

**BASIC UNIT**

<b>MODEL:</b>	<b>IPM2-0515.1-480DD2-5600-5</b>
<b>RATINGS:</b>	<p>@ <b>480V,3Ø</b>: 515 KW @ 480 V, 3Ø, 3W, 60 Hz, 1.0 P.F.</p> <p>@ <b>400V,3Ø</b>: 360 KW @ 400 V, 3Ø, 3W, 50 Hz, 1.0 P.F.</p> <p>@ <b>240V,3Ø</b>: 515 KW @ 240 V, 3Ø, 3W, 60 Hz, 1.0 P.F.</p> <p>@ <b>208V,3Ø</b>: 385 KW @ 208 V, 3Ø, 3W, 60 Hz, 1.0 P.F.</p> <p>@ <b>240V,1Ø</b>: 345 KW @ 240 V, 1Ø, 3W, 60 Hz, 1.0 P.F.</p>
<b>RESOLUTION:</b>	<p>5 KW nominal adjustment resolution to 100% of unit rating. Specific resolution as follows:</p> <p>@ <b>480V,3Ø</b>: 5.0 KW</p> <p>@ <b>400V,3Ø</b>: 3.5 KW</p> <p>@ <b>240V,3Ø</b>: 5.0 KW</p> <p>@ <b>208V,3Ø</b>: 3.8 KW</p> <p>@ <b>240V,1Ø</b>: 3.3 KW</p>
<b>TOLERANCE:</b>	+/- 5% overall tolerance, +/- 2% phase-to-phase balance
<b>AMBIENT:</b>	<p><b>Temperature:</b> -20 F./-30 C. to +120 F./+50 C.</p> <p><b>Humidity:</b> up to 100 %</p> <p><b>Altitude:</b> 4000 Ft / 1200 M</p>
<b>PHYSICAL:</b>	48"H x 33.0"W x 60.0"L, 800 LBS (Horizontal Flow)
<b>APPLICATION:</b>	The unit has the capability of loading power sources of varying power and voltage ratings.
<b>CONFIGURATION:</b>	The Load Bank is self contained and equipped with pilot controls, power controls, and load section in a single unit.
<b>ENCLOSURE:</b>	Indoor portable, Nema 1, with castors, captive fork lifting tubes, lifting eyes, and tie-down provisions. A protective door is provided for the control and metering section. The enclosure is constructed of galvanized steel. All exterior enclosure parts are pre-painted before assembly so there are no blind unpainted surfaces for internal corrosion to develop. And all exterior fasteners and hardware are non-corrosive stainless steel aluminum or zinc. All areas exposed to high temperatures are constructed of aluminized or stainless steel.
<b>PAINT:</b>	<p><b>Prep.:</b> SSPC Surface Preparation Standards # SP1</p> <p><b>Primer:</b> Acrylic direct-to metal (DTM) primer (high solids); MIL-P-28577B and TT-P-1975</p> <p><b>Finish:</b> Premium High Performance Acrylic Enamel for abrasion resistance and grease/oil resistance</p> <p><b>Color:</b> White</p>
<b>LOAD RESISTOR:</b>	The Loadtec RESISTAR is designed specifically for high density applications. The resistor is continuously supported to eliminate possible shorting contact with surrounding resistors. Load resistors are mounted in trays that are independently mounted and removable without affecting any other tray. The RESISTAR contain structural design elements specifically for portable applications. The RESISTAR has an industry exclusive 3 year limited warranty.
<b>COOLING:</b>	Forced air cooled using an airfoil propeller with direct driven by a 3HP TEFC motor.
<b>CONTROL POWER</b>	
<b>Cooling Motor:</b>	Internal or External 3Ø voltage operating ranges (+/-10%): 208/240/460V-60Hz. or 400V-50Hz Switch selectable from the test or external power source.
<b>Internal Control:</b>	24VAC derived from the selected 3Ø source via an installed control power transformer.
<b>CONTROL:</b>	<b>Digital Controller</b>
<b>Features:</b>	<ul style="list-style-type: none"> <li>▶ Dual Processor embedded control system</li> <li>▶ No. 1 processor dedicated to control &amp; data display</li> <li>▶ No. 2 processor dedicated to metering &amp; data acquisition.</li> <li>▶ Load Bank operation made easy by software control.</li> <li>▶ Operator guided by graphical LCD display.</li> <li>▶ Load Selection by value input.</li> <li>▶ Seamless load changes from different values.</li> <li>▶ Full Metering &amp; status continuously displayed.</li> </ul>
<b>Advantages:</b>	<ul style="list-style-type: none"> <li>▶ Digital Data Communication</li> <li>▶ Network Multiple units to create a large system</li> <li>▶ Upgrade to the latest feature or operation with software</li> </ul>

- Functions:**
- ▶ The digital controller makes the unit a Testing Platform
  - ▶ Standard portable controller for remote operation to 250 ft.
  - ▶ Control power: On-Off
  - ▶ Automatic fan start for voltage & rotation
  - ▶ Direct KW or Amperage load command input
  - ▶ Direct PF command input (optional resistive/inductive units)
  - ▶ Jog load up & down adjustment by programmable value
  - ▶ (5) Programmable step buttons by % of test source rating
  - ▶ Load step / Fan compensation correction variables
  - ▶ (16) Stage Programmable Test Sequencer
  - ▶ Real time clock and Start/Stop timer
  - ▶ Internal /External Control Power Source Switch (manual selection) to select the fan motor and control power source.
- Metering:**
- ▶ Metering is an integral part of the embedded controller
  - ▶ Dedicated processor for metering and data acquisition
  - ▶ Voltmeter: L1-2, L2-3, L3-1, Average
  - ▶ Ammeter: L1, L2, L3, Average
  - ▶ Frequency: 45-65Hz
  - ▶ Kilowatts, KVA, Kilovars, Power Factor, Rotation
  - ▶ Accuracy:  $\pm 0.5\%$ ,  $\pm 1c$
  - ▶ 8kHz sampling, RMS values past the 3<sup>rd</sup> Harmonic
  - ▶ Calibration sub-routine to match reference meters
- OIP:**
- ▶ Touch Screen control interface.
  - ▶ ¼ VGA Display.
  - ▶ Monochrome Transflective Display for superior daylight operation.
  - ▶ Display provided with backlight for night/low light operation.
  - ▶ Cat 5 Cable / RJ45 interface with serial and power integrated into the same cable.
  - ▶ OIP is standard portable configuration with 250 ft. operational distance.
  - ▶ Cat 5 Cable / RJ45 interface with serial and power integrated into the same cable.
  - ▶ (12) Metering Values simultaneously displayed .
  - ▶ Real time operator command feedback.
  - ▶ Real time operational status.
  - ▶ Operations Log Access: (99) latest start, stop and alarm log data.
  - ▶ Audible horn feedback to operator.
- FAULT SYSTEM:**
- ▶ The embedded controller provides a comprehensive protection system.
  - ▶ All faults are displayed and recorded in an operation log
  - ▶ Faults will shutdown or disconnect the unit as required.
  - ▶ Temperature and voltage faults are two stage to warn before shutdown.
  - ▶ Fan operation & air flow are monitored
  - ▶ Exhaust, intake and internal temperatures are monitored
  - ▶ Load over voltage is monitored in two stages for pre-shutdown alarm
  - ▶ Control voltage is monitored for over & under voltage in two stages
  - ▶ Control frequency is monitored for over & under rating condition
  - ▶ Cooling fan motor overload is monitored and alarmed
  - ▶ Fuses are provided on each control and load circuit
- POWER CONTROL:** The load is controlled by contactors that are applied for continuous and cycling operation.
- MANUALS:** (2) As built drawing manuals are provided at time of shipment.
- WARRANTY:** Tier #1 warranty per LOADTEC Limited Warranty\_Terms\_060607

**OPTION #1: LoadView - Computer Control, Data Logging & Scripting Software**

- SOFTWARE:** The software provides PC based control and monitoring of the Load Bank
- Requirements:**
- ▶ The software operates on a PC with Microsoft Windows® XP or newer operating system (computer and operating system not supplied)
  - ▶ Ethernet network interface(NIC) or RS-232 Serial port
- Features:**
- ▶ Full Load Bank control and Data Acquisition on a PC Computer
  - ▶ Fan Start / Stop: Single Button Control
  - ▶ Automatic Fan Voltage Selection: Motor automatically configured for voltage
  - ▶ Automatic Fan Rotation Selection: Fan always starts in the correct direction
  - ▶ Load Select by Entering kW value or Amperage value
  - ▶ Automatic Step Value Adjustment based on applied voltage
  - ▶ (5) Assignable Load Select Percentage Buttons
  - ▶ Step Jog: Assign value for one button load increase or decrease
  - ▶ Manual Load Step Override: Select load steps directly
  - ▶ Status of all Alarm and Operating Parameters
- Metering:**
- ▶ Metering is an integral part of the embedded controller
  - ▶ Dedicated processor for metering and data acquisition
  - ▶ Voltmeter: L1-2, L2-3, L3-1, Average
  - ▶ Ammeter: L1, L2, L3, Average
  - ▶ Frequency: 45-65Hz
  - ▶ Kilowatts, KVA, Kilovars, Power Factor, Rotation
  - ▶ Accuracy (nominal):  $\pm 0.5\%$  FS,  $\pm 1c$
  - ▶ 8kHz sampling, RMS values past the 3<sup>rd</sup> Harmonic
  - ▶ Calibration routine to match reference meters
  - ▶ All values are true R.M.S.
  - ▶ Display Numerically or Bar Graph with range color
  - ▶ Metering automatically rescaled
- Data Logging:**
- ▶ Record the Test
  - ▶ Metering Values Recorded
  - ▶ (8) User-Definable Fields/Values besides all other system values
  - ▶ Records all system values Automatically
  - ▶ Select Values to Print after test
  - ▶ Different Values for different reports
  - ▶ Set Record interval: 1sec – 999min
  - ▶ Configurable Report Generator
  - ▶ Export Data to Excel®
- User Screens:**
- ▶ Develop Custom Control Screens
  - ▶ All Functions & Data Assignable
  - ▶ Meters: Numeric, Analog, Bar
  - ▶ Buttons: Control, Indicator, Graphic
  - ▶ Sounds: Custom sound elements
  - ▶ Graphics: Custom BMP elements
  - ▶ Colors: Custom color all elements
  - ▶ Number of Screens unlimited
  - ▶ Call new screen from any screen
- Scripting:**
- ▶ Automate complete test
  - ▶ All functions controllable
  - ▶ Script as profile: % Load to test any generator rating by only changing generator value
  - ▶ Useable with single unit or network
  - ▶ Use Script to assure full test and repeatable tests
  - ▶ Set Data Logging to record test
  - ▶ Set HSR to capture source response (requires option #2)
  - ▶ Save Data to File

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**OPTION #2: High Speed Response(HSR) Module for LoadView Software (requires Option #1)**

**GENERATOR RESPONSE:** An additional software module high speed data acquisition:

- ▶ Used to determine source response to block load events
- ▶ This will allow the high-speed acquisition of data
- ▶ Logging Rate of 8 KHz.: 1/cycle; Sampling rate: 133/cycle @ 60HZ
- ▶ Voltage and frequency to be logged with applied load KW
- ▶ Sampling period 60 cycles Pre-Event, 60 Seconds of Event
- ▶ The total high speed samples can be displayed and printed in a tabular format of a graph with each value displayed as amplitude vs. time
- ▶ Normal long period data acquisition can be run simultaneous with the high-speed acquisition
- ▶ The high-speed event acquisition can be automatically initiated with the call for a specific load level value or preset threshold value

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**OPTION #3 - Weatherproof Protective Cover**

**PROTECTIVE COVER:** Form fit water repellent

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**OPTION #4 - 1Ø Control Power**

**Phase Converter:** An electronic phase converter is provided and installed in the basic unit to allow the 3Ø fan motor to be operated from a 240V,1Ø power source. The unit can still be operated from a 3Ø power source as standardly described.