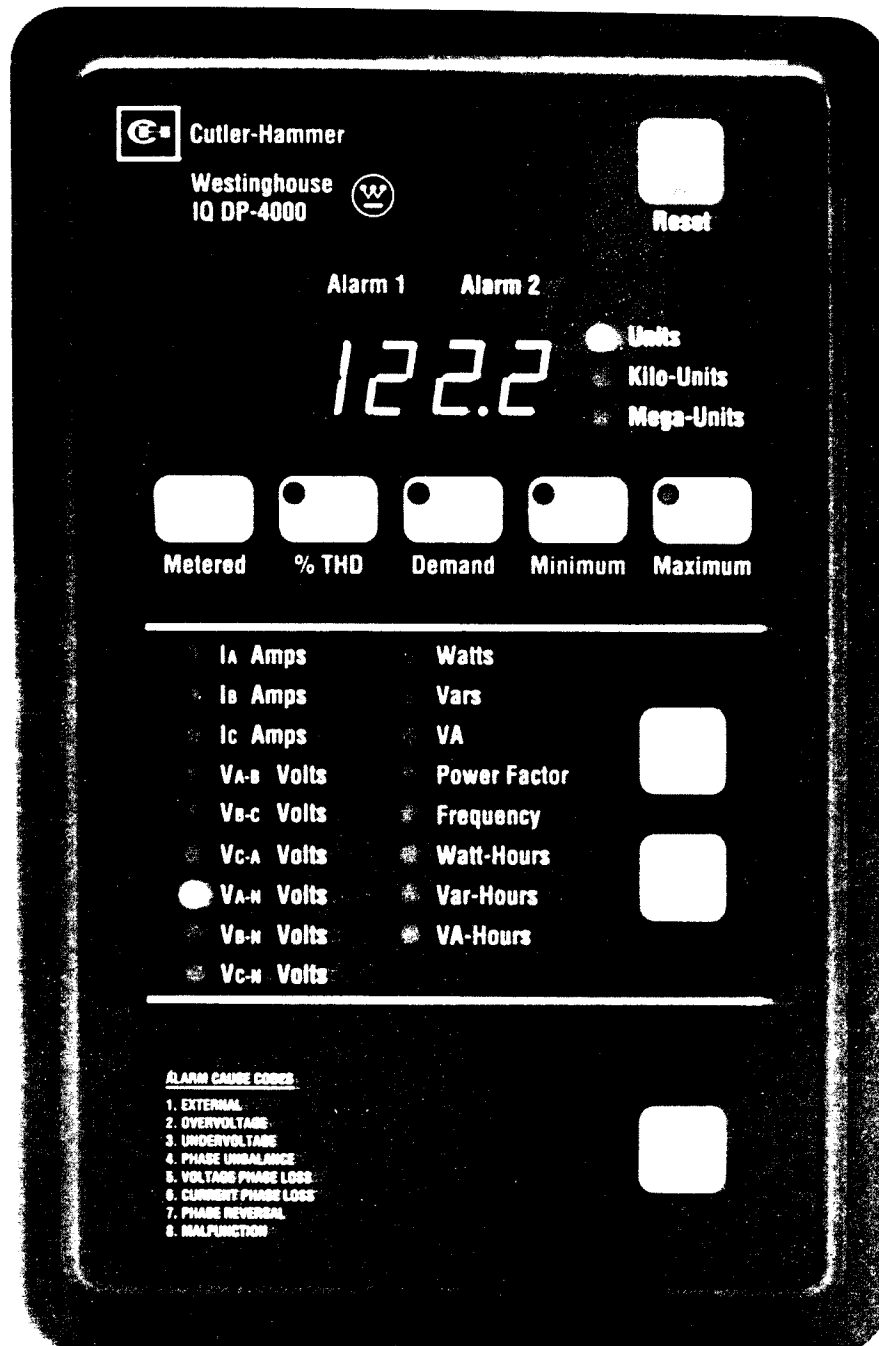




**Cutler-Hammer**

September 1996  
Supersedes Descriptive Bulletin 8170,  
pages 1-4, dated June 1994  
Mailed to: E, D, C/8100A, 8100C

**Westinghouse**  
**IQ DP-4000™**





**General Description**

The IQ DP-4000 is a microprocessor-based monitoring and protective device that provides complete electrical metering and system voltage protection. In one compact, standard package the IQ DP-4000 will provide an alternative to individually mounted and wired conventional meters and switches. The new DP-4000 also monitors Apparent Power (VA), Reactive Energy (VAR-Hours), Apparent Energy (VA-Hours), and percent THD to provide the user with basic power quality information. The IQ DP-4000 meets and surpasses UL/CSA/CE standards.

**Customer Benefits**

- Space savings in structure – Replaces conventional individual metering devices
- Standardization of design – One door mounted device
- Direct voltage input up to 600 Volts
- New DIP switch design
- Standardization of CT and PT connections
- With additional setpoints, device can be used in HV setting
- Relaying included in I/O module (Model 4100)
- Optional interface capability to computer network for data collection, storage and/or printout via IMPACC – Cutler-Hammer's leading power distribution monitoring network
- Retains preset parameters through power failure with non-volatile memory

**Displayed Values**

**Note:** All accuracy is measured as a percentage of full scale.

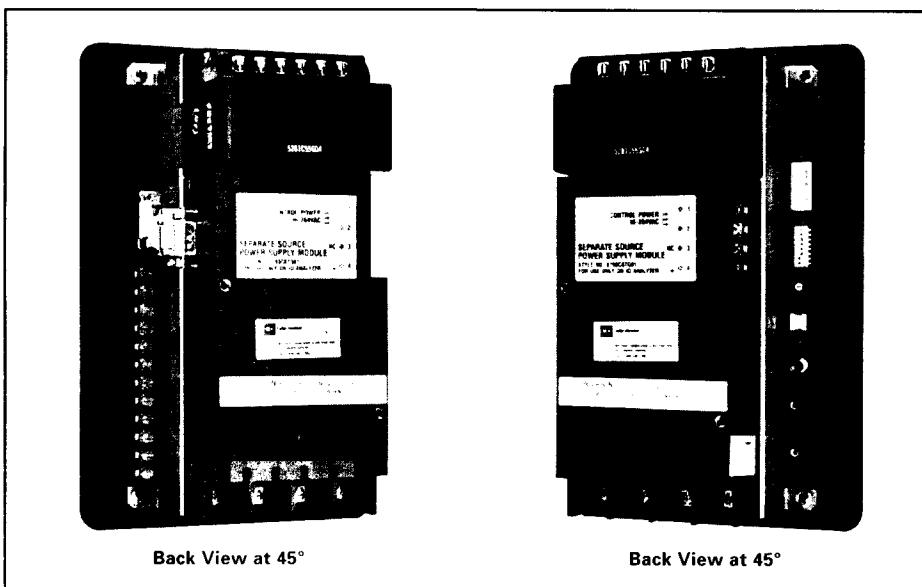
	Displayed Through IMPACC Communications	Local Display
AC Amperes Phases A, B, C	± 0.3%	± 0.3% ± 1 digit
AC Voltage		
Phase A-B, B-C, C-A	± 0.3%	± 0.3% ± 1 digit
Phase A-N, B-N, C-N	± 0.3%	± 0.3% ± 1 digit
Watts	± 0.6%	± 0.6% ± 1 digit
Vars	± 0.6%	± 0.6% ± 1 digit
VA	± 0.6%	± 0.6% ± 1 digit
Watt-hours	± 0.6%	± 0.6% ± 1 digit
Var-hours	± 0.6%	± 0.6% ± 1 digit
VA-hours	± 0.6%	± 0.6% ± 1 digit
Power Factor	± 1%	± 1%
Frequency	± 0.1 Hz	± 0.1 Hz
% THD	Through 31st Harmonic	Through 31st Harmonic

**Historical Values**

- Present Demand Current (Per Phase) 5, 10, 15, 20, 25, 30, 45 or 60 minute windows
- Present Demand Watts, Vars, and VA 5, 10, 15, 20, 25, 30, 45 or 60 minute windows
  - Sliding or fixed window for power
  - Sync pulse input (Model 4100)
  - IMPACC broadcast demand sync
- Minimum and Maximum Values
  - Current (per phase)
  - Voltage (per phase, L-L, L-N)
  - Watts, Vars and VA
  - Power Factor (displacement and apparent)
  - Frequency
- Peak Values
  - Percent THD Parameters
  - Demand Parameters

**General Specification**

- Power Requirements
  - 10 VA
- Frequency
  - 50/60 Hz
- Operating Temperature
  - 25° to 70°C
- Operating Humidity
  - 0.0% to 95% noncondensing
- Dry Contact Input
  - 24 VDC differential across input pair of terminals; minimum pulse width, 50 msec
- Overload Withstand
  - 15A, 635 VAC continuous
  - 300A AC for 1 second
- Fuses
  - (supplied with unit) 3/4 ampere, 600-volt bus type KTK-R-3/4 (3 required)
- Contact Rating (Model 4100)
  - 10 amperes at 120/240 VAC (resistive)
  - 10 amperes at 30 VDC (resistive)
- Weight
  - 6.5 lbs (shipping weight)
- Accuracy maintained from 3% to 250% of CT primary rating
- UL/CSA/CE Listed



Back View at 45°

Back View at 45°



**Features**

- Auto-ranging (units, kilo-units, mega-units)
- Programmable CT and PT ratios
- Programming via DIP switch
- Positive watts, vars, and power factor with selectable sign convention
- Direct sensing of voltage up to 600 VAC without external PT
- Load shedding feature
- Powered either by 96-264 VAC/100-350 VDC control power (separate source power module) or direct from 120-600 VAC line (standard three-phase power module)
- Unit continues to provide metered data while tripped (trip data buffered)
- Non-volatile storage of metered data at time of last alarm

**Inputs/Outputs (4100 Model)**

- Three form C relay outputs selectable: Trip, Alarm, kWhr pulse initiator
- One synch input for kW utility demand sync

**Alarm/Protective Functions**

- Alarm/Protective functions (all models) include:
  - Overvoltage
  - Undervoltage
  - Current phase loss
  - Voltage phase loss
  - Phase unbalance
  - Phase reversal

- User-programmable alarm and reset threshold levels and delay intervals
- Each relay may be programmed to:
  - Activate on any one or more of the six relaying triggers
  - Operate as latched or unlatched (self-resetting)
  - Operate in mode 1 or mode 2 (energized or de-energized when trigger occurs)

**Description of Protection Functions**

- Overvoltage**  
Range 105% to 140% (5% increments)
- Undervoltage**  
Range 60% to 95% (5% increments)

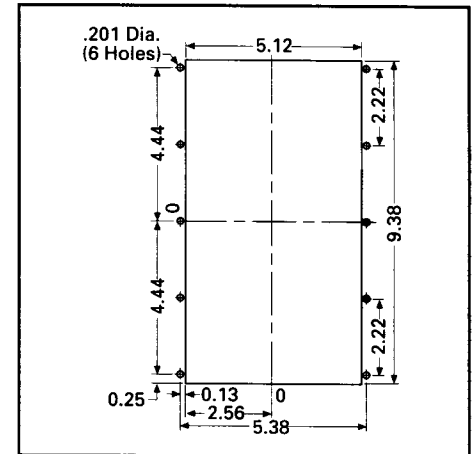
**Phase Unbalance**  
Deviation between any two phases percentage of nominal line voltage preset by DIP switches. Range 5% to 40% (5% increments)

**Phase Reversal**  
Any two phases become reversed for the selected delay.

**Voltage Phase Loss**  
Less than 50% of the nominal line voltage detected.

**Current Phase Loss**  
Smallest phase current is less than 1/16 of the largest phase current.

**Drilling Pattern**

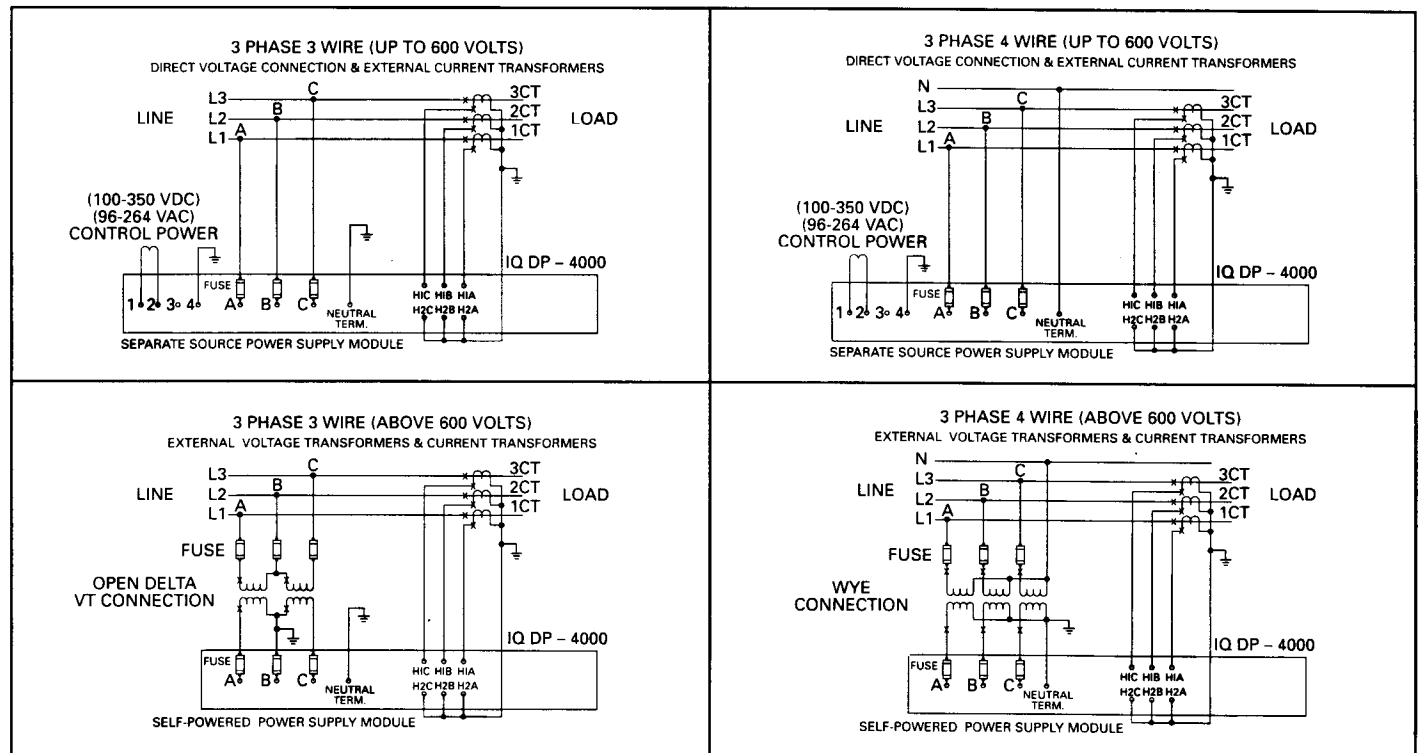


**Delay**

Allows a delay before an alarm occurs. (Range 1-20 seconds in 1 second increments)  
Note: Unit must be powered for this to occur.

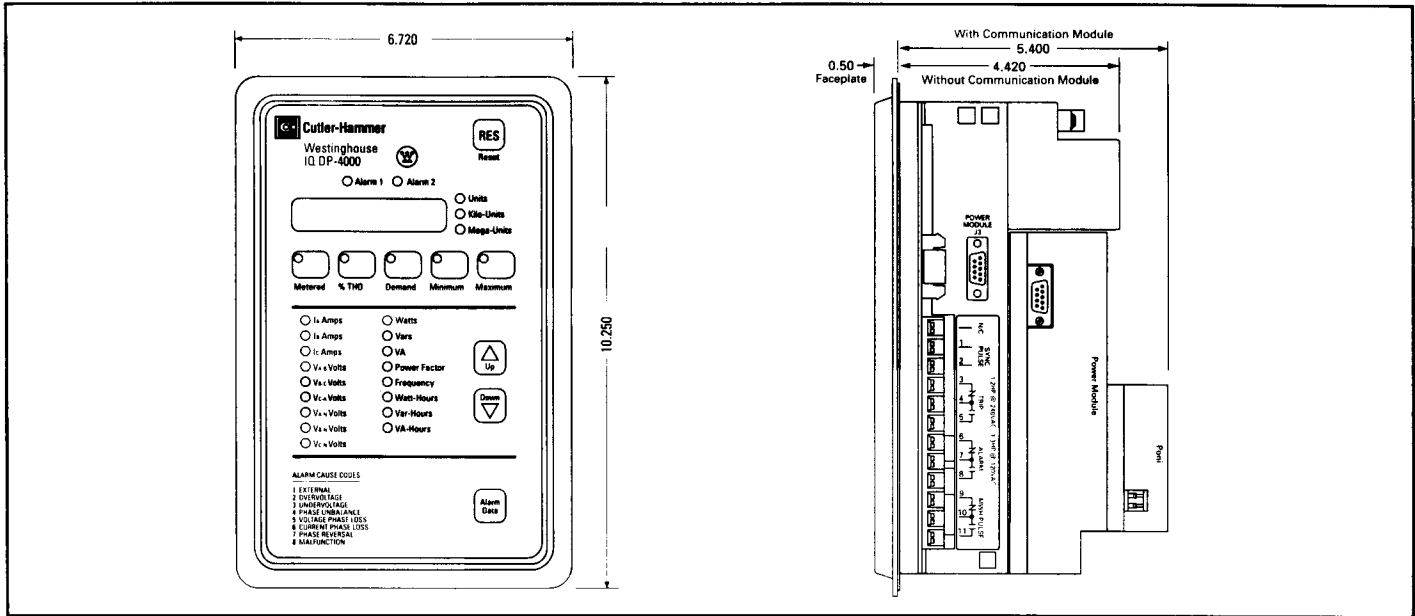
MODEL	INPUT	OUTPUT
4000	0	0
4100	1 Digital	3 Relays
4200	Future	Future
4300	Future	Future

**Field Wiring Connections**





**Westinghouse IQ DP-4000™**



**Retrofit Opportunities**

- Easy retrofit of existing meters applicable on new gear as well as retrofit existing system, either electromechanical or electric meters
- Same as the IQ Data Plus II with respect to:
  - Mounting
  - Wiring
  - Communication
  - I/O Model 4100
- Mounting Flange option
- Separate surface mounted enclosure

**IMPACC Communications Option**

IMPACC is a noise immune communications system that cost effectively and easily gathers information from metering, protection and control devices. IMPACC provides the capability to control devices and read, log, and trend information over a single twisted pair of wire. IMPACC may be installed in new gear or retrofitted into existing equipment.

**IMPACC Connectivity**

IMPACC makes communication easier by providing a wide range of interfaces to other vendors that make the centralization of power distribution information possible.

An IMPACC system can easily be linked to building management systems, programmable logic controllers, and distributed control systems. This provides the capability to move data between and across different levels within an installation.

Interfaces have been developed with several vendors including Wonderware, Johnson Controls, Honeywell, Allen-Bradley, Siemens, Foxboro. Communications possible to other network protocols including MODBUS and Ethernet. TCP/IP is also easily accommodated.

Information from the IMPACC Series III Software can be exchanged via DDE with other Windows™ based programs such as Excel, Word, or any other DDE-compatible program. For higher performance, information can be shared via NET BIOS which connects Series III to Ethernet, Arcnet, or any other compatible network.

**Product Support**

Cutler-Hammer provides technical assistance to its customers. Available by telephone, Cutler-Hammer personnel quickly respond to customer needs – troubleshooting problems, analyzing system operation,

and coordinating component repair or replacement. This assistance may be obtained by calling the Advanced Products Support Center (800) 809-2772 or (412) 494-3750.

For Pricing Information, see PAD (Cutler-Hammer's Price and Availability Digest) For additional metering and protection options, see:

- IQ Data** (Descriptive Bulletin 8171)
- IQ Generator** (Descriptive Bulletin 8172)
- IQ Energy Sentinels** (Descriptive Bulletin 8178)
- Digitrip MV** (Descriptive Bulletin 33-750)
- IQ Analyzer** (Descriptive Bulletin 8179)

**DP-4000 Models**

- IQ DP-4010 Separate Source without I/O capability
- IQ DP-4030 Three Phase without I/O capability
- IQ DP-4110 Separate Source with I/O capability
- IQ DP-4130 Three Phase with I/O capability

**Cutler-Hammer**

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