



THREE PHASE MULTI-FUNCTION DIN RAIL METER

Model No: SMART-VEN 580CT / VEN 580D

- The Smart Controller Smart VEN580 series multi-function is a Three-Phase DIN rail power quality meter with multi-tariff.
- Output is LCD displayed and the data can be transported by isolated RS485. The meter is provided with a non-volatile memory system that ensures that the readings are not lost or altered when power off.



INTRODUCTION

The Smart VEN580 has both direct connection version and CT connection version. The direct connection version meter measures up to 100A load. The CT connection Type requests an external current transformer with 5A secondary input. Although we produce the Smart VEN 580 meter according to IEC 62053 - 21 and our quality inspection is very accurate there might always be a possibility that your product shows a fault or failure for which we do apologize. Under normal conditions your product should give you years of benefit and pleasure. In case there is a problem with the energy meter you should contact your dealer immediately.

All energy meters are sealed with a special seal. Once this seal is broken there is no possibility to claim for warranty. Therefore NEVER open an energy meter or break the seal of the energy meter. The warranty time is 18 months, after installation, and only valid for construction faults.



RS485 OUTPUT

RS485 communication port is between the meter terminals 11 and 10. It is a synchronization wire port. Installing a software in PC, via RS485 adapter connecting the terminal 11 and 10, PC can communicate with the meter immediately.

COMMUNICATION PROTOCOL

Smart Controller Smart VEN580 has a RS485 port with Modbus RTU protocol. RS485 is a balanced line half-duple transmission system allowing transmission distances of up to 1km. The following table summarizes the RS-485 Standard.

PARAMETER	
Mode of Operation	Differential
Number of Drivers and Receivers	32 Drivers 32 Receivers
Maximum Cable Length	1200m
Maximum Data Rate	10M baud
Maximum Common Mode Voltage	12V to -7V
Minimum Driver Output Levels (Loaded)	±1.5V
Minimum Driver Output Levels (Uploaded)	±6V
Drive Load	Minimum 60 ohms
Driver Output Short Circuit Current Limit	150mA to Gnd 250mA to 12V 250mA to -7V
Minimum Receiver Input Resistance	12kohms
Receiver Sensitivity	±200mV

Further information relating to RS485 may be obtained from either the Smart controller directly or the various RS485 device manufacturers, for example Texas Instruments or Maximum Semiconductors. This list is not exhaustive.

SPECIFICATION

Meter Type	SMART VEN580 (LCD display)
Nominal Voltage(Un)	230/400V AC (3~) ; 110/190V AC (3~)
Operational Voltage	161/279 – 300/520V AC (3~)
Insulation Capabilities	4KV for 1 minute
- AC Voltage withstand	6KV – 1.2μs waveform
- Impulse Voltage withstand	
Basic Current (Ib)	
- CT Type	1.5A
- Directly Connect	10A
Maximum Rated Current (Imax)	
- CT Type	6A
- Directly Connect	100A

PERFORMANCE CRITERIA

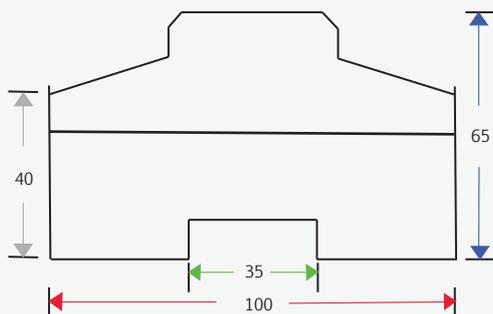
Operational Current Range	0.4% Ib- Imax
Over Current withstand	20Imax for 0.01s
Operational Frequency Range	50Hz ±10%
Internal Power Consumption	≤2W / 10VA per phase
Test Output Flash Rate (Pulse Led)	
- Ct Type	3200imp/kWh
- Directly Connect	400imp/kWh
Test Pulse Output Rate (Pins 8 & 9)	
- Ct Type	3200imp/kWh
- Directly Connect	400imp/kWh
Consumption Indicator (PULSE & SO LED)	Flashing at load running
Communication Indicator	Flashing at communication running
Data communication port	RS485 and far infrared
Data Save	than 20 years when power off
Voltage, LN & LL (Phase1, 2,3)	±0.5%
Amps (Phase 1,2,3)	±0.5%

TARIFF

Tariff Number	4
Time Segments	10
Clock Accuracy	≤0.5S (every 24 hours)



DIMENSIONS



Height 65mm
Width 100mm
Depth 40mm

ACCURACY

PF (Phase 1,2,3 &Σ)	±0.5%
Active Power (Phase 1,2,3&Σ)	±0.5%
Frequency	±1%
Active Energy	± 1%
Reactive energy	±1%
Protection Against penetration of dust and water	IP51
Insulating Encased meter of protective class	II

RS485 COMMUNICATION

Bus Type	RS485
Protocol	MODBUS RTU with 16 bit CRC & DL/T645
Baud Rate	1200(default), 2400, 4800,9600
Address Range	0-247 user settable
Bus Loading	32 meters per bus
Range	1200m
Parity	Even
Data Bit	8
Stop Bit	1

BASIC ERRORS

0.05Ib	$\cos\phi = 1$	±1.5%
0.1Ib	$\cos\phi = 0.5L$	±1.5%
0.1Ib - Imax	$\cos\phi = 0.8C$	±1.5%
0.2Ib - Imax	$\cos\phi = 0.5L$	±1.0%
With balanced loads	$\cos\phi = 0.8C$	±1.0%
0.1Ib - Imax	$\cos\phi = 1$	±2.0%
0.2Ib - Imax	$\cos\phi = 0.5L$	±2.0%

FAR INFRARED COMMUNICATION

Infrared Wavelengths	900- 1000nm
Baud Rate	1200bps (default), 9600bps (optional)
Communication Distance	5m
Communication Angle	-15°~+15°
Protocol	MODBUS RTU with 16 bit CRC & DL/T645



WIRING DIAGRAM

