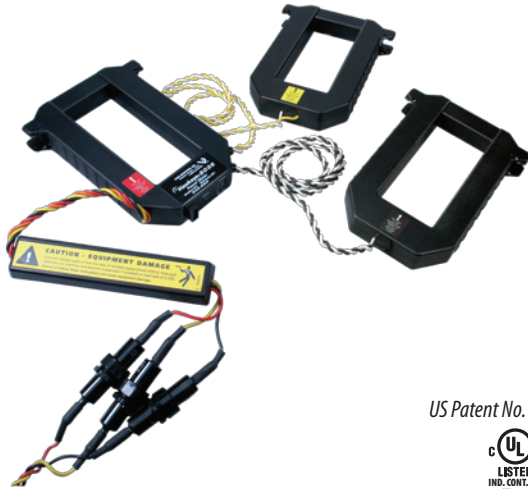


ENERCEPT® H8051/H8053

Pulse Output kWh Transducers



US Patent No. 6,373,238



DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Read, understand and follow the instructions before installing this product.
- Turn off all power supplying equipment before working on or inside the equipment.
- Use a properly rated voltage sensing device to confirm power is off.
- DO NOT DEPEND ON THIS PRODUCT FOR VOLTAGE INDICATION
- Only install this product on insulated conductors.

Failure to follow these instructions will result in death or serious injury.

NOTICE

- This product is not intended for life or safety applications.
- Do not install this product in hazardous or classified locations.
- The installer is responsible for conformance to all applicable codes.

FCC PART 15 INFORMATION

NOTE: This equipment has been tested by the manufacturer and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications to this product without the express authorization of Veris Industries nullify this statement.

Installer's Specifications

Input Voltage	208 to 480 VAC
Input Frequency	47 to 70 Hz
Number of Phases Monitored	1 or 3
Frequency	50/60 Hz
Maximum Primary Current	2400 A continuous per phase*
CT case isolation	600 VAC
Internal isolation	2000 VAC rms
Operating temp. range	0° to 60°C (32° to 122°F) (<95%RH, non-condensing)
Storage temp. range	-40° to 70°C (-40° to 158°F)
Accuracy	±1% of reading from 10% to 100% of the rated current**
Pulse Output Type	N.O. Opto-Fet
Max. Output Current	100mA@24VAC/DC
Pulse Width	200msec

* Larger sizes available; consult the factory.

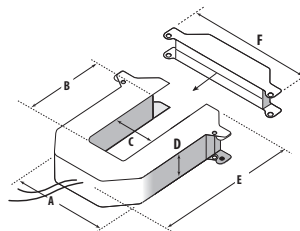
** Meter accuracy specified with conductors centered in the CT window.

QUICK INSTALL

Disconnect and lock out power before installation.

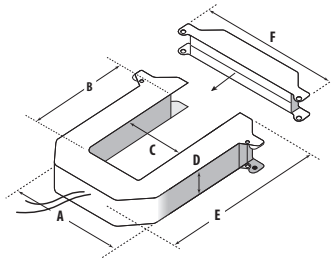
1. Set the pulse rate switches located on the bottom of the CT.
2. Connect the voltage leads to the source to be monitored.
3. Snap the CT onto the conductor (observe color matching).
4. Connect the pulse output wires (observe polarity).

DIMENSIONS



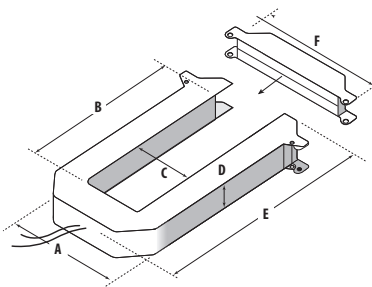
SMALL 100/300 Amp

A =	3.8" (96 mm)
B =	1.2" (30 mm)
C =	1.3" (31 mm)
D =	1.2" (30 mm)
E =	4.0" (100 mm)
F =	4.8" (121 mm)



MEDIUM 400/800 Amp

A =	4.9" (125 mm)
B =	2.9" (73 mm)
C =	2.5" (62 mm)
D =	1.2" (30 mm)
E =	5.2" (132 mm)
F =	5.9" (151 mm)



LARGE 800/1600/2400 Amp

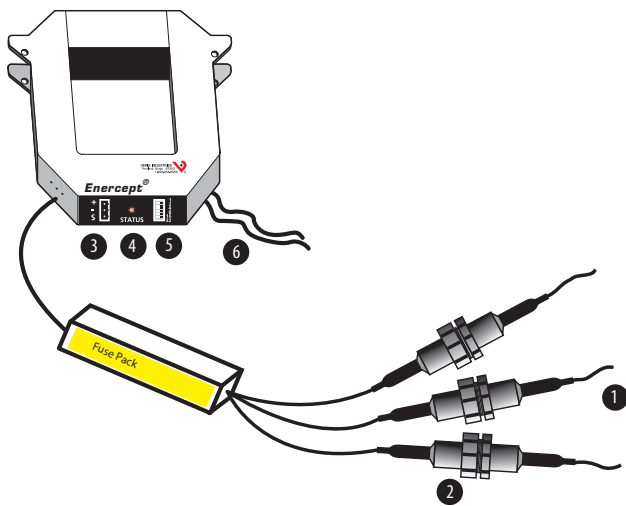
A =	4.9" (125 mm)
B =	5.5" (139 mm)
C =	2.5" (62 mm)
D =	1.2" (30 mm)
E =	7.9" (201 mm)
F =	6.0" (151 mm)

OPERATION


The H8051 and H8053 devices combine microprocessor-based kWh transducers and high-accuracy split-core instrument grade current transformers (CTs) in a single unit. Integration of electronics lowers hardware and installation costs. The sensors automatically detect phase reversal, so CT load orientation is not a concern. The CTs and meters are calibrated as a set, so it is necessary to color-match the CTs and voltage leads when installing.

These devices are used in tenant submetering, performance contracting, and departmental costing applications. The 1% total system accuracy conforms to ANSIC12.1 metering standards.



PRODUCT DIAGRAM



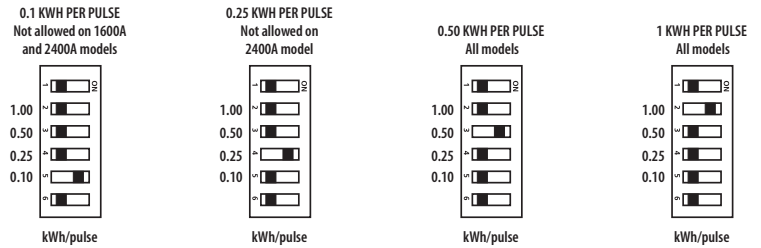
1. Voltage Leads: input range is 208 to 480V.
2. Fuses: maximum current draw 60mA. Fuses provided by the factory are rated 1/2A, 600VAC, 200 KAIC. Replace only with fuses of the same type and rating.
3. Pulse Output connector
4. Status LED: blink codes: slow green for normal operation; slow red for incorrect wiring or low power factor (less than 0.5); fast red for max. current exceedance.
5. Pulse Rate Switches: used to set the pulse output rate.
6. External CTs: permanently attached; do not disconnect or use with other power meters.

 *Color match CTs and voltage leads! Example: clamp the red labeled CT around the power conductor connected to the red voltage wire.*

INSTALLATION

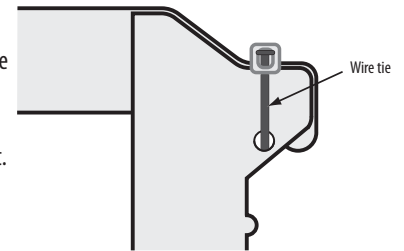
-  **Connecting H8000 Series meters to the load side of a variable frequency drive will permanently damage the electronics. Connect only to the line side of a VFD.**
-  **Disconnect and lock out power before installation.**

1. Set the switches for the desired pulse-rate as shown. Not all settings are allowed for this device.

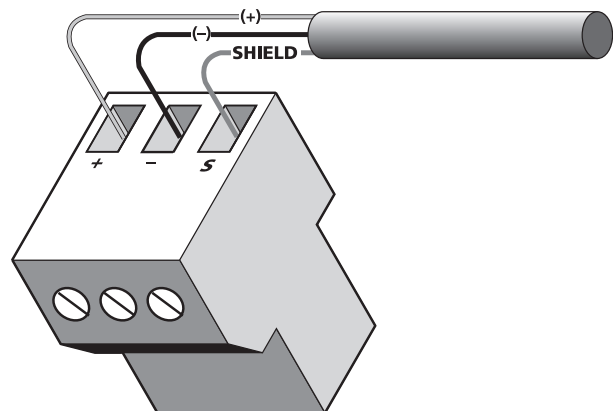


2. Connect the voltage leads to the 3 phase conductors, at a location that is not normally turned off. Connect voltage leads on the Line side of the conductor to ensure constant power to the meter. See the Wiring section on the following page.

3. Snap the CT onto the conductor. If the application can exceed 20 times the rated CT current, use wire ties to secure the I-bar to the CT housing. This CT automatically detects phase reversal, so CT load orientation is not important.



4. Attach the pulse output wires as shown. Observe (+), (-), and Shield polarity. Insulate any exposed wiring.



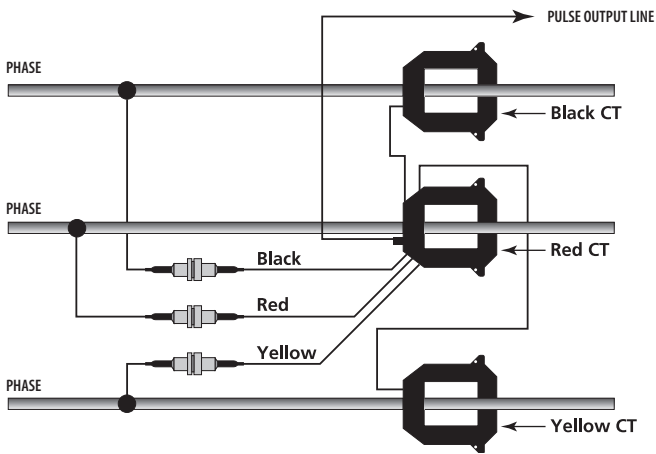
5. Check power reading (these calculations are approximations only).

Expected power:	Seconds per pulse:
$kW = Volts \times Amps \times 1.732 \times PF / 1000$	$S = kWh \text{ pulse setting}$
$kW = Horsepower \times 0.746$	$seconds/pulse = (3600 \times S) / kW$

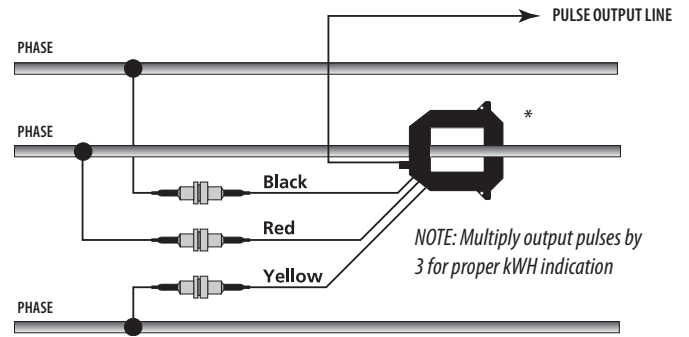
WIRING

Model 8053

Typical 208/480 VAC 3Ø, 3 Wire Installation



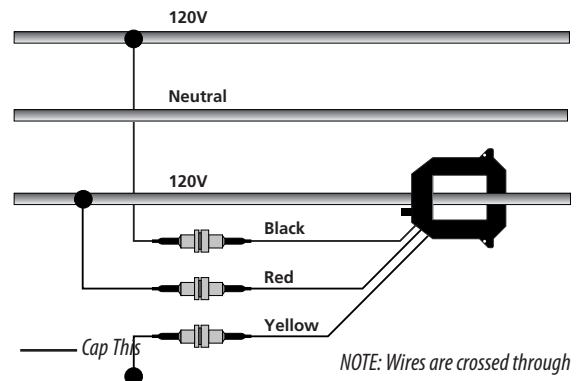
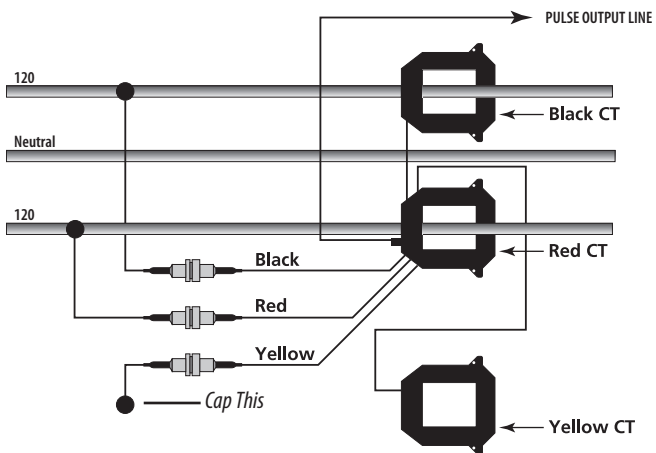
Model 8051



NOTE: Multiply output pulses by 3 for proper kWh indication

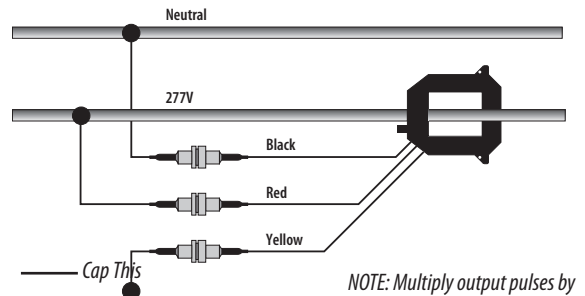
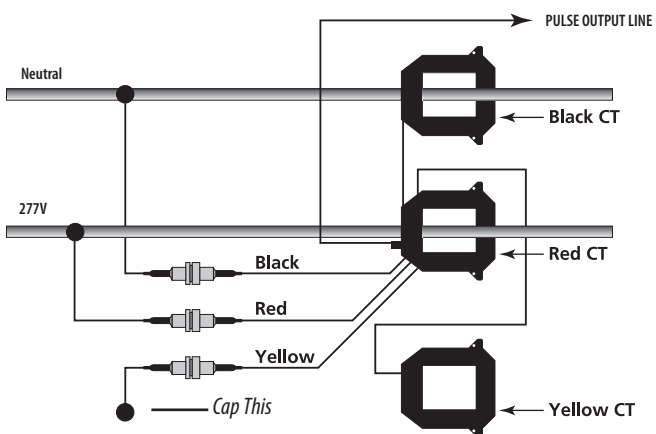
*Assuming a balanced load.

Typical 240/120 VAC 1Ø, 3 Wire Installation



NOTE: Wires are crossed through the CT, each entering from the opposite direction. Assuming the voltages are equal, this does not require a balanced load.

Typical 277 VAC 1Ø, 2 Wire Installation



NOTE: Multiply output pulses by 2 for proper kWh indication

TROUBLESHOOTING

Problem	Solution
Status LED does not blink	Check fuses and voltage connections. Status LED should blink regardless of CTs, pulse output connections, and DIP switch setting.
Readings seem highly inaccurate.	<ul style="list-style-type: none"> • Check that each CT is installed on the conductor with the corresponding color voltage input lead attached. In most cases, incorrect wiring will cause the STATUS LED to blink RED (slowly). However, a power factor lower than 0.5 could cause the LED to blink this way, even if the unit is installed properly. • It does not matter which side of the CT faces towards the load. • If current is below 7% of full scale maximum for the CT, use a smaller CT or wrap each wire through the CT multiple times • If using the single-phase H8051, use an amp-clamp to ensure that all three phases are passing the same approximate current. If phases are unbalanced, try the H8053 model.
Meter goes offline when load is switched off.	Voltage leads must be connected on the Line side of the conductor. The power meter cannot communicate without voltage.
Status LED blinks red.	<ul style="list-style-type: none"> • If the LED blinks quickly (i.e., about 5 blinks in two seconds), then either the pulse rate settings are incorrect or the CT used is too small. • If the LED blinks slowly (i.e., about 1 blink in two seconds) the CTs are not installed on the correct conductors, or the power factor is less than 0.5. The meter can accurately measure these low PFs, but few loads operate normally at such a low power factor.

NOTES

1. DO NOT GROUND THE SHIELD INSIDE THE ELECTRICAL PANEL. All wires, including the shield should be insulated to prevent accidental contact to high voltage conductors.
2. The cable should be mechanically secured where it enters the electrical panel.
3. The cable should be shielded twisted pair wire BELDEN 1120A or similar.



WARNING: After wiring the cable, remove all scraps of wire or foil shield from the electrical panel. This could be DANGEROUS if wire scraps come into contact with high voltage wires!