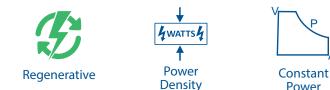


RLS Series

Introducing the RLS Series

The Industry's most flexible, high performing, and intelligent Regenerative AC & DC Electronic Load





High



- _____-Scalable Power

RLS Series

Regenerative 4-Quadrant AC and DC Load

The RLS Regenerative Load Simulator is designed to emulate real-world normal and abnormal load conditions for testing a wide range of AC or DC power generating or conversion equipment. The RLS's high-power density provides 6kVA/kW up to 21kVA/kW in a 4U chassis and can parallel up to 168kVA/kW in a single 19" cabinet. Dual cabinets can parallel up to 252kVA/kW.

The RLS Series is modular by design and scalable in power. Its flexible channel inputs and advanced control and programming capabilities make it ideal for generating complex user-defined current waveforms.

Full operator control of current, power and power factor allows for testing a wide range AC or DC power sources. The RLS can also support testing your Power Generating Equipment to regulatory compliance standards.

Application Examples:

- EV Charger Load Testing, On Board Chargers (OBC), Wallboxes, V2G, V2H, V2X, and EV Charging Cables
- Solar PV/Grid-Tied Inverters RLC Loading for Anti-Islanding
- Energy Storage Systems (ESS), Home ESS Load Testing
- UPS Products and PDUs AC Load Testing
- EV Battery Discharge Testing
- Aerospace Power and Converter Testing
- Utility Power Quality and Grid Usage

Key Features

- Regenerative Electronic Load
- » 4-Quadrant AC & DC Load
- » Fully Programmable
- High Power Density Up to 21kW in 4U; Parallel up to 168kVA/kW per Cabinet, or Multiple Cabinets up to 252kW
- AC, DC
- Single, Split, Three-Phase; Multi-Channel Configurations » Isolated Neutrals independent channel modes
- Input Voltage Range: 350Vac L-N/606Vac L-L or ±500Vdc
- Wide Frequency Range 15Hz 1200Hz
- Galvanic Isolation from Facility AC Input to Load Input and Between Input Phases / Channels
- Dynamic, Quiet and Efficient Operation Using Silicon Carbide (SiC) Based Technology
- High AC Current Capability
- Waveform Capture and Scope Display
- Powerful Current Transient Programming Tools
 » Generate Harmonics and Interharmonics Currents
 - » Analog I/O Signals Standard
- Intuitive User Interface Using Softkeys & Shuttle

LXI

SmartSource Suite: Web Browser Control

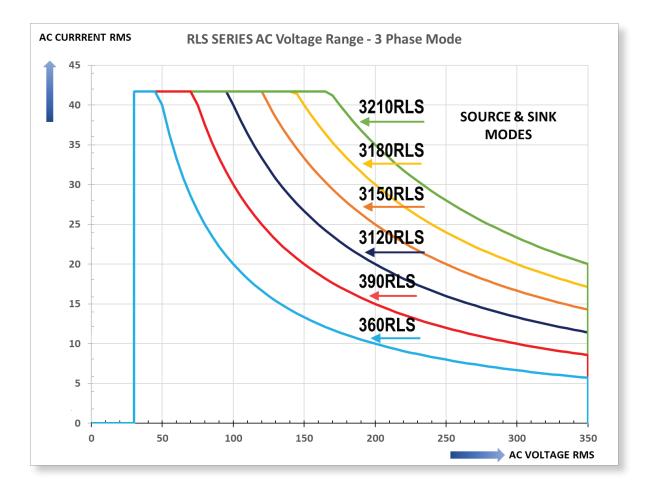
Flexible Control

RS232



Wide Input Voltage Range

The RLS Series uses a single, constant power voltage input range for both higher current at lower voltage and higher voltages at lower currents load testing, eliminating the need to switch between multiple voltage ranges. Thus, the single RLS's input voltage range allows for testing a broad range of conditions and test requirements without interruption due to range switching.



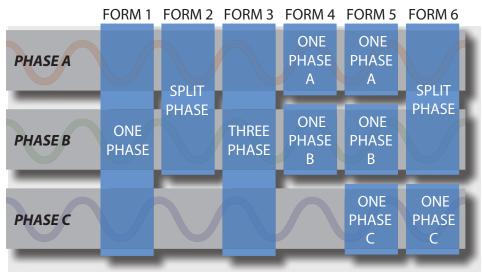
Supports More Current at Low Voltage

The RLS supports a broader range of load current from the UUT, eliminating the risk of over or under sizing the load. This reduces the need for additional capital investment. The diagram to the right illustrates the RLS's capability to sink 20% more current from 120V to 200V when compared to a typical unit that maxes out at 35A/phase.





Ultimate Flexibility With Six Input Configurations



Simultaneous AC & DC Operation on Individual Phases

Automatic Switching of Operation Modes

Flexibly test a wide range of EUTs selecting from six different load input configurations. Unique input configuration modes allow different functions per phase: AC mode, DC mode or both.

Forms 1 through 3 are typical for three-phase AC loads and single, split or three-phase AC connections.

The RLS Series has three isolated neutral connections, one for each phase/channel. This supports testing up to three independent sources.

Regenerative Loading Saves Significant Energy and Costs

Regenerative AC & DC loads provide energy efficiency and significant cost savings by returning energy back to the facility or the grid rather than converting to heat. The RLS produces less heat, ensures a stable testing environment for reliability reducing the need for additional cooling systems. Regenerative bidirectional power flows are critical for simulating real-world conditions in transportation and renewable energy systems.

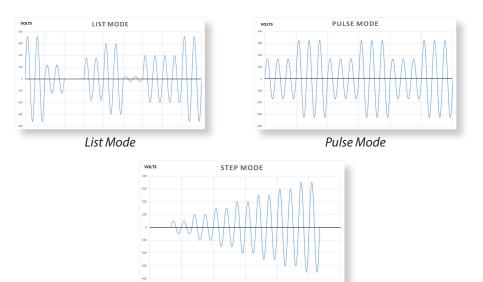




Powerful Waveform & Measurement Tools

The RLS has a built-in waveform digitizer and fast transient capabilities at 200µsec time resolution, supporting LIST, PULSE and STEP current control modes. Waveform generation includes ten Standard, Sine, Square, Triangle, Clipped, Harmonics and Inter-harmonics.

The waveform digitizer is complimented by a digital measurement system with scope function. Capture advanced measurements and waveforms.



Step Mode

Fully Test AC Power with 4-Quadrant Load

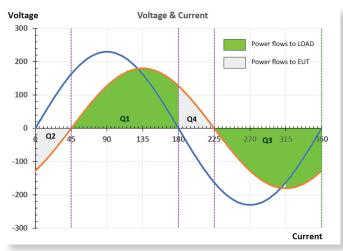
The RLS loads support testing V2G, EV Chargers, EVSE, batteries, UPS, AC power sources and DC power supplies. A key advantage of the RLS Regenerative Load is its ability to operate in all four quadrants using programmable phase shift in CC or CS modes.

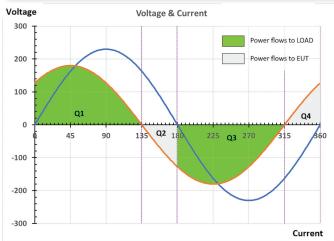
Compared to 2-Quadrant non-regenerative AC loads, the RLS allows simulation of inductive and capacitive loads to fully test AC power sources, as shown in the leading and lagging power factor examples.

Regenerative Electronic Load capability with both AC and DC operating modes pushes the boundaries of your test environment. Simulate linear and non-linear loads (including rectified), inductive and capacitive loads.

AC Modes: Constant Current, Constant Power & Apparent Power, Constant Resistance, Constant Voltage, CC+CR, CC / CS Rectifier Mode 1ø & 3ø

DC Modes: Constant Current, Constant Power, Constant Resistance, Constant Voltage, CR+CC







User Friendly Control Options

Multiple integrated control options include:

- Intuitive Touch Screen LCD Display with Soft Key driven Menus
- SmartSource Suite Web Interface
- •LAN, GPIB, RS232 & USB Interfaces, and ModBus (optional)
- Supports external touch screen monitor via Video Output Interface

SELECTED PHASE			ABC	A	в	c	
	SETPOINT		INITIAL	DELTA		FINAL	
FREQUENCY	15.00	0	60.00	0.	00	60.00	Hz
PHASE	0.0	0	0.0	(0.0	0.0	۰
CURRENT AC	0.00	0	0.00	0.	00	0.00	ARMS
CF	1	0	1.00	0	00	1.00	
INRUSH EXAMPL	✓ A	PPLY		× CANCEL			



Simplify Test Automation with SmartSource Suite Remote Control Platform

Easily monitor, control, and manage testing with the RLS's **SmartSource Suite** remote control platform. Use the embedded, web browser interface with real-time control. Access control panels and test sequences on-premises or on any mobile device (laptop, phone, tablet) via secure client access.

- •Full control and measurement capability
- Program settings and measurement read back including digital scope and harmonics data
- Extensive safety protection settings
- Advanced load function control screens such as Inrush Current programming shown here
- •Waveform selection, preview and edit modes
- Execution of user's custom test sequences
- •Transient data entry and execution screen using a spreadsheet layout

Built-in Galvanic Isolation Reduces Safety Risks

The RLS provides both facility-to-input isolation, and phase to phase or channel to channel isolation. Galvanic isolation provides complete separation between the facility power input and the load's inputs so there is no electron flow between channels. Channel to channel isolation provides flexibility to use each input as its own independent load with full current or power control. The RLS's fully isolated design reduces safety risks for the operator and prevents unexpected UUT damage by preventing unwanted current or ground loops. This built-in capability doesn't require a transformer which saves significant costs and space.

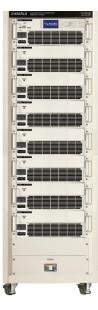


Modular Loading up to 168kW/333A per Cabinet

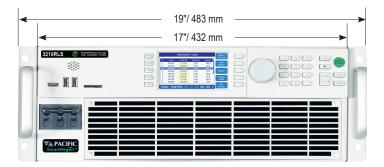
The RLS Series provides modular and scalable load capability to meet changing test requirements. Easily parallel multiple chassis to reach up to 168kW with 333Amps load per cabinet. Cabinets can be paralleled up to 252kW. The ease of reconfiguration allows for flexible test set ups and reduces downtime for repairs or maintenance. The units' shallower depth also allows it to fit into typical 31.5-inch / 800 mm depth cabinets with ample room for air-flow and wiring.

Available parallel unit kits:

Parallel load Kits are available in power ratings of 24kW, 30kW, 36kW, 42kW and higher in increments of 21kW up to 252kW (12 chassis) max. For turnkey, integrated parallel load cabinet systems, contact factory.



RLS Dimensions & Accessories



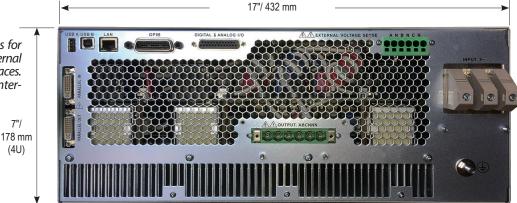
7"/

The RLS is designed for bench top or 19" equipment rack operation. Product is shown with included rack mount handles.

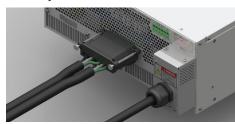
Depth of chassis is only 25.0 inch / 635mm.

Note: Units can be zero-stacked in 19" EIA cabinet when using optional rack-slides. When using L-brackets, allow 1U space between units.

The RLS Rear Panel provides connections for AC Grid Input, AC or DC Load Input, External Sense, Aux I/O and remote control interfaces. Product is shown with standard GPIB Interface.



Safety Cover & Strain Relief Kit Option



This optional kit includes covers for AC Grid input and AC & DC Input connections. Both covers include wire strain relief to prevent accidental release of input or output wiring.

Note: AC Grid input and AC or DC load wiring is NOT included.



Technical Specifications

	3 1, 2 or 3 NA 18 kW/kVA ¹ VA 6 kW/kVA de) DC Range: 0 - ±5 Accuracy: nge Resolution: MS/ 41.67 ARMS/ 21.0 ADC RMS/ 125.00 ARMS/ 0C 62.5 ADC 2.5 : 1 V 47 - 63 Hz V 47 - 63 Hz V 47 - 63 Hz S% F.S. 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	1, 2 or 3 21 kW/kVA¹ 7 kW/kVA 00 Vbc ± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 Abc 125.00 ARMS/ 62.5 Abc 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A/± 0.5% F.S. 7 kW/± 1.5 % F.S.
AC or DC Input PowerPhase Modes (Form)1, 2 or 31, 2 or 31, 2 or 31, 2 or 31, 2 or 3Maximum Power' (Total)6 kW/kVA9 kW/kVA12 kW/kVA15 kW/kPer Phase / Channel2 kW/kVA3 kW/kVA4 kW/kVA5 kW/kInput Voltage3 kW/kVA4 kW/kVA5 kW/kInput RangeAC Range: 30 - 350 VLN / 50 - 606 VLL RMS (Sync MoResolution0.01Line Regulation0.01% (Sync MoQurrent Regulation0.0359.9°Maximum Current0 - 359.9°Maximum Current33.33 ARMS/41.67 AR3 & 2 Phase modes AC / DC16.67 ARMS/25.00 ARMS/100.00 ARMS/125.00 A1 Phase mode AC / DC50.0 ARMS/100.00 ARMS/125.00 A62.5 ADC62.5 ADC1 Phase mode AC / DC50.0 ARMS/100.00 ARMS/125.00 A62.5 ADC62.5 ADC1 Input Frequency14.2 : 13.1 : 12.5 : 1Range15.00 - 1200HzAC10ARMS/BARMS14ARMS/12ARMS19ARMS/16ARMS24ARMS/20Input Voltage Range / Freq380Vac - 480Vac ± 10%, 4 Wire, L1, L2, L3 and PENom.Phase Current @ 400Vac / 480Vac10ARMS/BARMS14ARMS/12ARMS19ARMS/16ARMS24ARMS/20Nom.Phase Current @ 400Vac / 480Vac10ARMS/BARMS14ARMS/12ARMS19ARMS/16ARMS24ARMS/20Nom.Phase Current @ 400Vac / 480Vac10ARMS/BARMS14ARMS/12ARMS19ARMS/16ARMS24ARMS/20 <td>3 1, 2 or 3 NA 18 kW/kVA¹ VA 6 kW/kVA de) DC Range: 0 - ±5 Accuracy: nge Resolution: MS/ 41.67 ARMS/ 21.0 ADC RMS/ 125.00 ARMS/ 0C 62.5 ADC 2.5 : 1 V 47 - 63 Hz V 47 - 63 Hz V 47 - 63 Hz S% F.S. 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.</td> <td>1, 2 or 3 21 kW/kVA¹ 7 kW/kVA 00 Vbc ± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 Abc 125.00 ARMS/ 62.5 Abc 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A/± 0.5% F.S. 7 kW/± 1.5 % F.S.</td>	3 1, 2 or 3 NA 18 kW/kVA ¹ VA 6 kW/kVA de) DC Range: 0 - ±5 Accuracy: nge Resolution: MS/ 41.67 ARMS/ 21.0 ADC RMS/ 125.00 ARMS/ 0C 62.5 ADC 2.5 : 1 V 47 - 63 Hz V 47 - 63 Hz V 47 - 63 Hz S% F.S. 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	1, 2 or 3 21 kW/kVA¹ 7 kW/kVA 00 Vbc ± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 Abc 125.00 ARMS/ 62.5 Abc 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A/± 0.5% F.S. 7 kW/± 1.5 % F.S.
AC or DC Input PowerPhase Modes (Form)1, 2 or 31, 2 or 31, 2 or 31, 2 or 31, 2 or 3Maximum Power' (Total)6 kW/kVA9 kW/kVA12 kW/kVA15 kW/kPer Phase / Channel2 kW/kVA3 kW/kVA4 kW/kVA5 kW/kInput Voltage12 kW/kVA3 kW/kVA4 kW/kVA5 kW/kInput Voltage0.010.0111Line Regulation $< 0.1\%$ for 10% Line Chai0.011Current Regulation $< 0.1\%$ for 10% Line Chai21.0 A1Qurrent Regulation $< 0.359.9^{\circ}$ 0 - 359.9°16.7 Apc21.0 AMaximum Current3 & 2 Phase modes AC / DC16.67 Arms/25.00 Arms/133.33 Arms/41.67 Ar3 & 2 Phase mode AC / DC50.0 Arms/75.00 Arms/100.00 Arms/125.00 A1 Phase mode AC / DC50.0 Arms/75.00 Arms/100.00 Arms/125.00 A2 Current Crest Factor (AC)6.3 : 14.2 : 13.1 : 12.5 : 1Input FrequencyInput Frequency10Arms/BArms14Arms/12Arms19Arms/16Arms24Arms/20Nm. Phase Current @ 400Vac / 480Vac10Arms/BArms14Arms/12Arms19Arms/16Arms24Arms/20Nm. Phase Qurrent @ 400Vac / 480Vac10Arms/BArms14Arms/12Arms19Arms/16Arms24Arms/20Nm. Phase Qurrent @ 400Vac / 480Vac10Arms/BArms14Arms/12Arms19Arms/16Arms24Arms/20Nm. Phase Qurrent @ 400Vac / 480Vac10Arms/BArms14Arms/12Arms19Arms/16Arms24Arms/20<	3 1, 2 or 3 NA 18 kW/kVA ¹ VA 6 kW/kVA de) DC Range: 0 - ±5 Accuracy: nge Resolution: MS/ 41.67 ARMS/ 21.0 ADC RMS/ 125.00 ARMS/ 0C 62.5 ADC 2.5 : 1 V 47 - 63 Hz V 47 - 63 Hz V 47 - 63 Hz S% F.S. 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	1, 2 or 3 21 kW/kVA¹ 7 kW/kVA 00 Vbc ± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 Abc 125.00 ARMS/ 62.5 Abc 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A/± 0.5% F.S. 7 kW/± 1.5 % F.S.
Phase Modes (Form)1, 2 or 31, 2 or 31, 2 or 31, 2 or 31, 2 or 3Maximum Power' (Total)6 kW/kVA9 kW/kVA12 kW/kVA15 kW/kPer Phase / Channel2 kW/kVA3 kW/kVA4 kW/kVA15 kW/kInput RangeAC Range: 30 - 350 VLN / 50 - 606 VLL RMS (Sync MoResolution0.01Line Regulation $< 0.1\%$ for 10% Line ChatCurrent Regulation $\pm 0.02\%$ (CSC Mode)Phase Angle - Range (B, C)0 - 359.9°Maximum Current3 & 2 Phase modes AC / DC3 & 2 Phase modes AC / DC16.67 ARMS/ 8.3 ADC1 Phase mode AC / DC50.0 ARMS/ 25.0 ARMS/2 Sto Abc50.0 ARMS/ 50.0 Abc2 Sto Abc50.0 ARMS/ 50.0 Abc1 Phase mode AC / DC50.0 ARMS/ 25.0 Abc2 Sto Abc6.3 : 14.2 : 13.1 : 12 : 11.1 : 12 : 11.2 : 11 : 11.2 : 13 : 2 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 11.5 : 11 : 2 : 11.5 : 11 : 1	VA 18 kW/kVA ¹ VA 6 kW/kVA de) DC Range: 0 - ±5 Accuracy: nge Resolution: Ms/ 41.67 ARMs/ DC 21.0 ADc RMS/ 125.00 ARMs/ DC 2.5 : 1 / 47 - 63 Hz 29ARMs/24ARMS DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	21 kW/kVA ¹ 7 kW/kVA 00 VDC ± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 ADC 125.00 ARMS/ 62.5 ADC 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
Maximum Power¹ (Total) 6 kW/kVA 9 kW/kVA 12 kW/kVA 15 kW/k Per Phase / Channel 2 kW/kVA 3 kW/kVA 4 kW/kVA 5 kW/k Input Voltage Input Range AC Range: 30 - 350 VLN / 50 - 606 VLL RMS (Sync Mo Resolution 0.01 Line Regulation 0.01 Line Regulation 0.01 Phase Angle - Range (B, C) 0 - 359.9° Maximum Current 33.33 ARMS/ 41.67 Ar 3 & 2 Phase modes AC / DC 16.67 ARMS/ 25.00 ARMS/ 133.33 ARMS/ 41.67 Ar 1 Phase mode AC / DC 50.0 ARMS/ 75.00 ARMS/ 100.00 ARMS/ 125.00 A 1 Phase mode AC / DC 50.0 ARMS/ 75.00 ARMS/ 105.00 - 1200Hz 62.5 Ar Current Crest Factor (AC) 6.3 : 1 4.2 : 1 3.1 : 1 2.5 : 1 Input Frequency Input Frequency 10ARMS/BARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Input Voltage Range / Freq 380Vac - 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE 0.99 Measurements 0.400Mz/480Vac 10ARMS/8A	VA 18 kW/kVA ¹ VA 6 kW/kVA de) DC Range: 0 - ±5 Accuracy: nge Resolution: Ms/ 41.67 ARMS/ 21.0 ADc Coc 125.00 ARMS/ 25.00 ARMS/ 25.5 ADc 2.5 : 1 / 47 - 63 Hz DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	21 kW/kVA ¹ 7 kW/kVA 00 VDC ± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 ADC 125.00 ARMS/ 62.5 ADC 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
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Input RangeAC Range: $30 - 350 VLN / 50 - 606 VLL RMS (Sync MoreResolutionLine Regulation0.01Line Regulation\pm 0.02\% (CSC Mode)Phase Angle - Range (B, C)0 - 359.9^{\circ}Maximum Current3 \& 2 Phase modes AC / DC16.67 Arms/ 8.3 Abc12.6 Abc33.33 Arms/ 12.6 Abc1 Phase mode AC / DC50.0 Arms/ 12.6 Abc106.7 Abc21.0 Ar21.0 Abc1 Phase mode AC / DC50.0 Arms/ 12.6 Abc100.00 Arms/ 125.00 A C2.00 Arms50.0 Abc50.0 Abc62.5 AbcCurrent Crest Factor (AC)6.3:14.2:13.1:12.5:1Input Frequency800 Vac - 480Vac \pm 10\%, 4 Wire, L1, L2, L3 and PENom. Phase Current @ 400Vac / 480Vac10Arms/8Arms14Arms/12Arms19Arms/16ArmsInput Voltage Range / Freq380Vac - 480Vac \pm 10\%, 4 Wire, L1, L2, L3 and PENom. Phase Current @ 400Vac / 480Vac10Arms/8Arms14Arms/12Arms19Arms/16ArmsInput Power Factor0.99MeasurementsVrms Range / Accuracy17.0 A \pm 0.5\% FS.34.0 A / \pm 0.5\% FS.42.0 A / \pm 0.2\% FS.Power Range / Accuracy12.0 A / \pm 0.5\% FS.34.0 A / \pm 0.5\% FS.42.0 A / \pm 0.2\% FS.42.0 A / \pm 0.2\% FS.Programming200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current rime, Dwell Time, Time range: 0.1 - 1000000.0 ms, Time resExecutionRun from step # to step #, Run, Step, Restart, StopPARAMETERS / FUNCTIONSSPECIFICATIONSRemote Control InterfacesUSB Type B, LAN (LXI), GPIB / I$	Accuracy: nge Resolution: MS/ 41.67 Arms/ 21.0 ADC RMS/ 125.00 Arms/ 62.5 ADC 2.5 : 1 / 47 - 63 Hz Arms 29Arms/24Arms Efficiency: 5% F.S. % F.S. % F.S. 6 kW / ± 1.5 % F.S.	± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 ADC 125.00 ARMS/ 62.5 ADC 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
Resolution0.01Line Regulation $< 0.1\%$ for 10% Line CharCurrent Regulation $\pm 0.02\%$ (CSC Mode)Phase Angle - Range (B, C) $0 - 359.9^{\circ}$ Maximum Current $3 \& 2$ Phase modes AC / DC 16.67 Arms/ 25.00 Arms/ 33.33 Arms/ 41.67 Arms/ $3 \& 2$ Phase modes AC / DC 16.67 Arms/ 25.00 Arms/ 100.00 Arms/ 212.0 Arms/ 1 Phase mode AC / DC 50.0 Arms/ 75.00 Arms/ 100.00 Arms/ 125.00 Arms/ 1 Phase mode AC / DC 50.0 Arms/ 75.00 Arms/ 100.00 Arms/ 125.00 Arms/ 1 Phase mode AC / DC 50.0 Arms/ 75.00 Arms/ 100.00 Arms/ 125.00 Arms/ 1 Phase mode AC / DC $6.3 : 1$ $4.2 : 1$ $3.1 : 1$ $2.5 : 1$ Input Frequency 50.0 Arms/ 10.00 Drms/ 25.0 Arms/ Range $15.00 - 1200 \text{Hz}$ AC $10 \text{ Arms/8} \text{ Brms/16A \text{ Rms}}$ 24 Arms/20 Input Voltage Range / Freq $380 \text{ Vac} - 480 \text{ Vac} \pm 10\%, 4 \text{ Wire, L1, L2, L3 and PE}$ 9.9 Measurements Vrms Range / Accuracy $17.0 \text{ A/} \pm 0.5\% \text{ FS.}$ $34.0 \text{ A/} \pm 0.5\% \text{ FS.}$ $42.0 \text{ A/} \pm 0.2\% \text{ FS.}$ Vrms Range / Accuracy $17.0 \text{ A/} \pm 0.5\% \text{ FS.}$ $34.0 \text{ A/} \pm 0.5\% \text{ FS.}$ $42.0 \text{ A/} \pm 0.2\% \text{ FS.}$ Power Range / Accuracy $200 \text{ Steps / 400 \text{ Segments, LIST, PULSE & STEP Modes, Curree Time, Dwell Time. Time range: 0.1 - 1000000.0 \text{ ms, Time res}ExecutionRun from step \# to ste$	Accuracy: nge Resolution: MS/ 41.67 Arms/ 21.0 ADC RMS/ 125.00 Arms/ 62.5 ADC 2.5 : 1 / 47 - 63 Hz Arms 29Arms/24Arms Efficiency: 5% F.S. % F.S. % F.S. 6 kW / ± 1.5 % F.S.	± 0.25% F.S 0.1° 41.67 ARMS/ 21.0 ADC 125.00 ARMS/ 62.5 ADC 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
Line Regulation<<0.1% for 10% Line Char	nge Resolution: RMS/ 41.67 ARMS/ 21.0 ADC RMS/ 21.0 ADC RMS/ 125.00 ARMS/ 62.5 ADC 2.5 : 1 / 47 - 63 Hz / A7 - 63 Hz DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	0.1° 41.67 ARMS/ 21.0 ADC 125.00 ARMS/ 62.5 ADC 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
Current Regulation $\pm 0.02\%$ (CSC Mode)Phase Angle - Range (B, C)0 - 359.9°Maximum Current3 & 2 Phase modes AC / DC3 & 2 Phase modes AC / DC16.67 ARMS/ 8.3 ADC1 Phase mode AC / DC50.0 ARMS/ 25.0 ADC1 Phase mode AC / DC50.0 ARMS/ 25.0 ADC2 Current Crest Factor (AC)6.3 : 14 L 2 : 13.1 : 12 S 2 Phase modes AC / DC6.3 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode AC / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode Ac / DC6.3 : 14 L 2 : 13.1 : 12 S 2 Phase mode Ac / DC10ARMs/8ARMs14 A 2 : 13.1 : 12 S 2 Phase Moles C / C 480Vac + 10%, 4 Wire, L1, L2, L3 and PENom. Phase Current @ 400Vac / 480Vac10ARMs/8ARM	Resolution: MS/ 41.67 Arms/ 21.0 ADC Rms/ 125.00 Arms/ 62.5 ADC DC 2.5 : 1 / 47 - 63 Hz 29Arms/24Arms DARMS 29Arms/24Arms Efficiency: 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	41.67 ARMS/ 21.0 ADc 125.00 ARMS/ 62.5 ADc 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
Phase Angle - Range (B, C) $0 - 359.9^{\circ}$ Maximum Current $3 \& 2$ Phase modes AC / DC $1.6.7 \text{ Arms}/ \\ 8.3 \text{ ADC}$ $25.00 \text{ Arms}/ \\ 12.6 \text{ ADC}$ $3.3.33 \text{ Arms}/ \\ 16.7 \text{ ADC}$ 21.0 And 1 Phase mode AC / DC $50.0 \text{ Arms}/ \\ 25.0 \text{ ADC}$ $75.00 \text{ Arms}/ \\ 100.00 \text{ Arms}/ \\ 125.0 \text{ ADC}$ $10.000 \text{ Arms}/ \\ 125.0 \text{ ADC}$ 125.00 ADC Current Crest Factor (AC) $6.3 : 1$ $4.2 : 1$ $3.1 : 1$ $2.5 : 1$ Input Frequency $3.1 : 1$ $2.5 : 1$ Range $15.00 - 1200 \text{ Hz}$ AC Input $100.00 \text{ Arms}/ 120.04 \text{ MV}$ $100.00 \text{ Arms}/ 120.04 \text{ MV}$ Input Voltage Range / Freq $380 \text{ Vac} - 480 \text{ Vac} \pm 10\%, 4 \text{ Wire, L1, L2, L3 and PE}$ Input Power Factor 0.99 Measurements $100.04 \text{ Arms}/ 124 \text{ Rms}/ 124 \text{ Rms}/$	IMS/ 41.67 ARMS/ 21.0 ADC RMS/ 125.00 ARMS/ 62.5 ADC DC 62.5 ADC 2.5 : 1 / 47 - 63 Hz DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	41.67 ARMS/ 21.0 ADc 125.00 ARMS/ 62.5 ADc 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
Maximum Current 3 & 2 Phase modes AC / DC 16.67 ARMS/ 8.3 ADC 25.00 ARMS/ 12.6 ADC 33.33 ARMS/ 16.7 ADC 41.67 AF 1 Phase mode AC / DC 50.0 ARMS/ 25.0 ADC 100.00 ARMS/ 50.0 ADC 100.00 ARMS/ 62.5 ADC 125.00 A Current Crest Factor (AC) 6.3 : 1 4.2 : 1 3.1 : 1 2.5 : 1 Input Frequency 75.00 ARMS/ 25.0 ADC 50.0 ADC 62.5 ADC 62.5 ADC Range 15.00 - 1200Hz 6.3 : 1 4.2 : 1 3.1 : 1 2.5 : 1 Input Frequency 880Vac - 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE 100.00 ARMS/16ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Nom. Phase Current @ 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Input Power Factor 0.99 0 33.0 A / ± 0.5% FS. 25.0 A / ± 0.2 Yrms Range / Accuracy 17.0 A / ± 0.5% FS. 25.0 A / ± 0.5% FS. 34.0 A / ± 0.5% FS. 42.0 A / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% FS. 25.0 A / ± 0.5% FS. 34.0 A / ± 0.5% FS. 5 kW / ± 1.5 Power Range / Accuracy 17.0 A / ± 0.5% FS.	IMS/ 41.67 ARMS/ 21.0 ADC RMS/ 125.00 ARMS/ 62.5 ADC DC 62.5 ADC 2.5 : 1 / 47 - 63 Hz DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	41.67 ARMS/ 21.0 ADc 125.00 ARMS/ 62.5 ADc 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.
3 & 2 Phase modes AC / DC 16.67 ARMS/ 8.3 ADC 25.00 ARMS/ 12.6 ADC 33.33 ARMS/ 16.7 ADC 41.67 AF 21.0 AR 1 Phase mode AC / DC 50.0 ARMS/ 25.0 ADC 75.00 ARMS/ 50.0 ADC 100.00 ARMS/ 62.5 ADC 125.00 A 62.5 ADC Current Crest Factor (AC) 6.3 : 1 4.2 : 1 3.1 : 1 2.5 : 1 Input Frequency 8 400Vac / 480Vac 62.5 ADC 62.5 ADC Range 15.00 - 1200Hz 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Nom. Phase Current @ 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Input Power Factor 0.99 0 33.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 5 kW / ± 1.5 Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Curree Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time res Execution Run from step # to step #, Run, Step, Restart, Stop Storage: Storage: Storage: Storage: Storage: Analog Mitel AM/ CAN-FD Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog OU	DC 21.0 ADC RMS/ 125.00 ARMS/ 62.5 ADC 2.5 : 1 / 47 - 63 Hz 29ARMS/24ARMS DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	21.0 ADC 125.00 ARMS/ 62.5 ADC 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.
8.3 ADC 12.6 ADC 16.7 ADC 21.0 Au 1 Phase mode AC / DC 50.0 ARMS/ 75.00 ARMS/ 100.00 ARMS/ 125.00 A Current Crest Factor (AC) 6.3 : 1 4.2 : 1 3.1 : 1 2.5 : 1 Input Frequency 8.3 ADC 14.2 : 1 3.1 : 1 2.5 : 1 Range 15.00 - 1200Hz AC Input 100.00 ARMS/ 24ARMS/22 Input Voltage Range / Freq 380Vac - 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE Nom. Phase Current @ 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/22 Input Power Factor 0.99 9 9 9 9 9 Measurements 0 31.0 A / ± 0.5% FS. 25.0 A / ± 0.5% FS. 34.0 A / ± 0.5% FS. 42.0 A / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% FS. 25.0 A / ± 0.5% FS. 34.0 A / ± 0.5% FS. 5 kW / ± 1.5 Power Range / Accuracy 17.0 A / ± 0.5% FS. 25.0 A / ± 0.5% FS. 34.0 A / ± 0.5% FS. 5 kW / ± 1.5 Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Curre 5 kW / ± 1.5 5 kW / ± 1.5	DC 21.0 ADC RMS/ 125.00 ARMS/ 62.5 ADC 2.5 : 1 / 47 - 63 Hz 29ARMS/24ARMS DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	21.0 ADC 125.00 ARMS/ 62.5 ADC 2.5 : 1 34ARMS/28ARM: > 0.90 42.0 A/± 0.5% F.S 7 kW/± 1.5 % F.S
25.0 ADC 50.0 ADC 62.5 ADC 62.5 ADC Current Crest Factor (AC) 6.3 : 1 4.2 : 1 3.1 : 1 2.5 : 1 Input Frequency 3.1 : 1 2.5 : 1 3.1 : 1 2.5 : 1 Range 15.00 – 1200Hz AC Input 1 1.1 : 1 2.5 : 1 Input Voltage Range / Freq 380Vac – 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE Nom. Phase Current @ 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Input Power Factor 0.99 Measurements 0.99 Vms Range / Accuracy 0 – 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 5 kW / ± 1.5 Power Range / Accuracy 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time res 5 torage: Execution Run from step # to step #, Run, Step,	bc 62.5 Abc 2.5 : 1 / 47 - 63 Hz DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 6 kW / ± 1.5 % F.S.	62.5 ADC 2.5 : 1 34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.
Input Frequency Range 15.00 – 1200Hz AC Input Input Voltage Range / Freq 380Vac – 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE Nom. Phase Current @ 400Vac / 480Vac 10ARMs/8ARMs 14ARMs/12ARMs 19ARMs/16ARMs 24ARMs/20 Input Power Factor 0.99 0 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 1.5 % F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 1.5 % F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 12.0 M / ± 1.5 % F.S. 34.0 M / ± 1.5 % F.S. 54.0 M / ± 1.5 55.0 M / ± 1.5 54.0 M / ± 1.5 Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time res 5torage: Storage: Execut	/ 47 - 63 Hz DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	34ARMS/28ARMS > 0.90 42.0 A / ± 0.5% F.S. 7 kW / ± 1.5 % F.S.
Range 15.00 – 1200Hz AC Input Input Voltage Range / Freq 380Vac – 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE Nom. Phase Current @ 400Vac / 480Vac 10ARMs/8ARMs 14ARMs/12ARMs 19ARMs/16ARMs 24ARMs/20 Input Power Factor 0.99 Measurements 0.99 Vrms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 3 kW / ± 1.5 % F.S. 4 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 5 kW / ± 1.5 Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Curree Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time res Execution Run from step # to step #, Run, Step, Restart, Stop Storage: Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS PREAMETERS Storage: Remote Control Interfaces<	DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	> 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.
AC Input Input Voltage Range / Freq 380Vac - 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE Nom. Phase Current @ 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Input Power Factor 0.99 Measurements 0 - 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 5 kW / ± 1.5 Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time, Time range: 0.1 - 1000000.0 ms, Time res	DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	> 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S
AC Input Input Voltage Range / Freq 380Vac - 480Vac ± 10%, 4 Wire, L1, L2, L3 and PE Nom. Phase Current @ 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/2C Input Power Factor 0.99 Measurements 0 - 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 5 kW / ± 1.5 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 5 kW / ± 1.5 Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Stop Stop Stop Stop </td <td>DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.</td> <td>> 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.</td>	DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	> 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.
Input Voltage Range / Freq380Vac - 480Vac ± 10%, 4 Wire, L1, L2, L3 and PENom. Phase Current @ 400Vac / 480Vac10ARMS/8ARMS14ARMS/12ARMS19ARMS/16ARMS24ARMS/2CInput Power Factor0.99MeasurementsVrms Range / Accuracy17.0 A / ± 0.5% F.S.25.0 A / ± 0.5% F.S.34.0 A / ± 0.5% F.S.42.0 A / ± 0.2Power Range / Accuracy17.0 A / ± 0.5% F.S.25.0 A / ± 0.5% F.S.34.0 A / ± 0.5% F.S.42.0 A / ± 0.2Power Range / Accuracy2 kW / ± 1.5 % F.S.3 kW / ± 1.5 % F.S.3 kW / ± 1.5 % F.S.4 kW / ± 1.5 % F.S.5 kW / ± 1.5Transient Functions200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time restStorage:ExecutionRun from step # to step #, Run, Step, Restart, Storage:Storage:PARAMETERS / FUNCTIONSSPECIFICATIONSSPECIFICATIONSRemote Control InterfacesUSB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear panel External USB WIFI adapter / ModBus TCP / CAN/CAN-FDAnalog Inputs (4) / Outputs (4)Analog Inputs: Current phs A,B,CAnalog Outputs: Current phs A,B,C	DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	> 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.
Nom. Phase Current @ 400Vac / 480Vac 10ARMS/8ARMS 14ARMS/12ARMS 19ARMS/16ARMS 24ARMS/20 Input Power Factor 0.99 Measurements 0 - 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Transient Functions Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 10000000.0 ms, Time rest Stop Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Storage: Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear panel External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Output	DARMS 29ARMS/24ARMS Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	> 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S
Input Power Factor 0.99 Measurements 0 - 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 Å / ± 0.5% F.S. 25.0 Å / ± 0.5% F.S. 34.0 Å / ± 0.5% F.S. 42.0 Å / ± 0.2 Power Range / Accuracy 17.0 Å / ± 0.5% F.S. 25.0 Å / ± 0.5% F.S. 34.0 Å / ± 0.5% F.S. 42.0 Å / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 34.0 Å / ± 0.5% F.S. 42.0 Å / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Transient Functions Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Curree Time, Dwell Time. Time range: 0.1 - 10000000.0 ms, Time res Execution Run from step # to step #, Run, Step, Restart, Storage: Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear pane External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs: Current phs A,B,C Analog Outputs (4) / Outputs (4)	Efficiency: 5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	> 0.90 42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S
Measurements Vrms Range / Accuracy 0 - 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Transient Functions 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Curren Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time rest Execution Run from step # to step #, Run, Step, Restart, Storage: Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Storage: Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear part External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Outputs	5% F.S. 5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	42.0 A / ± 0.5% F.S 7 kW / ± 1.5 % F.S.
Vrms Range / Accuracy 0 - 350 VLN / 0-606 VLL / ± 0.2 Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.2 Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 4 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Transient Functions 7 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Curren Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time res Execution Run from step # to step #, Run, Step, Restart, Stop Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Storage: Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear pane External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog R Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Outputs	5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	7 kW / ± 1.5 % F.S.
Irms Range / Accuracy 17.0 A / ± 0.5% F.S. 25.0 A / ± 0.5% F.S. 34.0 A / ± 0.5% F.S. 42.0 A / ± 0.5% F.S. Power Range / Accuracy 2 kW / ± 1.5 % F.S. 3 kW / ± 1.5 % F.S. 4 kW / ± 1.5 % F.S. 5 kW / ± 1.5 Transient Functions 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 1000000.0 m, Time res Execution Run from step # to step #, Run, Step, Restart, Storage: Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Storage: Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE 488, RS232, all or rear panel External USB WIFI adapter / ModBus TCP / CAN-KN-FD Analog Inputs (4) / Outputs (4) Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Outputs (4)	5% F.S. 42.0 A / ± 0.5% F.S. % F.S. 6 kW / ± 1.5 % F.S.	7 kW / ± 1.5 % F.S.
Power Range / Accuracy 2kW / ± 1.5 % F.S. 3kW / ± 1.5 % F.S. 4kW / ± 1.5 % F.S. 5kW / ± 1.5 Transient Functions Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time resters Execution Run from step # to step #, Run, Step, Restart, Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear panel External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C	% F.S. 6 kW / ± 1.5 % F.S.	7 kW / ± 1.5 % F.S.
Transient Functions Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 10000000.0 ms, Time resters Execution Run from step # to step #, Run, Step, Restart, Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear panel External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog Inputs (4) / Outputs (4)		1
Programming 200 Steps / 400 Segments, LIST, PULSE & STEP Modes, Current Time, Dwell Time. Time range: 0.1 - 10000000.0 ms, Time ress Execution Run from step # to step #, Run, Step, Restart, Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear pane External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4)	nt AC Current DC Wa	veform, Ramp
Time, Dwell Time. Time range: 0.1 - 1000000.0 ms, Time res Execution Run from step # to step #, Run, Step, Restart, Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear pane External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C		velonn, namp
Execution Run from step # to step #, Run, Step, Restart, Storage: Storage: PARAMETERS / FUNCTIONS SPECIFICATIONS Security Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear pane External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Outputs		, · · ·
Stop PARAMETERS / FUNCTIONS SPECIFICATIONS Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear panel External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C	Non-volatile, 10	
Remote Control Interfaces USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear panel External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C	Transients	10 Programs +
USB Type B, LAN (LXI), GPIB / IEEE488, RS232, all on rear pane External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Outputs (4)		
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External USB WIFI adapter / ModBus TCP / CAN/CAN-FD Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Outputs	<u>م</u>	
Analog & Digital I/O Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Ou		
Analog Inputs (4) / Outputs (4) Analog Inputs: Current phs A,B,C Analog Ou		
	Itputs: Vmeas A, B, C,	Pmpas all Phases
Digital Inputs (6) / Outputs(6) Remote Inhibit, Trans. Trig., Phase Sync, User Output Re	lay, Transient, Functio	
Environmental	iay, mansient, runctio	TI STIODE, SYNC
	odes: Standby & Slee	n
Temperature Operating: 0 to 40 °C / 32 to 104 °F Storage: Unmidity C 2000 non-condension Altitude	-20 to 70 °C/-4	
Humidity< 80%, non-condensingAltitude:	2000 m / 6500 m	leet
System Features	22.00	
USB Ports 2 on Front Panel, 1 on Rear Panel, All Type A SD Card:	32 GB max. Cap	acity
Video Output Port Monitor Out, Front Panel		
Dimensions & Weights		
	20" x 27" x 38" / 508 x	686 x 965 mm
	151 lbs / 68.5 kg	
Regulatory Compliance		
Safety IEC 61010-1:2010 (Edition 3)		
EMC - Emissions / Immunity EN 55011:2009+A1:2010 / EN 61000-4-2, -4-3, -4-4, -4-5, -4-6		-11
Product Category EN 61326-1:2013 (Measurement, Laboratory and Control Eq	, -4-8 and EN 61000-4	
Agency Approvals CE Mark, NRTL Nemko US/Canada RoHS (201		
Note 1: Maximum Power rating is reduced below 40Hz on 3180RLS and 3210RLS models	uipment)	EN50581:2012

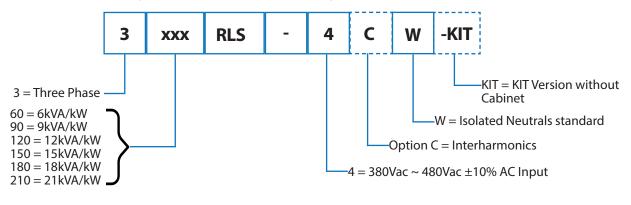
Note 1: Maximum Power rating is reduced below 40Hz on 3180RLS and 3210RLS models



Ordering Information

RLS Series Model Number Encoder:

Note: Solid outlined fields must be specified. Dashed outlined fields are optional.



- Order Example 3210RLS-4W
- Bench Model, 21 kVA, 3-Phase, Regenerative Electronic Load, USB, RS232, LAN, GPIB & AUX I/O, Isolated Neutrals

Typical Delivery Items

Electronic Load

- Rack Mount Handles
- Certificate of Compliance

Available Accessories

- Input shorting adapter for single phase input mode use. P/N 160086 (not for W)
- Paralleling Cable, 1 Ft. (Included with Aux NC models). P/N 778036
- Rack slides. P/N 703251

Service & Support

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