Bitronics® PowerPlex II

The PowerPlex II (PPX II) is a new Automation Transducer built in the same package as the original PowerPlex, or with digital I/O added, in the M571 case. It is an Ethernet transducer with fast, 1-cycle updates that can be used in SCADA automation schemes and in synchronizing applications in conjunction with PLCs. It is an excellent choice as a replacement for the Bitronics M571 in non-recording applications. Two sets of three-phase voltages that allow direct connect for 600V ac systems are provided.

The PowerPlex II transducers are simple to set up and use, and provide the following features:

Communications
- No need for PC software – Ethernet service port provides access to web server in the instrument so meters can be interfaced with just a web browser for viewing and configuration
- Ethernet protocol support for DNP3, Modbus TCP, EtherNet/IP or IEC 61850
- Built-in Ethernet switch allows pass-through from one device to another
- An option for both standard secondary "optimal resolution" or primary units makes communications with SCADA/RTU more flexible
- Optional display port and IRIG-B port
- Optional configurable RS-232/RS-485 serial port supports Modbus or DNP3 serial protocols

Measurements
- Full basic measurement & recording set with demand and harmonic values plus phase angle, voltage differential and slip frequency used in synchronizing applications
- 0.2% revenue accuracy
- .001Hz accuracy
- Updates every 1 cycle
- Optional trend recording

Built for the Substation
- Wide-range universal power supply
- Rugged aluminum case
- Reduce inventory cost as one model covers all wiring options
- Easy to mount with compact transducer footprint

Applications
- Synchronizing, voltage control, power factor control, and load load shedding
- Digital front-end to SCADA systems
- Intelligent Electronic Device (IED) interfacing to RTUs and PLCs
- Plant equipment, line, power & energy monitoring
- Breaker status, rack-in, rack-out in switchgear
- Trend: transformer loads and voltages in E/M relay substations, battery voltage, Total Harmonic Distortion

Environmental
- Operating temperature range -40° to 70°C, storage temperature -40° to 85°C
- Humidity 0-95% non-condensing
- Surge withstand to ANSI/IEEE C37.90.1: 2002
- UL/CSA Recognized, File Number E164178, CE Marked

Specifications
Dimensions:
Standard chassis: 5.28" H x 5.60" W x 5.63" D – overall depth including handle is 5.75" D (134mm H x 142mm W x 143mm D – overall depth including handle is 146mm D).
Wide chassis (with I/O and serial port): 5.2" H x 8.5" W x 5.9" D (132mm H x 216mm W x 150mm D).
Weight:
Standard chassis: 2.3 lbs. (1.04 kg)
Wide chassis (with I/O and serial port: 3.5 lbs. (1.59 kg)
Power Supply: 12 – 40V dc nominal, intended to connect to 12 and 24V batteries or 48-250V dc/55-240V ac with built in monitoring
Current Inputs: 5A nominal to maximum of 10A (2x overload)
Voltage Inputs: 600V ac nominal, 45-65Hz
Outputs: Dual RJ45 10BaseT/100BaseTX ports (Ethernet switch) for service port functions, Modbus or DNP3 TCP/IP support; IEC 61850 support optional display and IRIG-B ports
Digital Inputs: Optional 4 or 8; High speed, suitable for 1ms SOE
- Nominal Input Range: 24V dc to 250V dc
- Threshold Voltage: 15V dc +/-1V or 80V dc +/-5V (at 25C)
- Input Resistance: 33kohm
- Input De-bounce Time: Selectable, from 1 ms to 2 s
Digital Outputs: Optional 4
- Tripping duty relay
- Resistive: 30A
- Continuous Carry: 5A
- Break Inductive @48V dc: 700mA
- Break Inductive @125V dc: 200mA
- Output Operate Time (time from command by Host, does not include protocol delays):
  - Assert (Close time with "N.O." jumper): 8ms
  - Release (Open time with "N.O." jumper): 3ms
Isolation: I/O Terminals to Case: 2000Vac, 1 min. I/O Terminals to Channel: 2000Vac, 1 min (channel 4 to other channels).

IP Address Identity Tool
The PPX II supports the Inverse Address Recognition Protocol (InARP), a software utility program that requests the IP address for a specific MAC address on an Ethernet network and can also scan for a range of MAC addresses and print the IP address for any devices which respond.

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Available Measurements

Available Measurements	PPX II
Amps A, B, C, Residual	x
Average 3-Phase Amps	x
Average 3-Phase Volts (1& 2)	x
Average Volts, Avg. Max Volts, Avg. Min Volts AN, BN, CN, AB, BC, CA (Bus 1)	x
Avg. Watts, Avg. Max Watts, Avg. Min Watts A, B, C, Total	x
Average VARs, Avg. Max VARs, Avg. Min VARs A, B, C, Total	x
Average VAs, Avg. Max VAs, Avg. Min VAs A, B, C, Total	x
Class 0 Response Setup	x
CT Scale Factor/Scale Factor Divisor	x
Demand Amps, Max Amps A, B, C, Residual	x
Demand Fundamental Amps, Max Fund. Amps A, B, C, Residual	x
Displacement Power Factor A, B, C, Total	x
Factory Version Hardware/Software	x
Frequency (System)	x
Frequency Volts A, B, C (1 & 2)	x
Fund. Amps A, B, C, Residual	x
Fund. Volts AN, BN, CN, AB, BC, CA (1 & 2)	x
Health	x
Heartbeat	x
K-factor Amps A, B, C, Residual	x
Meter Type	x
Phase Angle Amps A, B, C	x
Phase Angle Volts A, B, C; AB, BC, CA	x
Phase Angle Volts A 1-2, B 1-2, C 1-2	x
Power Factor A, B, C, Total	x
Protocol Version	x
PT Scale Factor/Scale Factor Divisor	x
Slip Frequency Volts A 1-2, B 1-2, C 1-2	x
Symmetrical Components Bus 1 & 2 Volts (Magnitude and Angle)	x
Symmetrical Components Current (Magnitude and Angle)	x
Tag Register	x
TDD Amps A, B, C, Residual	x
TDD Denominator A, B, C	x
THD Volts AN, BN, CN, AB, BC, CA	x
Unbalance Amps	x
Unbalance Volts (1 & 2)	x
Uncompensated VARs, Total	x
Uncompensated Watts, Total	x

Available Measurements

VA-Hrs	x
VAR-Hrs Lag/Lead	x
VARs A, B, C, Total	x
VAs A, B, C, Total	x
Volts AN, BN, CN, AB, BC, CA (1 and 2)	x
Volts Aux1-Aux2	x
Watt-Hrs Net/Normal/Reverse	x
Watts A, B, C, Total	x

Web-based set up of Trend Recorder
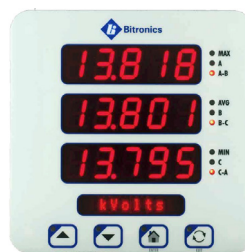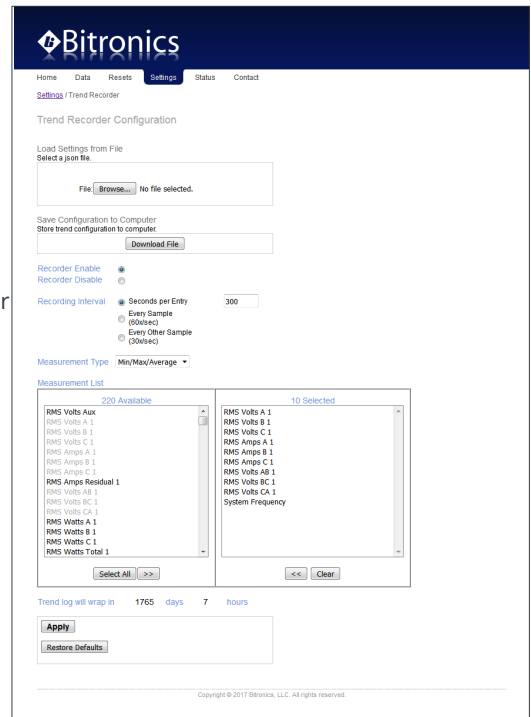
The PowerPlex II Tethered Display (PPXIITD) provides local or detached indication of measured values.

PowerPlex II with added I/O and serial port in M571 case.

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