Free Combination
200 W Output Capacity. 3 New Models!

New

Compact Multi-Output DC Power Supply
PMX-Multi Series

Three models with 2, 3 and 4 outputs
Each output is isolated
High setting resolution (Voltage: 1 mV, Current: 0.1 mA)
Tracking control in all channels
Simultaneous display of all channel statuses
ON/OFF delay of each output
Simple series/parallel connection between channels (CH1 & CH2)
LAN (LXI Compliant)/USB/RS232C standard interface
Turning output on and off using an external contact
Remote sensing function
Key lock, Preset memory function (3 slots)
High quality LCD panel for improved visibility
Free Combination

Compact Multi-Output DC Power Supply
PMX-Multi Series NEW

Each output is isolated.
Simple series/parallel connection between channels.
200 W Output Capacity.
Three models with 2, 3 and 4 outputs.

The PMX-Multi series is a multi-channel DC power supply with isolated outputs on each channel. The PMX32-3DU (2ch), PMX32-3TR (3ch), and PMX32-2QU (4ch) are all capable of simultaneous output in all channels and come with an output tracking feature. Also, channels 1 & 2 of each model can be easily connected in either series or parallel to increase the output voltage/current at the press of a button. LAN (LXI Compliant), USB, and RS232C are included as standard digital interfaces for easy system integration.

The PMX-Multi benefits from a low noise, series regulator design that makes this series the perfect choice for experiments involving transistors, IC circuits, and op amp circuits as well as R&D and production line applications.

- Three models with 2, 3 and 4 outputs.
- Each output is isolated.
- High setting resolution. (Voltage: 1 mV, Current: 0.1 mA)
- Tracking control in all channels.
- Simultaneous display of all channel statuses.
- ON/OFF delay of each output.
- Simple series/parallel connection between channels. (CH1 & CH2)
- LAN (LXI Compliant)/USB/RS232C standard interface.
- Turning output on and off using an external contact.
- Remote sensing function.
- Key lock, Preset memory function. (3 slots)
- High quality LCD panel for improved visibility.

Application
- Power supply for tests involving transistors, IC circuits and operational amplifiers
- Integration into semiconductor evaluation test systems
- Power supply for research and development and manufacturing line integration
## Lineup/Main Specification

<table>
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<tr>
<th>Specifications</th>
<th>Output</th>
<th>Ripple</th>
<th>Line Regulation</th>
<th>Load Regulation</th>
<th>Input</th>
<th>Power</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>CH CV CC</td>
<td>CV CC</td>
<td>CV CC</td>
<td>CV CC</td>
<td>AC</td>
<td>VA</td>
<td>kg</td>
</tr>
<tr>
<td>PMX32-3DU</td>
<td>1 32.000 V 3.000 A</td>
<td>1 mA 3 mV</td>
<td>4 mV</td>
<td>217 Vac ± 10%</td>
<td>700 VA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 32.000 V 3.000 A</td>
<td>1 mA 3 mV</td>
<td>4 mV</td>
<td>900 VA</td>
<td></td>
<td>13 kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 6.000 V 5.000 A</td>
<td>2 mA 1 mV</td>
<td>5 mV</td>
<td>(28.66 lb)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMX32-3TR</td>
<td>1 32.000 V 3.000 A</td>
<td>1 mA 3 mV</td>
<td>4 mV</td>
<td>2 mV</td>
<td>800 VA</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 32.000 V 3.000 A</td>
<td>1 mA 3 mV</td>
<td>2 mV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 18.000 V 2.500 A</td>
<td>1 mA 1 mV</td>
<td>3 mV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 18.000 V 2.500 A</td>
<td>1 mA 1 mV</td>
<td>3 mV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*100 Vac, 117 Vac, 200 Vac and 234 Vac are factory options.*
Simple Series/Parallel Connection Between Channels

Series Operation
CH1 and CH2 can be connected in series to increase the overall voltage output range. CH2 operates as master and CH1 as slave. The total output voltage will be the sum of CH1 and CH2.

Parallel Operation
CH1 and CH2 can be connected in parallel to increase the overall current range. CH2 operates as master and CH1 as slave. The total output current will be the sum of CH1 and CH2.

**Tracking Feature**

The tracking feature allows the operator to control the ratio for increase/decrease of output among multiple channels within the power rating. This feature can be used freely among all channels with two ratio options: absolute value variation and variation ratio.

**Absolute Value Variation**
This mode allows for voltage/current settings in all specified channels to change at the same rate as a selected channel.

**Variation Ratio**
This mode allows for voltage/current settings in all specified channels to change in equal proportion to a selected voltage or current rating.

*The variable range is from 0.0% to 200.0%*
Delay Function

The optional setting creates a programmable delay between the OUTPUT switch being activated and the actual output being released. The setting range for DELAY TIME is from 0.1 - 99.9 seconds.

When power supplies are not activated properly, there is the slight risk of damage being caused to the overall system. For this reason ON delay control is a very important feature that is required for power source output. This feature is also necessary when turning output OFF, and is highly convenient for operating circuits.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>On-delay value</th>
<th>Off-delay value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1</td>
<td>0 s</td>
<td>4 s</td>
</tr>
<tr>
<td>CH2</td>
<td>4 s</td>
<td>0 s</td>
</tr>
<tr>
<td>CH3</td>
<td>2 s</td>
<td>2 s</td>
</tr>
<tr>
<td>CH4</td>
<td>2 s</td>
<td>6 s</td>
</tr>
</tbody>
</table>

Note: The actual rise/fall time with output off will vary depending on the output and load conditions. Note that the timing chart above ignores rise and fall time. There are cases where the actual delay time varies by a few tens of milliseconds even when the delay time is set to 0 seconds.

Easy Access with the Built-in Web Server

Use a browser from a PC, smartphone, or tablet to access the web server built into the PMX-Multi series for convenient control and monitoring.

[Recommended browser]
- Requires for the Internet Explorer version 9.0 or later
- Requires for the firefox 8.0 or later
- Requires for the safari / mobile Safari 5.1 or later
- Requires for the Chrome 15.0 or later
- Requires for the Opera 11.0 or later

*Connecting with a smartphone, tablet, etc. requires a Wi-Fi environment (wireless LAN router etc.).

Rear Panel

LAN (LXI Compliant)/USB/RS232C standard interface

- Turning output on and off using an external contact

Connection when 2 outputs are turned ON/OFF

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Signal name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OUTPUT ON STATUS(CH1)</td>
<td>On when output is on (output through an open-collector photocoupler). *1</td>
</tr>
<tr>
<td>2</td>
<td>OUTPUT ON STATUS(CH2)</td>
<td>On when output is on (output through an open-collector photocoupler). *1</td>
</tr>
<tr>
<td>3</td>
<td>OUTPUT ON STATUS(CH3)</td>
<td>On when output is on (output through an open-collector photocoupler). *1</td>
</tr>
<tr>
<td>4</td>
<td>OUTPUT ON STATUS(CH4)</td>
<td>On when output is on (output through an open-collector photocoupler). *1</td>
</tr>
<tr>
<td>5</td>
<td>POWER ON STATUS</td>
<td>On when the power is on (output through an open-collector photocoupler). *1</td>
</tr>
<tr>
<td>6</td>
<td>ALARM STATUS</td>
<td>On when a protection function (OVP, OCP, OHP) is activated or when an alarm signal (ALARM IN) is received.</td>
</tr>
<tr>
<td>7</td>
<td>STATUS COM</td>
<td>Status signal common for pins 1 to 6.</td>
</tr>
<tr>
<td>8</td>
<td>OUTPUT ON/OFF CONTROL(CH1)</td>
<td>Output on/off control using external contact input.</td>
</tr>
<tr>
<td>9</td>
<td>OUTPUT ON/OFF CONTROL(CH2)</td>
<td>Output on/off control using external contact input.</td>
</tr>
<tr>
<td>10</td>
<td>OUTPUT ON/OFF CONTROL(CH3)</td>
<td>Output on/off control using external contact input.</td>
</tr>
<tr>
<td>11</td>
<td>OUTPUT ON/OFF CONTROL(CH4)</td>
<td>Output on/off control using external contact input.</td>
</tr>
<tr>
<td>12</td>
<td>ALARM IN</td>
<td>All channel outputs are turned off when an alarm signal is received.</td>
</tr>
<tr>
<td>13</td>
<td>FRAME GND</td>
<td>External signal common for pins 8 to 12. *2</td>
</tr>
</tbody>
</table>

*1 Open-collector output: Maximum voltage of 30 V and maximum current of 8 mA.
*2 FRAME GND is connected to the chassis.

Pin arrangement of the CONTROL TERMINAL

The CONTROL TERMINAL on the rear panel can be turning output on and off using an external contact.
### Specifications

#### AC Input

<table>
<thead>
<tr>
<th>Item</th>
<th>PMX32-3DU</th>
<th>PMX32-3TR</th>
<th>PMX32-2QU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal input rating</td>
<td>217 Vac</td>
<td>217 Vac</td>
<td>217 Vac</td>
</tr>
<tr>
<td>Voltage range</td>
<td>±10%</td>
<td>±10%</td>
<td>±10%</td>
</tr>
<tr>
<td>Input current (MAX)</td>
<td>150 Amax</td>
<td>150 Amax</td>
<td>150 Amax</td>
</tr>
<tr>
<td>Power (MAX)</td>
<td>900 VA</td>
<td>900 VA</td>
<td>800 VA</td>
</tr>
</tbody>
</table>

#### Output

<table>
<thead>
<tr>
<th>Item</th>
<th>PMX32-3DU</th>
<th>PMX32-3TR</th>
<th>PMX32-2QU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output voltage</td>
<td>CH1 32,000 V</td>
<td>CH2 32,000 V</td>
<td>CH3 32,000 V</td>
</tr>
<tr>
<td>Output current</td>
<td>CH1 3 mA</td>
<td>CH2 3 mA</td>
<td>CH3 3 mA</td>
</tr>
<tr>
<td>Maximum voltage setting</td>
<td>CH1 32,000 V</td>
<td>CH2 32,000 V</td>
<td>CH3 32,000 V</td>
</tr>
<tr>
<td>Resolution</td>
<td>3 mV</td>
<td>3 mV</td>
<td>3 mV</td>
</tr>
<tr>
<td>Voltage setting accuracy</td>
<td>±(0.3% set + 6 mV)</td>
<td>±(0.3% set + 6 mV)</td>
<td>±(0.3% set + 6 mV)</td>
</tr>
<tr>
<td>Input line regulation</td>
<td>CH1 3 mA</td>
<td>CH2 3 mA</td>
<td>CH3 3 mA</td>
</tr>
<tr>
<td>Load regulation</td>
<td>CH1 4 mA</td>
<td>CH2 4 mA</td>
<td>CH3 4 mA</td>
</tr>
<tr>
<td>Transient response</td>
<td>50 μs</td>
<td>50 μs</td>
<td>50 μs</td>
</tr>
<tr>
<td>Ripple noise (rms)</td>
<td>500 μV</td>
<td>500 μV</td>
<td>500 μV</td>
</tr>
<tr>
<td>Command delay</td>
<td>80 ms</td>
<td>80 ms</td>
<td>80 ms</td>
</tr>
<tr>
<td>Rise time (at rated load)</td>
<td>10 ms ±30%</td>
<td>10 ms ±30%</td>
<td>10 ms ±30%</td>
</tr>
<tr>
<td>Fall time (at no load)</td>
<td>350 ms ±30%</td>
<td>350 ms ±30%</td>
<td>350 ms ±30%</td>
</tr>
<tr>
<td>Temperature coefficient (TYP)</td>
<td>100 ppm/°C</td>
<td>100 ppm/°C</td>
<td>100 ppm/°C</td>
</tr>
</tbody>
</table>

#### Display Function

<table>
<thead>
<tr>
<th>Item</th>
<th>PMX32-3DU</th>
<th>PMX32-3TR</th>
<th>PMX32-2QU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltmeter</td>
<td>Maximum display</td>
<td>99.999 (fixed decimal point)</td>
<td>99.999 (fixed decimal point)</td>
</tr>
<tr>
<td>Ammeter</td>
<td>Maximum display</td>
<td>9,999 (fixed decimal point)</td>
<td>9,999 (fixed decimal point)</td>
</tr>
<tr>
<td>Operation display</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CV operation</td>
<td>“CV” display (green)</td>
<td>“CV” display (green)</td>
<td>“CV” display (green)</td>
</tr>
<tr>
<td>CC operation</td>
<td>“CC” display (red)</td>
<td>“CC” display (red)</td>
<td>“CC” display (red)</td>
</tr>
<tr>
<td>Overvoltage protection (OVP)</td>
<td>Action</td>
<td>Turns the output off, displays “OVP,” and displays “ALARM” (red).</td>
<td>Turns the output off, displays “OVP,” and displays “ALARM” (red).</td>
</tr>
<tr>
<td>Setting range</td>
<td>10% to 110% of the rated output voltage</td>
<td>10% to 110% of the rated output voltage</td>
<td>10% to 110% of the rated output voltage</td>
</tr>
<tr>
<td>Setting accuracy</td>
<td>±1% of rating</td>
<td>±1% of rating</td>
<td>±1% of rating</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 mV</td>
<td>1 mV</td>
<td>1 mV</td>
</tr>
<tr>
<td>Overcurrent protection (OCP)</td>
<td>Action</td>
<td>Turns the output off, displays “OCP,” and displays “ALARM” (red).</td>
<td>Turns the output off, displays “OCP,” and displays “ALARM” (red).</td>
</tr>
<tr>
<td>Setting range</td>
<td>10% to 110% of the rated output current</td>
<td>10% to 110% of the rated output current</td>
<td>10% to 110% of the rated output current</td>
</tr>
<tr>
<td>Setting accuracy</td>
<td>±1% of rating</td>
<td>±1% of rating</td>
<td>±1% of rating</td>
</tr>
<tr>
<td>Resolution</td>
<td>0.1 mA</td>
<td>0.1 mA</td>
<td>0.1 mA</td>
</tr>
<tr>
<td>Overheat protection (OHP)</td>
<td>Action</td>
<td>Turns the output off, displays “OHP,” and displays “ALARM” (red).</td>
<td>Turns the output off, displays “OHP,” and displays “ALARM” (red).</td>
</tr>
<tr>
<td>Status Output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>OUTPUT ON</td>
<td>OUTPUT ON</td>
<td>OUTPUT ON</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Status output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ALARM STATUS</td>
<td>HIGH</td>
<td>HIGH</td>
</tr>
<tr>
<td></td>
<td>POWER ON</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

#### Control Functions

<table>
<thead>
<tr>
<th>Item</th>
<th>PMX32-3DU</th>
<th>PMX32-3TR</th>
<th>PMX32-2QU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logic selectable:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative logic</td>
<td>Output on when set to LOW (0 V to 0.5 V) or shorted; output off when set to HIGH (4.5 V or 5 V) or open</td>
<td>Output on when set to LOW (0 V to 0.5 V) or shorted; output off when set to HIGH (4.5 V or 5 V) or open</td>
<td>Output on when set to LOW (0 V to 0.5 V) or shorted; output off when set to HIGH (4.5 V or 5 V) or open</td>
</tr>
<tr>
<td>Positive logic</td>
<td>Output on when set to HIGH (4.5 V to 5 V) or open; output off when set to LOW (0 V or 0.5 V) or shorted</td>
<td>Output on when set to HIGH (4.5 V to 5 V) or open; output off when set to LOW (0 V or 0.5 V) or shorted</td>
<td>Output on when set to HIGH (4.5 V to 5 V) or open; output off when set to LOW (0 V or 0.5 V) or shorted</td>
</tr>
</tbody>
</table>

#### Sensing

<table>
<thead>
<tr>
<th>Item</th>
<th>PMX32-3DU</th>
<th>PMX32-3TR</th>
<th>PMX32-2QU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.6 V for a single line (but the output terminals are controlled at the rated voltage)</td>
<td>0.6 V for a single line (but the output terminals are controlled at the rated voltage)</td>
<td>0.6 V for a single line (but the output terminals are controlled at the rated voltage)</td>
</tr>
</tbody>
</table>
Parallel Operation and Series Operation

Applicable channels: Master: CH2, slave: CH1

Output range: 0 V to 32 V

Setting range: 0 V to 33.8 V

Setting accuracy: 0.3% set ± 0.1% rating

Resolution: 1 mV

Current: 0 A to 6 A, 0 A to 6.3 A, 0 A to 4.2 A

Setting accuracy: 0.4% set ± 0.1% rating

Resolution: 0.2 mA

Voltage

Maximum display: 99.99 mV (fixed decimal point)

Display accuracy: ±0.5% of reading + 10 digit

Amperimeter

Maximum display: 9.999 A (fixed decimal point)

Display accuracy: ±1% of reading + 10 digit

Series operation

Applicable channels: Master: CH2, slave: CH1

Output range: 0 V to 64 V

Setting range: 0 V to 67.2 V

Setting accuracy: 0.3% set ± 0.1% rating

Resolution: 2 mV

Constant current

Operating range: 0 A to 3 A, 0 A to 3.15 A, 0 A to 2.1 A

Setting accuracy: 0.4% set ± 0.1% rating

Resolution: 0.1 mA

Voltmeter

Maximum display: 99.999 V (fixed decimal point)

Display accuracy: ±0.5% of reading + 20 digit

Amperimeter

Maximum display: 9.999 A (fixed decimal point)

Display accuracy: ±1% of reading + 5 digit

Other Functions

Selections:

Selectable from the following three modes.

- Loc1: Lock all keys except the OUTPUT and memory.
- Loc2: Lock all keys except the OUTPUT key.
- Loc2: Lock all keys and the rotary knob.

Tracking

Applicable channels: All channels

Operation mode:

- Tracking function 1: Absolute value change
- Tracking function 2: Percentage change

Setting accuracy:

- CV: 0.4% of rating + 40 mV
- CC: 0.7% of rating + 10 mA

Memory

Stores three combinations of voltage, current, OVP, OCP, and output-on/ off delay settings.

Key lock

Selectable from the following three modes.

- Loc1: Lock all keys except the OUTPUT and memory.
- Loc2: Lock all keys except the OUTPUT key.
- Loc3: Lock all keys and the rotary knob.

Interface

Common specifications

- Software protocol: IEEE Std 488.2-1992
- Command language: Complies with SCPI Specification 1990.0

Hardware

- RS232C: Complies with the EIA232D specifications (excluding the terminal block)
- D-sub 9-pin terminal block (male): Baudrate: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps
- Data length: 8 bits, Stop bits: 1 bit, Parity bit: None, Flow control: None

Program message terminator: LF during reception, LF during transmission.

USB

- Program message terminator: LF or EOM during reception, LF + EOM during transmission.
- Device class: Complies with the USBTMC-USB488 device class specifications.
- Hardware: IEEE 802.3 10Base-T/10Base-T Ethernet
- IP4x, RJ-45 terminal block
- Compliant standards: LKI Device Specification 2016
- LKI HSLIP Extended Function Rev. 1.0
- LKI VXI-11 Extended Function Rev. 1.0
- Communication protocol: VXI-11, HSLIP, SCPI-RAW, SCPI-Telet

Message terminator: VXI-11, HSLIP: LF or END during reception, LF + END during transmission.

General Specifications

- Weight (main unit only): Approx. 13 kg (28.66 lb)
- Dimensions (mm/ inches): 214(8.46)W×124(4.88)(MAX155(6.10))H×400(15.75)(MAX435(17.13))D
- Applicable under the following conditions
  - Installation location: Indoor use, altitude of up to 2000 m, overvoltage category II
  - Storage temperature range: -25°C to 70°C (-13°F to 158°F)
  - Storage humidity range: 90%rh or less (no condensation)
  - Operating temperature range: 0°C to 40°C (32°F to 104°F)
  - Operating humidity range: 20%rh to 85%rh (no condensation)
  - Insulation resistance: Between the primary circuit and chassis: 500 Vdc, 30 MΩ or greater
  - Withstanding voltage: No abnormalities at 1500 Vac for 1 minute.
  - Insulation: Complies with the requirements of the following directives and standards.
  - EMC Directive 2014/30/EU
  - Low Voltage Directive 2014/35/EU
  - Electromagnetic compatibility (EMC) *1, *2

Safety

- Complies with the requirements of the following directives and standards.
  - Low Voltage Directive 2014/35/EU
  - Electromagnetic compatibility (EMC) *1, *2

- Does not apply to specialty ordered or modified products.
- Only on models that have the CE marking on the panel.
- This product confirms to Class A. This product is intended for use in an industrial environment.
- This product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interference to the reception of radio and television broadcasts.
- This is a Group 1 instrument. This product does not generate and/or use intentionally radio-frequency energy, in the form of electromagnetic radiation, inductive and/or capacitive coupling, for the treatment of material or inspection/analysis purpose.
- It is recommended to use Class 1. Be sure to ground the protective conductor terminal of this product. If not grounded properly, safety is not guaranteed.
- Pollution is addition of foreign matter (solid, liquid or gaseous) that may produce a reduction of dielectric strength or surface resistivity. Pollution degree 2 assumes that only non-conductive pollution will occur except for an occasional temporary conductivity caused by condensation.
**External Dimensions**

- 4-#5 (holes for attaching the rubber feet)
- 4-#30 (rubber foot diameter)
- 4-M4 screw holes (max. screw insertion depth: 6 mm)

**Options**

### Rack Mounting Options

**Example of PMX32-2QU KRA150**

- 482 (18.98)
- 149 (5.87)
- 24.5 (0.96)
- 132.5 (5.22)
- 57 (2.24)
- 260 (10.24)

**Name** | **Rack mount adapter**
--- | ---
**Model** | KRA3 | KRA150
**Note** | For EIA inch racks | For JIS millimeter racks

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**Distributor:**

- **KIKUSUI ELECTRONICS CORPORATION**
  Southwood 4F,6-1 Chigasaki-cho, Tsuzuki-ku, Yokohama, 224-0032, Japan
  Phone: (+81)45-482-6333, Facsimile: (+81)45-482-6261, www.kikusui.co.jp

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For our local sales distributors and representatives, please refer to "sales network" of our website.