PAM series

VARIABLE-SWITCHING REGULATED DC POWER SUPPLIES (CV·CC)

Constant voltage/constant current
2 kW, 40 V-50 A, 80 V-25 A,160 V-12 A, 320 V-6 A
4kW, 40 V-100 A, 80 V-50 A, 160 V-25 A, 320 V-12 A
Large-capacity, high-quality regulated DC power supplies that provide superior cost performance

Outline

The PAM Series consists of large-capacity, variable-switching DC power supplies based on the seemingly incompatible design concepts of high quality and good cost performance. This series offers large-capacity power devices to limit temperature rise, minimizing temperature dependence and improving reliability. Models in this series also offer a TP-BUS-based digital communication function and can be configured for a power supply system of up to 434 channels in combination with power supply controllers in the PIA4800 Series. The PAM Series products are suitable for power sources such as burn-in and aging equipment.

Features

- Outstanding cost performance
- Four-digit display
- Large control knob
- Three-point memory
- Digital communication
- GPIB compatible

Functions

■ Attractive new design

The dynamic new color scheme of the PAM Series features a gray-white base with a front louver in vibrant blue. Models in this series are controlled with a large control knob and feature a high-brightness four-digit display and feature a three-point memory function that allows you to pre-store output settings (voltages and current values). The end result is improved operability and visibility.

■ Front air-intake method

Models in this series do not require radiation space at the upper and lower parts of the main body, allowing greater installation density when installing into a rack. They also incorporate air filters in the louver to protect interiors against dust, a common problem with forced-air cooling.

■ Handling margin testing with capacity to spare

As DC-DC converters, batteries, automobile electrical components, and motor-operated tools have shifted to high voltage or large capacity formats, the voltage ranges required for margin testing have changed. To meet these changing needs, the PAM Series provides a rated output voltage range of 40 V, 80 V, 160 V and 320 V. This allows the PAM Series to handle tests at 150% of 24 V (36 V) or at 150% of 48 V (72 V) with capacity to spare.

■ External analog control functions

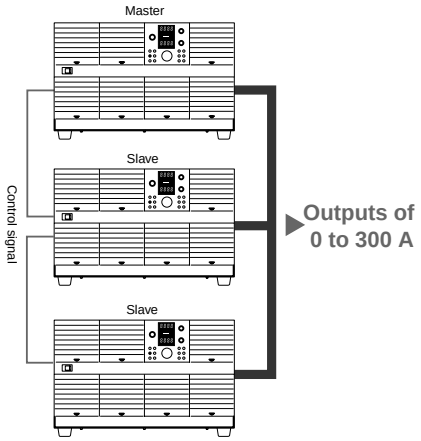
● Constant-voltage/constant-current output control function
Output control based on external voltage(0 to 10 V)
Output control based on external resistance (0 to 10 kΩ)
● Output ON/OFF control function
External contact-based output ON/OFF control

■ Master-slave parallel operation

The PAM Series 4kW model (with a parallel operation option) supports master-slave parallel (expanded current) operation. Up to three units of the model (with a rated output capacity of 12 kW) can be connected.

* Master-slave parallel operation is possible only for 4kW models with the same rated output voltage/current.

● Connecting three PAM40-100 units



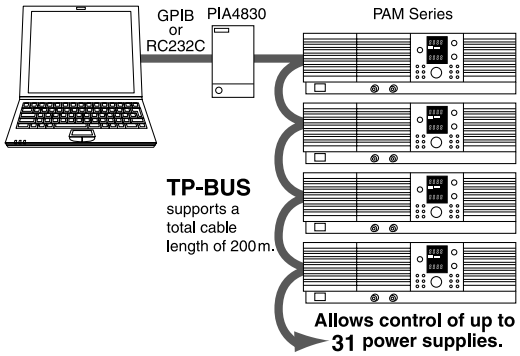
■ Analog read-back function

● Monitor output
(voltage output:0 to approx. 10 V)
Output voltage monitoring
Output current monitoring
● Status signal output
(open collector active Low)
CV action
CC action
Alarm

■ Digital communications function

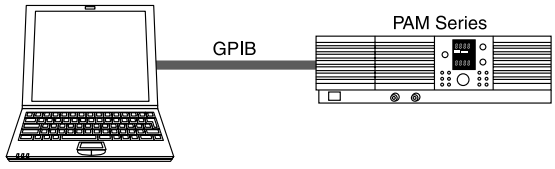
The PAM Series (with the TP-BUS interface installed) supports a digital remote control read-back function. This TP-BUS (Twist Pair Bus) allows a single power supply controller (PIA4830) to control up to 31 PAM Series power supplies. It also allows a control signal cable to be laid over a total distance of 200 m.

● Computer-based control using TP-BUS



*Note: To connect the PAM Series as shown above, the TP-BUS interface must be installed in the power supply.

● Computer-based control using GPIB



*Note: To connect the PAM Series as shown above, a GPIB interface must be installed in the power supply.

PAM series

VARIABLE-SWITCHING REGULATED DC POWER SUPPLIES (CV·CC)

Panel Description

OVP variable register
OVP MONITOR
Used to set the overvoltage protection function

LOCK switch
Limits front panel operations. This switch lets you disable use of switches and dials other than OUTPUT, OVP MONITOR, and ALARM RESET.

OUTPUT switch

Control knob
Used to set an output voltage value or output current value.

VOLTAGE/CURRENT switches
These switches are used to select the increment for a single click of the knob when setting a voltage or current value.

Power switch

Auxiliary output terminal
*PAM40-50, PAM40-100 and PAM80-50 do not have auxiliary output terminals.

ALARM RESET
This switch is used to reset output OFF if a protective function is activated.

SET switch
Used to set or check an output voltage and/or output current value.

MEMORY 1, 2, 3
This switch is used to set a voltage and current values stored in memory.

STORE switch
This switch saves set values of output voltage and output current to memory.

Factory-installed option mounting section

J1 connector
This terminal block is used for remote sensing.

Output bus bar
Allows to use of M4, M6, and M8 bolt diameters.

Input terminal block
With a screw diameter of M6

J2 connector
This terminal block is used for analog remote control and monitoring.

S1 switch
This switch is used to make various settings for analog remote control, selection of sensing, selection of input voltage, etc.

Output terminal cover

VARIABLE-SWITCHING REGULATED DC POWER SUPPLIES (CV·CC)

Specifications

Model	Output		Constant Voltage				Constant Current			Input current	Weight
	CV	CC	Ripple	Source effect	Load variations	Transient response	Ripple	Source effect	Load effect	AC(100/200V)	(Approx.)
	V	A	mV rms or less	mV or less	mV or less	ms (typical value)	mV rms or less	mA or less	mA or less	A	kg
PAM40-50	0 to 40	0 to 50	30	25	50	2	150	60	110	48 / 26	18
PAM40-100	0 to 40	0 to 100	50	25	50	2	300	120	220	- / 48	30
PAM80-25	0 to 80	0 to 25	40	45	90	2	100	35	60	48 / 26	18
PAM80-50	0 to 80	0 to 50	60	45	90	2	200	70	120	- / 48	30
PAM160-12	0 to 160	0 to 12	80	85	170	2	50	22	34	48 / 26	18
PAM160-25	0 to 160	0 to 25	120	85	170	2	100	45	70	- / 48	30
PAM320-6	0 to 320	0 to 6	150	165	330	2	30	16	22	48 / 26	18
PAM320-12	0 to 320	0 to 12	220	165	330	2	60	32	44	- / 48	30

Common specifications

■Input voltage
2kW: 90 to 132 V AC (100 V) or 180 to 250 V AC (200 V), single phase
Selectable with switch
4kW: 180 to 250V AC (200 V)
Frequency: 50 or 60 Hz

■Temperature coefficient
Constant-voltage output:
100 ppm/°C (typical value)
Constant-current output:
200 ppm/°C (typical value)

■Rise time (constant voltage)
100 ms or less at no-load
100 ms or less at full load

■Fall time (constant voltage)
2000 ms or less at no-load
100 ms or less at full load
(40V, 80V type model)
200 ms or less at full load
(160V, 320V type model)

■Indication Meters
Display : Four-digit green LED display
Measurement accuracy: 0.1% of rdg ±2 digits or less
Setting resolution: 10 mV (40V, 80V model)
100 mV (160V, 320V model)
Voltmeter (23±5°C)

Ammeter (23±5°C)
Display : Four-digit green LED display
Measurement accuracy: 0.5% of rdg ±2 digits or less
Setting resolution:
10 mA(the models except the following)
1 mA (PAM320-6)
100 mA (PAM40-100)

■Protective circuits
● Overvoltage protection
Voltage setting range: 20% to 110% of rated output voltage
● Overheat protection: Activated by elevated internal temperatures
● Others: Input voltage error, sensing error, internal unit failure

■Environmental conditions
● Ambient temperature range for operation: 0 to 50°C
● Ambient humidity range for operation: 20 to 80% RH
● Storage temperature range: -10 to 60°C
● Storage humidity range: 10 to 90% RH

■Cooling system
Fan-based forced-air cooling, front air-intake method

■Voltage to ground
±250 V: PAM40-50 / 40-100 / 80-25 / 80-50
±500 V: PAM160-12 / 160-25 / 320-6 / 320-12

■External dimensions
2kW (MAX):
429.5W × 128(150)H × 548(665)Dmm
4kW(MAX):
429.5W × 262(285)H × 548(665)Dmm

■Accessories
Operation Manual, power cord (approx. 3 m long, with a crimp terminal at one side), cable clamper, chassis connecting cable

Unless otherwise specified, the specifications of the unit are based on the following conditions.
● The load is a pure resistance.
● The remote sensing function is mot used.
● The output terminal is not connected to the chassis terminal.
● The unit should be used after 30 minutes warming-up time.
Standard value do not guarantee performance. They should be referred to as target values only.
The auxiliary output terminal may not meet the specifications.

Option* Specify factory options, if any, in your purchase order.

TP-BUS interface (factory option)	Rack mount bracket for 2kW model (JIS) KRB150-TOS
GPIB interface (factory option)	Rack mount bracket for 2kW model (EIA) KRB3-TOS
Parallel operation option (factory option)	Rack mount bracket for 4kW model (JIS) KRB300-PAM
Power supply controller PIA4830	Rack mount bracket for 4kW model (EIA) KRB6-PAM

[Note for options]
• To control the PAM Series using the PIA4830 power supply controller, the power supply must have a TP-BUS interface.
• Both a TP-BUS interface and a GPIB interface cannot be used at the same time. Use one or the other. Note, however, that either an TP-BUS interface or GPIB interface can be installed with the parallel operation option.
• The parallel operation option is available only for 4kW models with the same rated output voltage/current. To use the parallel operation option, install it on all units to be connected.

