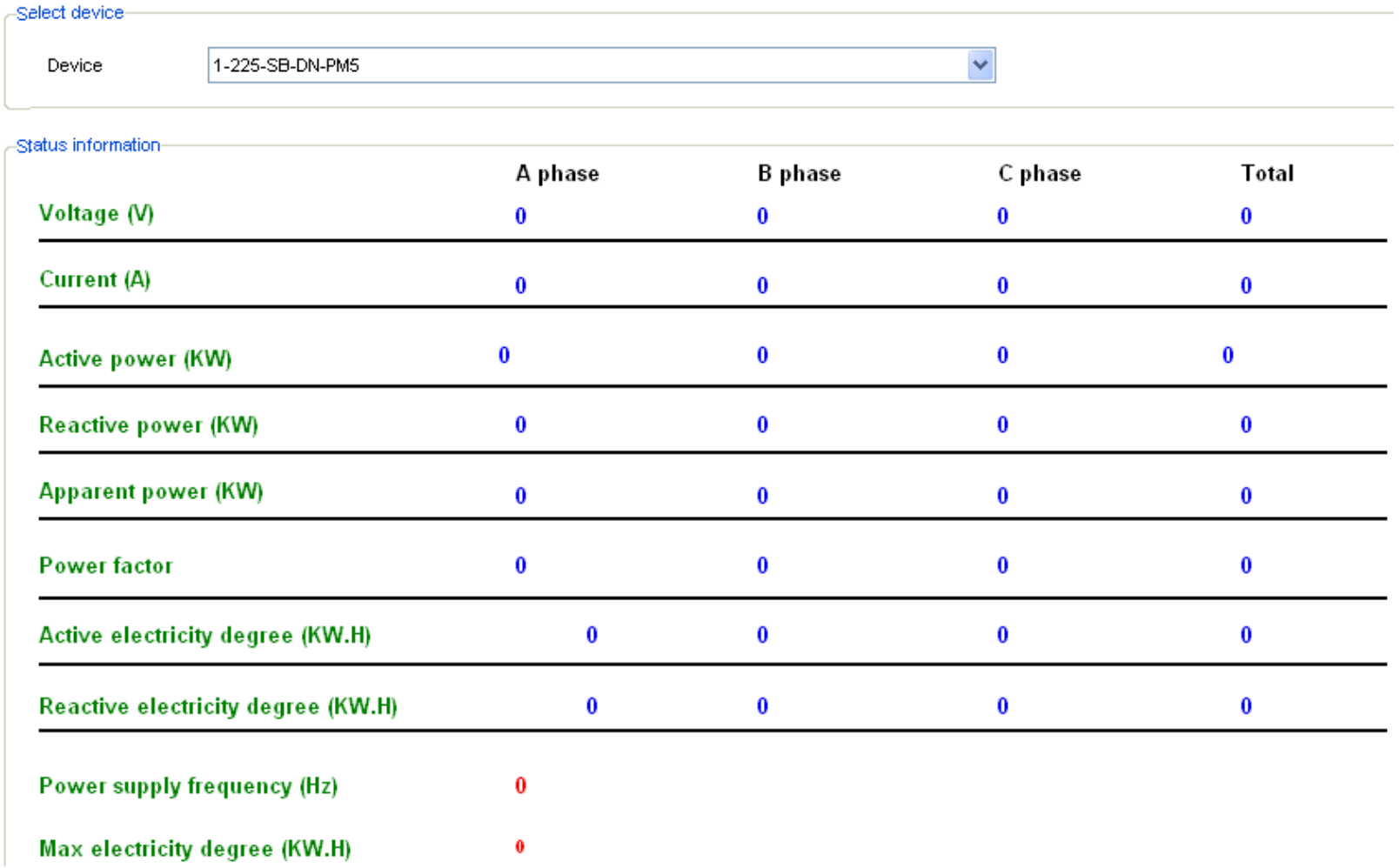
There are different types and scales of Low Current transformers. You can find ones that transforms the Current from 200 Amps, 100 Amps or 50 Amps to 5 Amps or less.
Depending on the maximum Power consumed on each phase (ALL LOADS ARE ON IN THE SAME TIME+ALL TYPES OF LOADS ARE ON IT IS MAXINUM POWER CONSUMPTION FEATURE) you should choose carefully your CT, and test before connecting to the Smart G4 Power Meter.

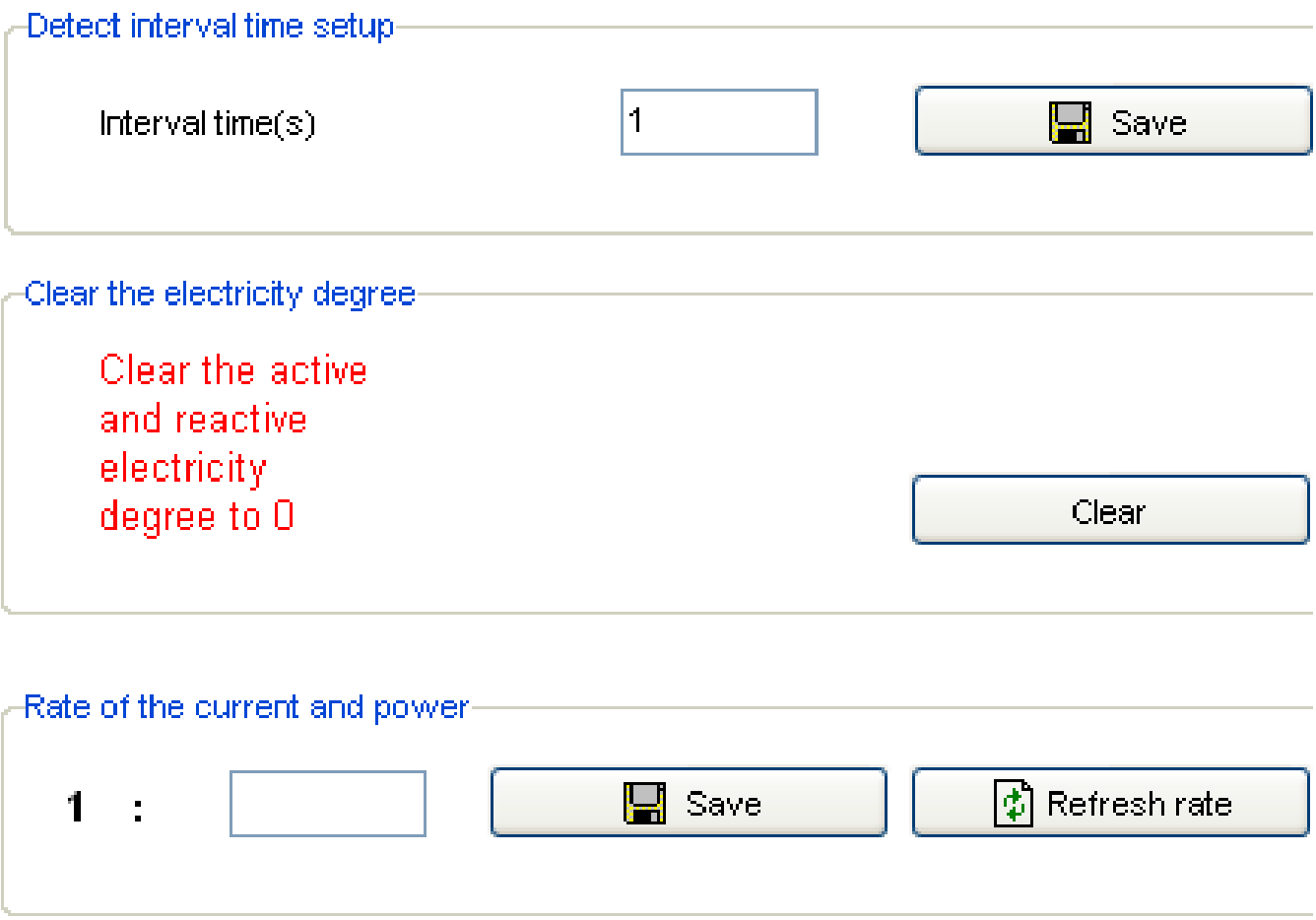


Conclusion:

Having connected your transformers and terminating it to the Smart G4 Power Meter, Now you can configure the Module like any other G4 Sbus Module, Get the ID address (like using Broadcast button).

To fetch the Data that the Power Meter Module is reading in the HAC program for example, you just need to add the Address that you chose for your power meter. Check the picture below:

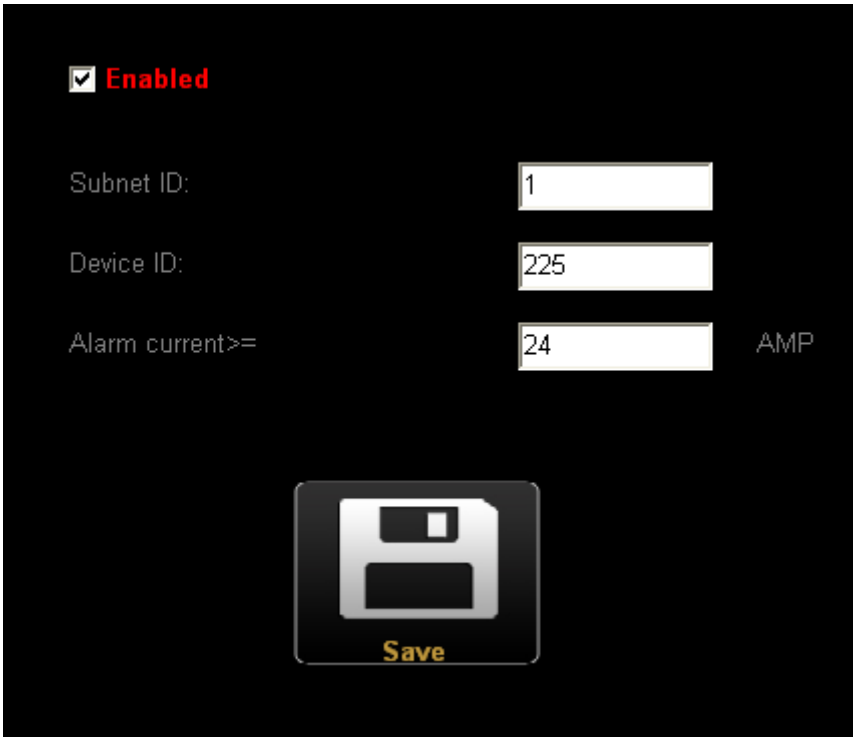




Interval time:
Is the information reading and calculating rate done by the Power Meter Module. 1 sec means that every 1 sec the Meter will fetch new power information and calculate the Power consumed and diplay it

Clear the Electricity Degree:
Resetting the Data already collected for previous sessions to zero.

Rate of the current and power:
According to the Current transformer you are using u should choose this value. It is the Ratio of the actual current consumed by the loads, to the current generated by the current transformer. This is used to get the current reading back to the actual current consumed before it is decreased by the CT.



In the Smart G4 HAC software for Windows, just go to settings -> power meter -> Enter the Device ID of your power meter Module. And press save. It will do the reading for you.
Alarm current when it is bigger than the specified value, is used to alert the user if the power consumption reaches a critical value.