

Invensys vCon RF Meter General Instructions

Description

The vCon™ Single-Phase meter provides Form 2S-240V residential electronic metering with advanced sensor technology and integrated RF network communications capability. The meter displays accumulated electricity usage data on an easy-to-read LCD display, is compatible with industry requirements for mounting and device profile features, and can be dismantled without the use of hand tools. It is available in the industry standard Single-Phase meter Form 2S configuration, and is compliant with all applicable ANSI standards.

The vCon meter is a member of the Invensys GoodWatts System family. This meter supports utility, service provider and end-user (home or business-owner) needs for automated utility measurement, data collection, control, notification, and usage management.



Warning: Any work on, or near, energized meters, meter sockets, or other metering equipment can present a danger of electrical shock. All work on this product should be performed only by qualified electricians and metering specialists in accordance with local utility safety practices, utility requirements, and procedures outlined in Chapter 14 of *The Handbook for Electricity Metering (9th Edition)*. The information contained in this manual is intended to be an aid to qualified metering personnel. It is not intended to replace the extensive training necessary to handle metering equipment in a safe manner.

Use extreme caution when servicing with power on.

Precautions

All industry safety precautions must be observed during all phases of operation, service, and repair of the Invensys vCon RF Meter meter. Failure to comply with precautions or with specific warnings in this document violates safety standards of design, manufacture, and the intended use of the metering instrument. Invensys assumes no liability for the customer's failure to comply with these requirements.

Caution: This equipment is authorized for use under the United States Federal Communication Commission Rules and Regulations, Code of Federal Regulations Chapter 47 part 15 and must be installed in accordance with the instructions provided in this document. In accordance with FCC requirements, changes or modifications to this equipment that are not expressly approved by the party responsible for FCC compliance could void the user's authority to operate this equipment.

FIGURE 1. Invensys vCon RF Meter



Note: To comply with FCC RF exposure requirements in section 1.1307, a minimum separation distance of 20 cm (8 inches) is required between the antenna and all persons.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Specifications

Residential Electronic Meter Specifications

Nominal operating conditions	
Nameplate Voltage	Form 2S: Vn = 240VAC
Rated Frequency	Fn = 60Hz
Power Factor	PF = 1.0
Ambient Temperature	Ta = 25C +/- 5C
Class 200 Test Amps	TA = 30 Amps
Environmental specifications	
Temperature	-40× to +85× Celsius (components temperature)
Humidity	0 to 100% RH (non-condensing)
EMI	15volts/m, 25MHz to 1000MHz
Input specifications	
Voltage Range	Form 2S: 80% to 115% of Vn (192VAC to 276VAC)
Potential Circuit Burden	< 5VA, including meter burden at 276VAC
Current Range	0.1 Amps to 200 Amps
Current Circuit Burden	< 0.25VA at Test Amps
Frequency Range	95% to 105% Fn
Input over-range requirements	
Voltage withstand	2.5kV RMS for 60 seconds
Current withstand	Temporary (0.1 seconds), 7000 Amps peak Continuous (5 hours), 220 Amps RMS
Surge withstand Capability (SWC)	ANSI C12.1-1995, Sect 10.2.8
Communication	
RF Network interface	900MHz, frequency hopping
Operating characteristics	
Burden	Power Supply: Less than 3 watts Per phase current burden: 0.1 milliohms typical at 25×C Per phase voltage burden: 0.03 watts @ 240 VAC
Accuracy (typical)	Class 5 Meets ANSI C12.1 accuracy requirements
Miscellaneous	Per phase starting current: Class 200, 50ma. Minimum recognized outage: 100 ms
Absolute maximums	
Voltage	Continuous: 288 VAC Surge Voltages: ANSI C37.90.1: Oscillatory 2.5 kV, 2500 strikes Fast Transient 5 kV, 2500 strikes ANSI C62.41: 6 kV @ 1.2/50 us, 10 strikes IEC 801-4" 4 kV, 2.5 kHz repetitive burst for 1 min. Dielectric (ANSI C12.10): 2.5 kVrms @ 60Hz, 60 sec.
Current	Continuous: 120% of meter class Temporary (1 sec): 200% of meter class
Applicable standards	
ANSI C12.1 – 1995	American National Standard Code for Electricity Metering
ANSI C12.10 – 1997	American National Standard Code for Watt-hour Meters
ANSI C12.20	Energy Management Accuracy
ANSI C37.90.1	Surge Withstand Capability (SWC)
IEE C64	

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