

**Kilowatt Hour Energy Meters
DIN Panel Mounted 240 'H' Series**

Products Covered

Voltage System	240° Meter + Mech Counter	90° Meter + Mech Counter	Mech. Counter Only	LCD Counter Only	Import Export Counter Only
Single Phase	HWB	HWG	HWM	HWX	HEM
3ph 3w bal	HWC HXC	HWH HXH	HWN HXN	HWT HXT	HEN HIN
3ph 3w unbal	HWD HXD	HWJ HXJ	HWP HXP	HWW HXW	HEP HIP
3ph 4w unbal	HWE HXE	HWK HXK	HWK HXK	HWX HXX	HEQ HIQ
Transducer	KWA KXA	KWF KXF	KWL KXL	KWR KXR	

Introduction

The Crompton 244-HW/HX/HE/HI is a range of self contained meters designed as Kilowatt-Hour or Kilovar Hour Counters or as a combined kW.h or KVAR.h counters with an analogue display of instantaneous powers. The 244-K** is a range of transducer input kW.h meters.

Warning

- During normal operation, voltages hazardous to life may be present at some of the terminals of this unit. Installation and servicing should be performed only by qualified, properly trained personnel' abiding by local regulations. Ensure all supplies are de-energised before attempting connection or other procedures.
- It is recommended adjustments be made with the supplies de-energised, but if this is not possible, then extreme caution should be exercised.
- Terminals should not be user accessible after installation and external installation provisions must be sufficient to prevent hazards under fault conditions.
- This unit is not intended to function as part of a system providing the sole means of fault protection - good engineering practice dictates that any critical function be protected by at least two independent and diverse means.
- Never open circuit the secondary winding of an energised current transformer.

Electromagnetic Compatibility

This unit has been designed to provide protection against EM (electro-magnetic) interference in line with requirements of EU and other regulations. Precautions necessary to provide proper operation of this and adjacent equipment will be installation dependent and so the following can only be general guidance:-

- Avoid routing wiring to this unit alongside cables and products that are, or could be, a source of interference.
- The auxiliary supply to the unit should not be subject to excessive interference. In some cases, a supply line filter may be required.
- To protect the product against incorrect operation or permanent damage, surge transients must be controlled. It is good EMC practice to suppress differential surges to 2kV or less at the source. The unit has been designed to automatically recover from typical transients, however in extreme circumstances it may be necessary to temporarily disconnect the auxiliary supply for a period of greater than 5 seconds to restore correct operation.
- Screened communication and small signal leads are recommended and may be required. These and other connecting leads may require the fitting of RF suppression components, such as ferrite absorbers, line filters etc., if RF fields cause problems.

It is good practice to install sensitive electronic instruments that are performing critical functions in EMC enclosures that protect against electrical interference causing a disturbance in function.

Installation

Units should be mounted in a reasonably stable ambient temperature within the range 0 to 60°C and avoiding direct solar heating. Vibration should be kept to a minimum. The unit is intended to be panel mounted in a standard DIN96 panel up to 5 mm thickness. Mounting is by corner clamps and thumb screws. It may be convenient to use a 7mm screwdriver style nut driver to engage the thumb screws, particularly when starting the thread, but great care must be taken not to overtighten. It is very easy to cause damage with excessive torque when using a nut driver so final tightening should be performed using finger pressure only. Consideration should be given to the space required behind the instrument to allow for connectors and associated cables. Connection wires should be sized to comply with local regulations. Labels are fixed to the unit and carry connection information, and data including input voltage, input current, supply and applications as appropriate.

Earth/Ground Connections

For safety reasons, CT secondary connections should be grounded according to local codes of practice.

Screw Torque

Main terminal screws should be tightened to 1.35Nm or 1.0 ft/lbf only. Detachable terminal connector screws should be tightened to 0.9Nm or 0.7 ft/lbf only.

Operation (244-H Series)

The Electro-mechanical counters are auto-resetting*. Resetting is available as an option on the LCD counter versions. The counter pulses may optionally be outputted via volt-free relay contacts or from an opto-isolator for high pulse rates.

Instrument models displaying instantaneous power use a moving coil meter to provide the analogue readout. As an option, the instantaneous power reading can be made available as a current or voltage signal similar to a power transducer but not on the LCD models.

* Automatically resets to 0000000 from 9999999

Operation (244-K Series)

The self-contained instrument takes the mA output from a transducer and integrates it to provide a pulse output to an electromechanical digital counter.

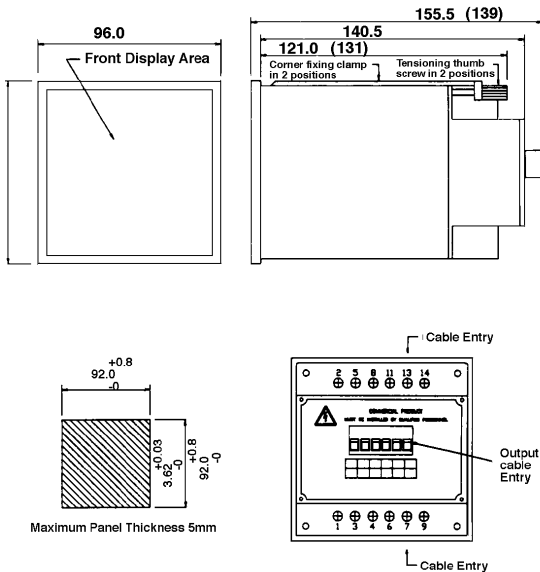
Fusing and Connections

This unit must be fitted with external fuses in voltage and auxiliary supply lines. Voltage input lines must be fused with a quick blow fuse 1A maximum. Auxiliary supply lines must be fused with a slow blow fuse rated 1A maximum. Choose fuses of a type and with a breaking capacity appropriate to the supply and in accordance with local regulations.



Maintenance

Units are fully calibrated before despatch and therefore, no adjustments are required. During routine servicing, and inspection of equipment the unit should be inspected to normal standards for this class of equipment. For example remove accumulations of dust and check connections for tightness and corrosion. In the event of a fault occurring or repair being necessary, it is recommend that the instruments be returned to the factory or to the nearest Crompton Instrument Sales and Service Centre. The unit must be recalibrated after repair.



Flashing LED

This is not intended to flash in step with any kW.h quantity. Instead, the flashing rate indicates other conditions.

Typically these can be:

On: Status OK, no Watt (VAR) flow

Off: Probably no auxiliary supply

Flashing: Status OK Watt (Var) flows in registering direction

Irregular flashing can be:
 max pulse rate exceeded, please check the VT and CT ratio or combination
 unit is repeatedly resetting, perhaps due to interference or volt I/P being below 80% nominal

Pulsed Outputs

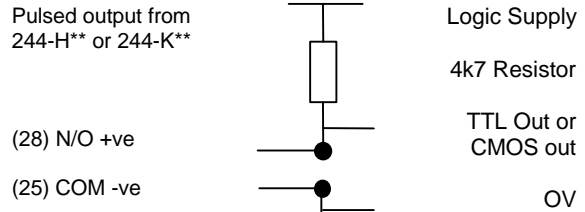
The 244-HW*/HX*/HE*/HI range has the option of pulsed output either via

- i) Voltage free relay contacts
- ii) Opto-Isolator (open collector transistor).

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If the opto isolator versions are required, for TTL Compatible or CMOS Output, see the following diagram.

It is advisable to use a Schmitt Trigger input for TTL.



These outputs can be connected as NPN or PNP, as only two connections need to be made. The output is connected in series with the load, either between +ve and the load (PNP) or between 0v (-ve) and the load (NPN). Observe polarity of terminals: terminal 15 (+ve) is to be more positive than terminal 16 (-ve).

Specification

Inputs

- Nominal voltages from 63.5 V to 480V Direct or via VT
- Nominal currents of 1A or 5A via CT
- Frequency 45 to 65 Hz
- Overload Voltage 1.2x continuous, 2x 5 Seconds max
- Overload Current 2x Continuous, 10x 5 Second Max

Burden

- Voltage <4VA per phase
- Current <0.2VA per phase

Environmental

- Storage Temperature -25 to +70 deg C
- Operating Temperature 0 to +60 deg C
- Calibration at 23 deg C
- Temperature coefficient 0.05% / deg C typical
- Humidity < 90% non condensing
- Enclosure Front IP54
- IEC1010 (300Vac RMS Cat III pollution degree 2)

Accuracy at check points shown is <1% of FR

Voltage	Current	PF
100%	120%	Unity
100%	100%	Unity
100%	80%	Unity
100%	60%	Unity
100%	40%	Unity
100%	20%	Unity
120%	100%	Unity
80%	100%	Unity
100%	100%	0.5 lag
100%	100%	0.8 lead

Relay Ratings : 120V5A AC non inductive; 30V 5A DC resistive

Opto Isolator outputs: Open Collector <40ma; <25 Vdc

The Information contained in these installation instructions is for use only by installers trained to make electrical power installations and is intended to describe the correct method of installation for this product. However, Tyco Electronics has no control over the field conditions, which influence product installation. It is the user's responsibility to determine the suitability of the installation method in the user's field conditions. Tyco Electronics' only obligations are those in Tyco Electronics' standard Conditions of Sale for this product and in no case will Tyco Electronics be liable for any other incidental, indirect or consequential damages arising from the use or misuse of the products. Crompton is a trade mark.

