PFR-100 Series

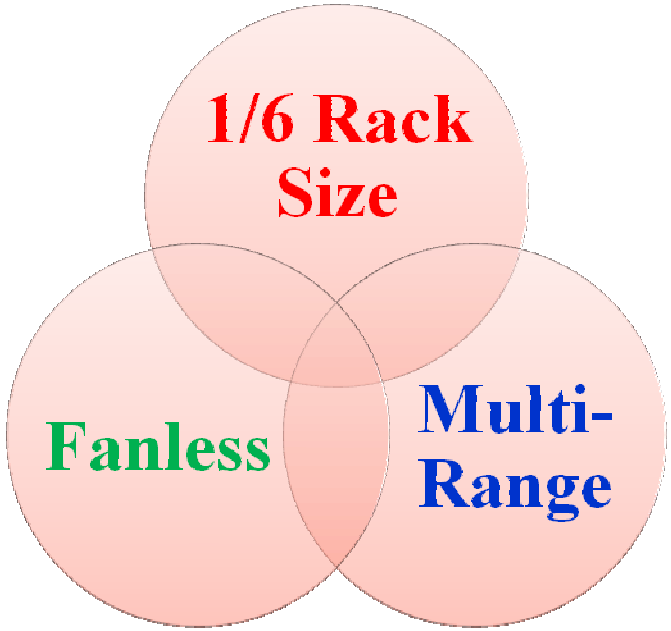
Fanless Multi-Range Programmable DC Power Supply

GW INSTEK

Made to Measure

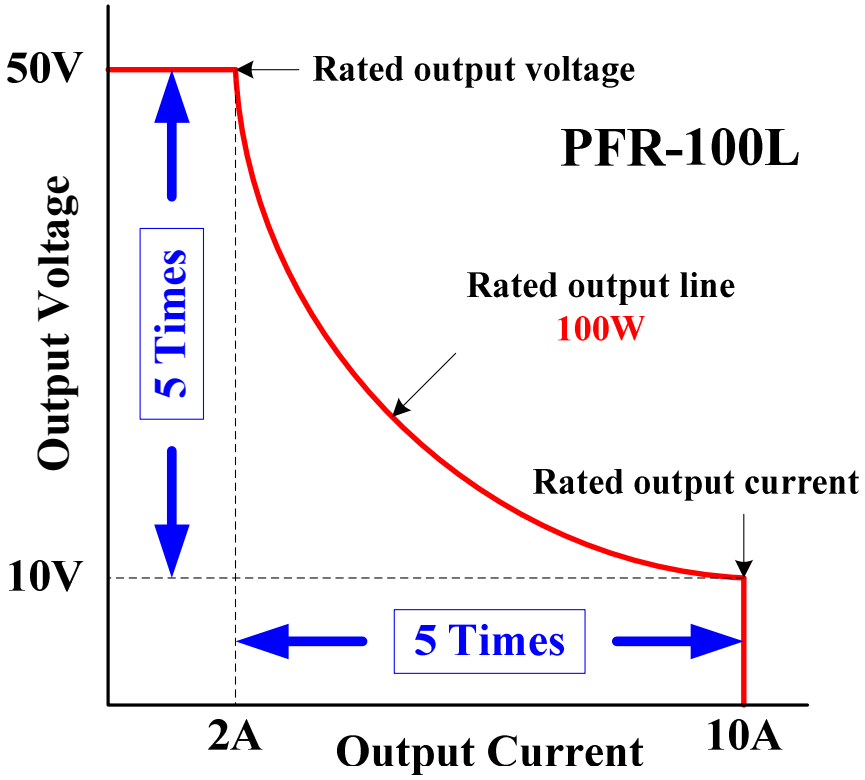
固緯電子實業股份有限公司

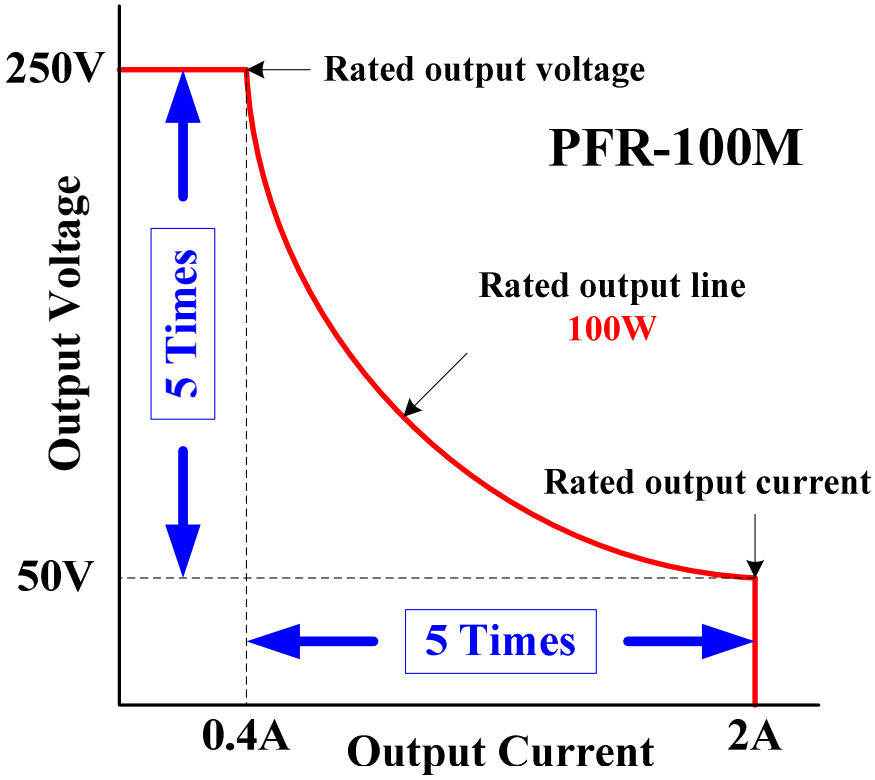
Series Lineup



Model Name	Voltage (V)	Current (A)	Power (W)	Power Ratio (Times)
PFR-100L	0 - 50	0 - 10	100	5
PFR-100L (with GPIB & LAN)				
PFR-100M	0 - 250	0 - 2	100	5
PFR-100M (with GPIB & LAN)				

Operating Area





Key Features

1. Fanless
2. Multi-Range Operation (Constant Power Output)
3. C.C/C.V Priority
4. Sequence Control
5. Variable Slew Rate
6. Bleeder resistor
7. Support 19” Rack mount (EIA/JIS Standard)
8. Flexible Remote Interface (USB, RS-232/485, Analog Control)
   Option GPIB+LAN

Market Positioning

Segmentation

- LED Lighting: Multi Channel
- Plating: Fan less
- Battery: Multi Channel, Collective Control
- Electrical production (40%); Plating (30%); Battery (10%); Others (20%)

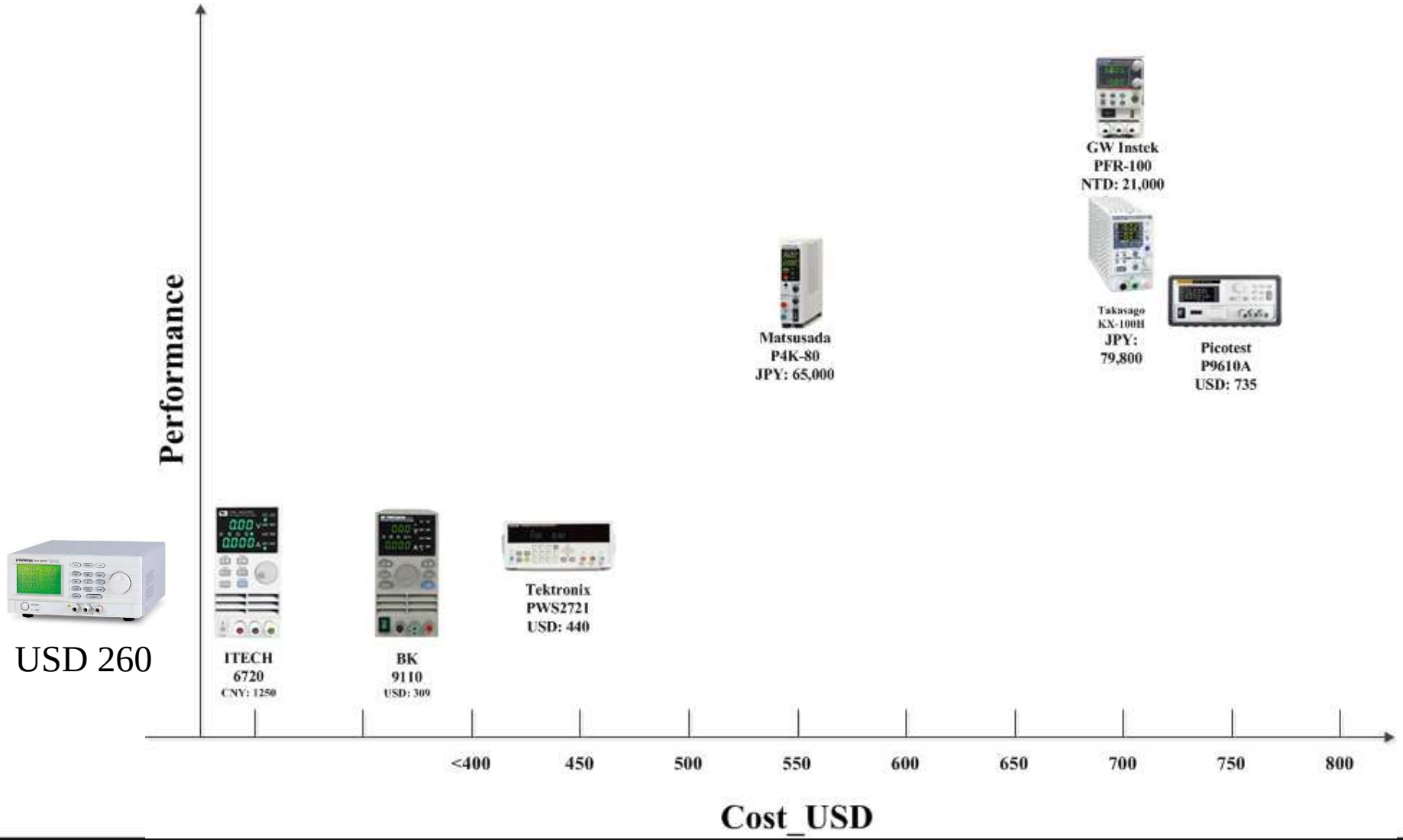
Targeting

PFR-100L	50V	LED	It is for an LED module test. It is for a white LED reliability test.
		In-car device	Test of the actual survey board
		Secondary battery	The charge of the single cell. The charge of the battery pack.
		Motor	The design of the motor. Inspection of the product line.
		Semiconductor	Semiconductor testing system use. Power semiconductor testing system use.
		Projector	Production line.
		Sensor	Current sensor product line.
PFR-100M	250V	LED	It is for LED module production experimentally. It is for aging
		Solar Panal	It is for the experiment of the solar panel
		Semiconductor	Power semiconductor testing system use.
		Secondary battery	It is for charge

Targeting

- R&D / Production Lin
✓ Multi-Range, Small&Light, Front Panel Output
- Electronic parts: Semiconductor, Sensor, Motor
✓ Multi-Range, External Control, Small
- Automotive Electrical Components
✓ Multi-Range, External Control, Fan less, Small
- LED, OLED, Panel (Display)
✓ High resolution (1mA), Small&Light, CC Priority
- Plating
✓ Fan less, High resolution (1mA), CC Priority, Time Stamp, External Control
- Battery, Capacitor
✓ High resolution (1mA), Small&Light, Time Stamp

Positioning



Competitor

◎: Excellent / ○: Good / ▲: Bad / X: None

Items		GW Instek/TTC PFR-100	Takasago KX-100	Mastusada P4K	ITECH/B&K 6720/9110	Picotest P9610A
Maximum Output Voltage		250 V	160 V	320 V (◎)	60 V	36 V (▲)
Maximum Output Current		10 A	10 A	10 A	5 A	7 A
Maximum Output Power		100 W	100 W	80 W (▲)	100 W	108 W
Multi-Range		5 (◎)	4	2	1.8 - 2.3	2.3
Front Panel Display		LED	LED	LED	LED	LCD (◎)
Output ON/OFF Delay		◎	X	◎	X	X
CV/CC Priority		◎	X	X	X	X
CV/CC Slew Rate		◎	X	◎	X	X
Bleeder ON/OFF		◎	◎	X	X	X
OCP Delay Setting		◎	X	X	X	X
Measurement Average Setting		◎	X	X	X	X
Test Scrip (Sequence) on Front Panel		◎	X	X	X	X
Memory Function on Front Panel (3 Sets)		◎	◎	◎	X	X
Interface	Front USB	◎	X	X	X	X
	Rear USB	◎	▲ (Adaptor)	▲ (Adaptor)	X	○ (Factory)
	LAN	○ (Factory)	▲ (Adaptor)	▲ (Adaptor)	X	X
	RS-232	◎	◎	▲ (Adaptor)	▲ (Factory Only)	X
	RS-485	◎	▲ (Adaptor)	▲ (Adaptor)	X	X
	GPIB	○ (Factory)	▲ (Adaptor)	▲ (Adaptor)	X	○ (Factory)
	External Analog Control	◎	▲ (Output Only)	▲ (Output Only)	X	X

Competitor

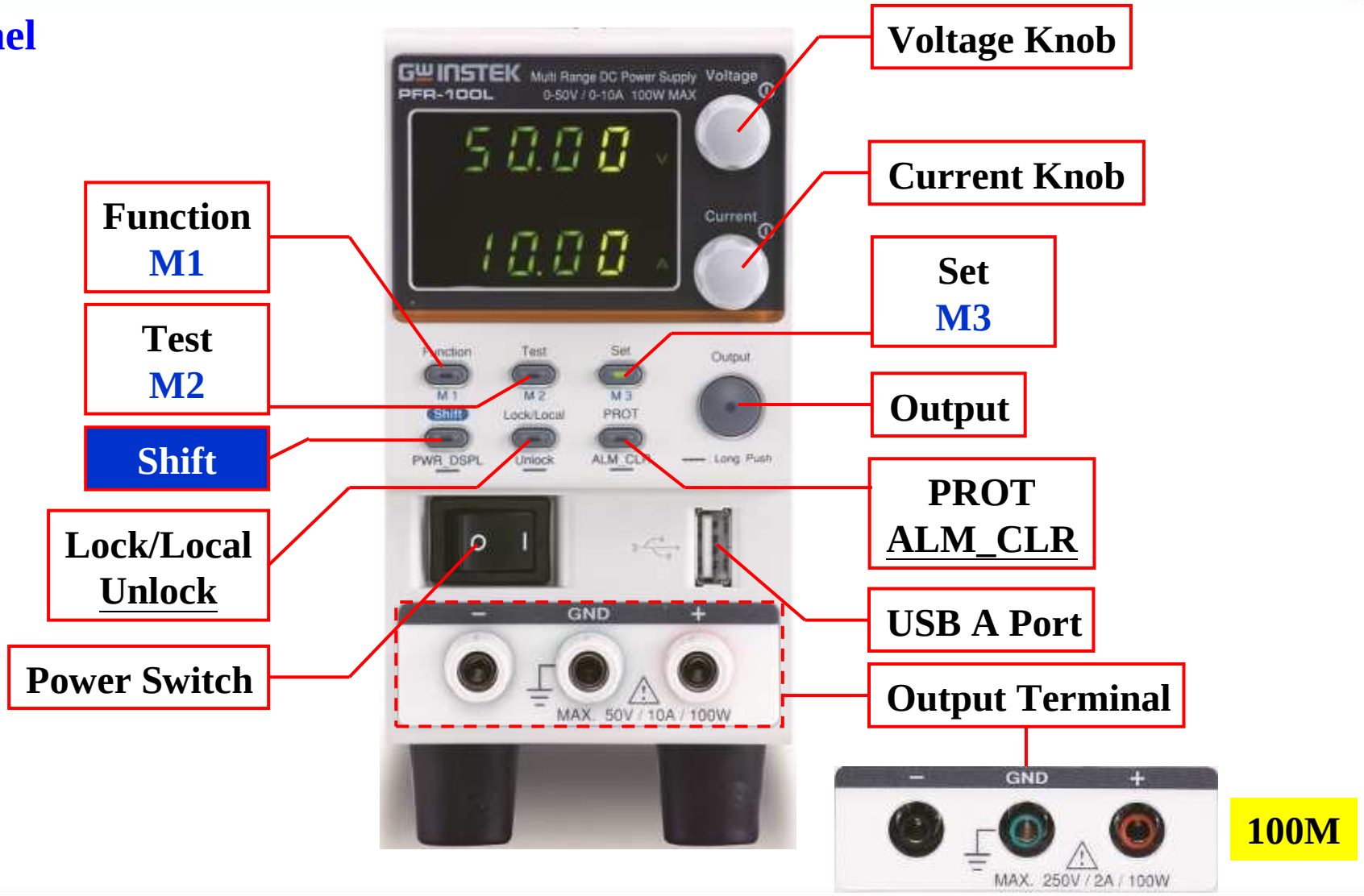
◎: Excellent / ○: Good / ▲: Bad / X: None

Items		GW Instek/TTC PFR-100	Takasago KX-100	Mastusada P4K	ITECH/B&K 6720/9110	Picotest P9610A
Protection	OVP	○	○	○	○	○
	UVL	○	X	X	X	X
	OCP	○	○	○	○	○
	OTP	○	○	○	○	○
	AC Fail	○	X	○	X	X
Others	Dimensions (W×H×D) mm	3U (70 × 124 × 300)	3U (71 × 130 × 300)	3U (35 × 124 × 270)	4U (▲) (88 × 175 × 282)	2U (214.6 × 88.6 × 280)
	Power Density (W/cm^3)	0.038	0.036	0.068	0.023	0.020
	Fanless	◎	◎	◎	X	X
	Output Terminal	◎ Front / Rear	◎ Front / Rear	◎ Front / Rear	○ Front	○ Front
	Universal Input	◎	X (Factory)	◎	○ (Switch)	○ (Switch)
	CE Mark	◎	X	X	X	◎

Features

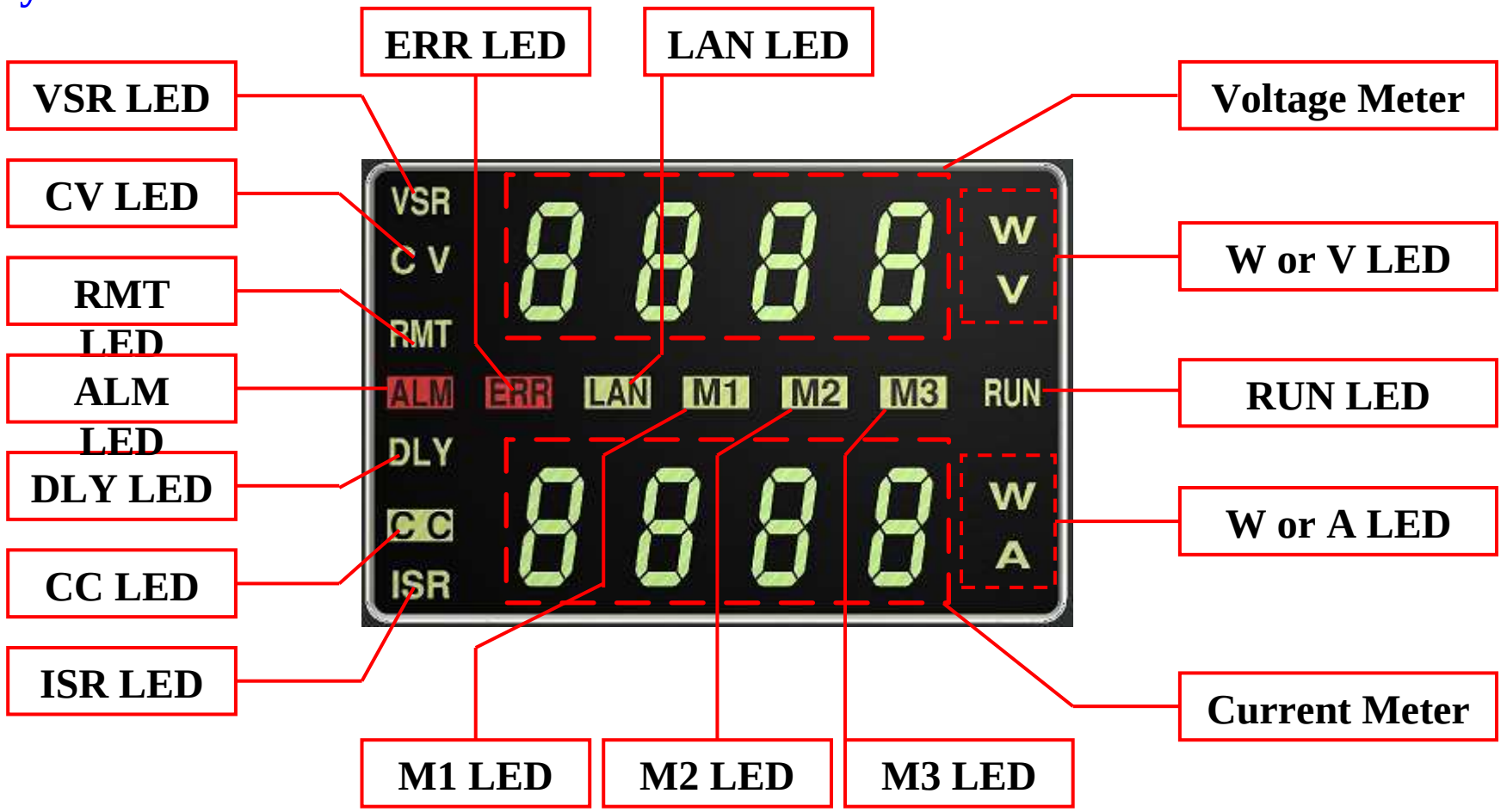
Panel Description

Front Panel



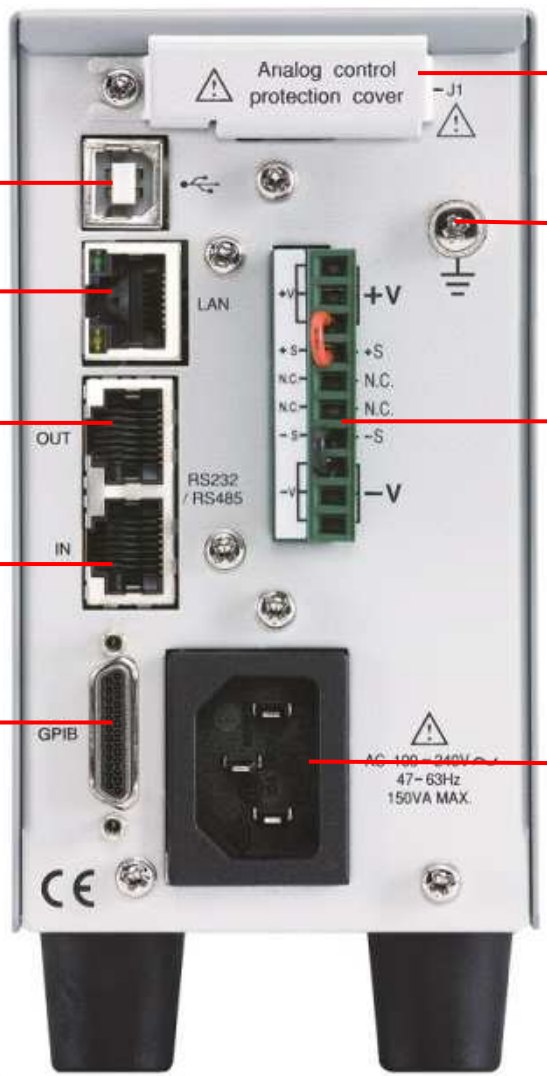
Panel Description

Display Area



Panel Description

Rear Panel



USB

LAN

RS-485 / 232 Remote - OUT

RS-485 / 232 Remote - IN

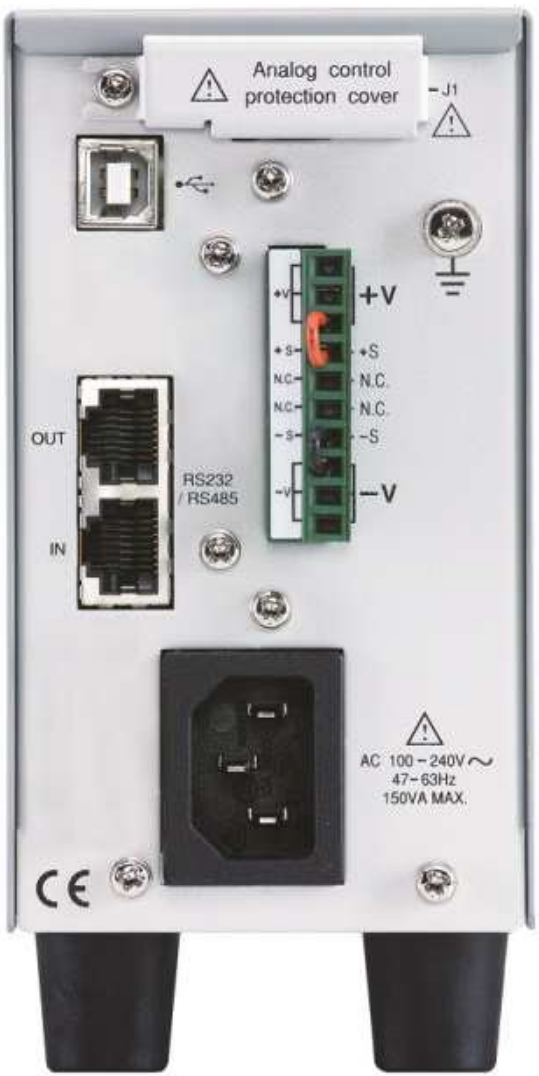
GPIB

Analog Control

Ground Screw

DC Output Terminal

AC Input



Full Interface

Standard Interface

CV, CC Priority Start Function

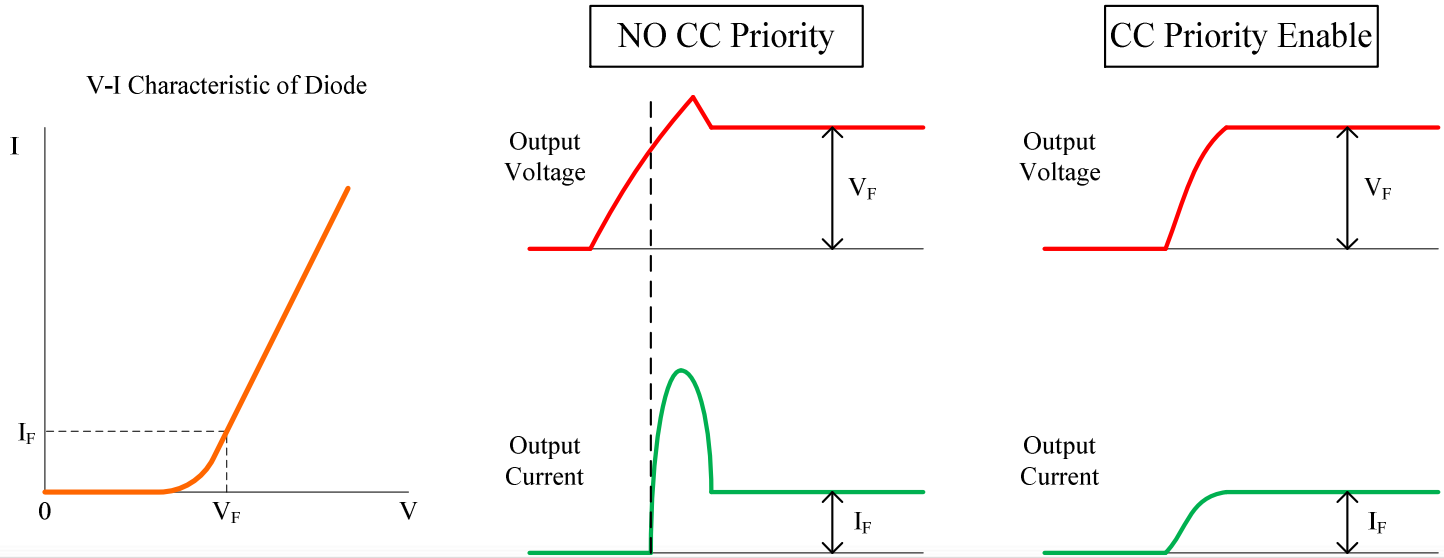
Function	Description	Setting Range
F-03	V-I Mode Slew Rate Select	0 = CV high speed priority (CVHS) 1 = CC high speed priority (CCHS) 2 = CV slew rate priority (CVLS) 3 = CC slew rate priority (CCLS)
F-04, F-05	Rising / Falling Voltage Slew Rate	0.1V/s ~ 100.0V/s (PFR-100L) 0.1V/s ~ 500.0V/s (PFR-100M)
F-06, F-07	Rising / Falling Current Slew Rate	0.01A/s ~ 20.00A/s (PFR-100L) 0.001A/s ~ 4.000A/s (PFR-100M)

CV Mode:
(A)(D) F-03 = 0 : CV High Speed (Slew Rate OFF)
(B)(E) F-03 = 2 : CV Slew Rate Enable
F-04 = 100V/s : Rising Slew Rate
F-05 = 100V/s : Falling Slew Rate
(C)(F) F-03 = 2 : CV Slew Rate Enable
F-04 = 20V/s : Rising Slew Rate
F-05 = 20V/s : Falling Slew Rate

CC Mode:
(A)(D) F-03 = 1 : CC High Speed (Slew Rate OFF)
(B)(E) F-03 = 4 : CC Slew Rate Enable
F-06 = 10A/s : Rising Slew Rate
F-07 = 10A/s : Falling Slew Rate
(C)(F) F-03 = 4 : CC Slew Rate Enable
F-06 = 2A/s : Rising Slew Rate
F-07 = 2A/s : Falling Slew Rate

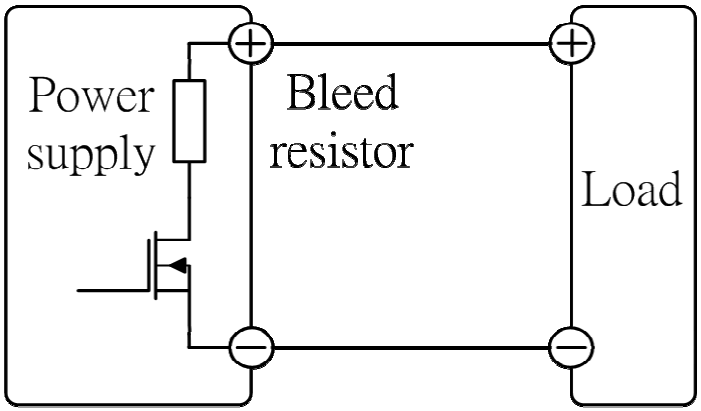
CV, CC Priority Start Function

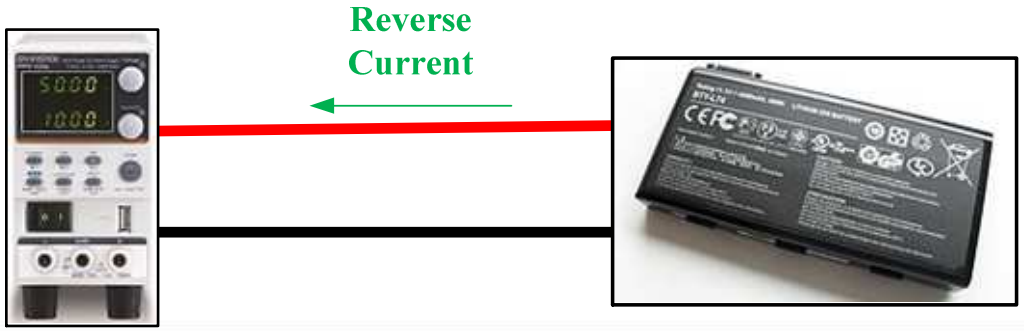
Function	Description	Setting Range
F-03	V-I Mode Slew Rate Select	0 = CV high speed priority (CVHS) 1 = CC high speed priority (CCHS) 2 = CV slew rate priority (CVLS) 3 = CC slew rate priority (CCLS)
F-04, F-05	Rising / Falling Voltage Slew Rate	0.1V/s ~ 100.0V/s (PFR-100L) 0.1V/s ~ 500.0V/s (PFR-100M)
F-06, F-07	Rising / Falling Current Slew Rate	0.01A/s ~ 20.00A/s (PFR-100L) 0.001A/s ~ 4.000A/s (PFR-100M)



Bleeder ON/OFF Control Setting

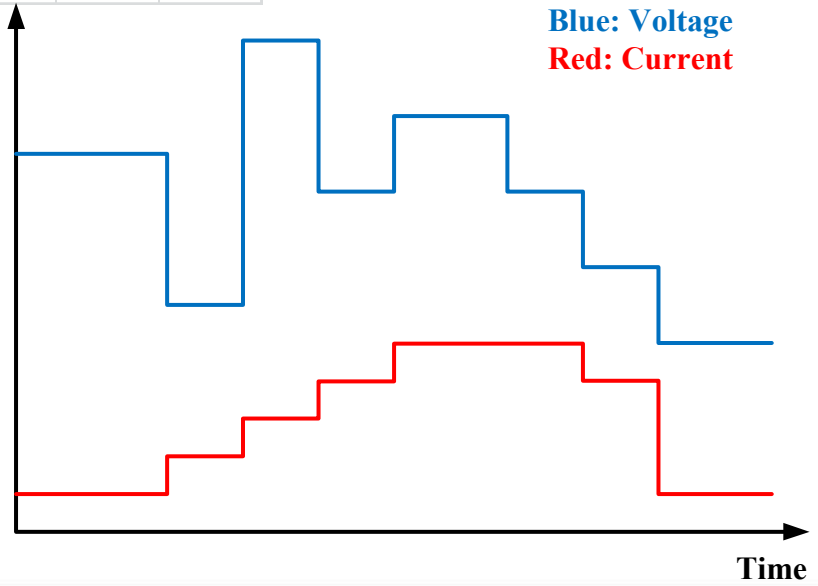
Function	Description	Setting Range
F-09	Bleeder ON/OFF	0 = OFF 1 = ON 2 = AUTO





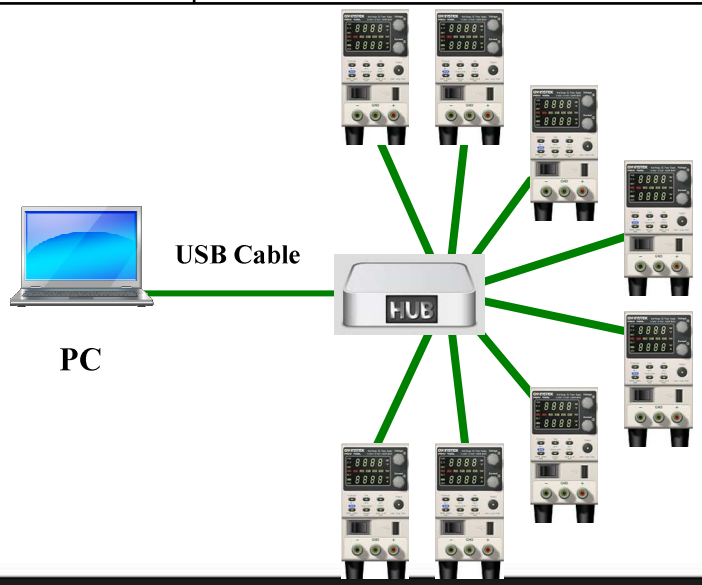
Sequence Control Function

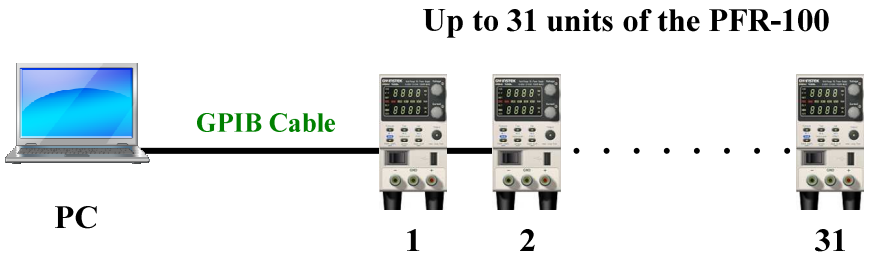
CycleItems	Number	Start Step	End Step										
Cycle	2												
Step	Point	Output	Time(sec)	Voltage (V	Current (A	OVP(V)	OCP(A)	Bleeder	IV Mode	Vsr up(V/s	Vsr down(	Isr up(A/s)	Isr down(A
1		On	1	MIN	MIN	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
2		On	1	0.1	0.1	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
3		On	1	0.2	0.2	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
4		On	1	0.3	0.3	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
5		On	1	0.4	0.4	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
6		On	1	0.5	0.5	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
7		On	1	0.6	0.6	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
8		On	1	0.7	0.7	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
9		On	1	0.8	0.8	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
10		On	1	0.9	0.9	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
11		On	1	1	1	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX
12		On	1	1.1	1.1	MAX	MIN	ON	CVHS	MAX	MAX	MAX	MAX



USB / GPIB Setting

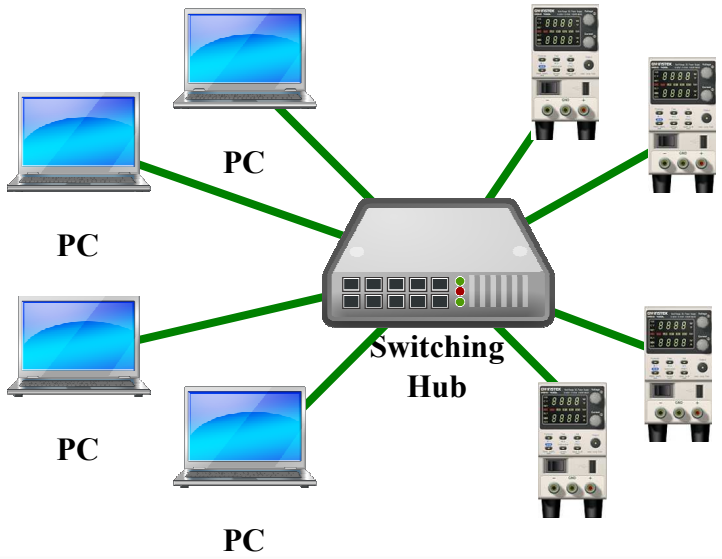
Function	Description	Setting Range
F-20	Front panel USB State	0 = None, 1 = Mass Storage
F-21	Rear panel USB State	0 = None, 1 = Linking to PC
F-23	GPIB Address	0 ~ 30
F-25	Show GPIB available status	0 = No GPIB, 1 = GPIB is available
F-29	Interface Select	0 = Disable; 1 = RS232; 2 = R485; 3 = USB-CDC / NO Mass Storage; 4 = GPIB; 5 = LAN SOCKET; 6 = LAN WEB; 7 = USB-TMC / NO Mass Storage





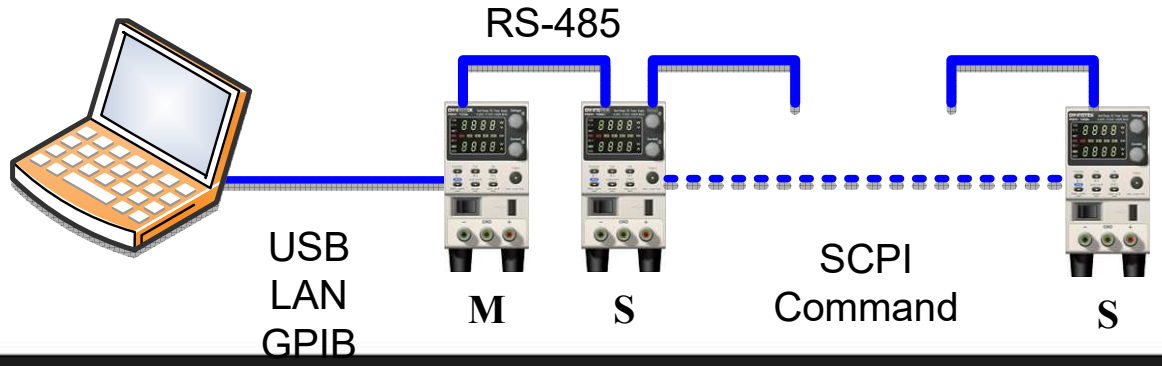
LAN Setting

Function	Description	Setting Range
F-30 ~ 35	MAC Address	0x00~0xFF
F-37	DHCP	0 = Disable, 1 = Enable
F-39 ~ 42	IP Address	0~255
F-43 ~ 46	Subnet Mask	0~255
F-47 ~ 50	Gateway	0~255
F-51 ~ 54	DNS address -1	0~255
F-60	Web password active	0 = Disable, 1 = Enable
F-61	Web setting password	0000~9999



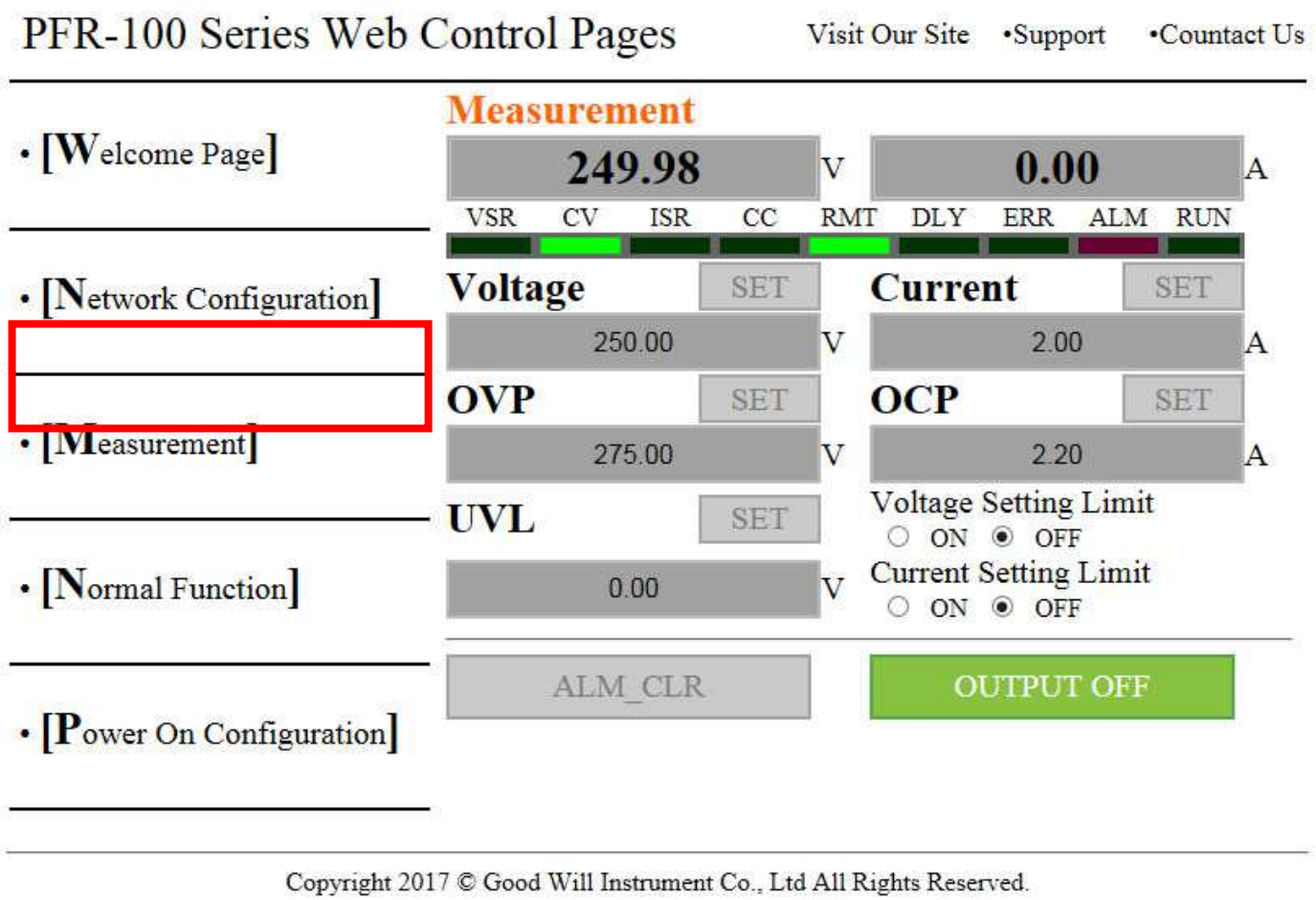
UART Remote Interface

Function	Description	Setting Range
F-71	UART Baud Rate	0 = 1200, 1 = 2400, 2 = 4800, 3 = 9600, 4 = 19200, 5 = 38400, 6 = 57600, 7 = 115200
F-72	UART Data Bits	0 = 7bit, 1 = 8bit
F-73	UART Parity	0 = None, 1 = Odd, 2 = Even
F-74	UART Stop Bit	0 = 1bit, 1 = 2bits
F-75	UART TCP	0 = SCPI
F-76	UART Address	0 ~ 30
F-77	UART Multi-Drop Control	0 = Disable, 1 = Master, 2 = Slave, 3 = Display Information
F-78	UART Multi-Drop Status	Displayed Parameter: AA-S AA: 0 - 30 (Address) S: 0 - 1 (Off-line / On-line Status)



Support Network-based Remote Control

***Only support via LAN(option)**



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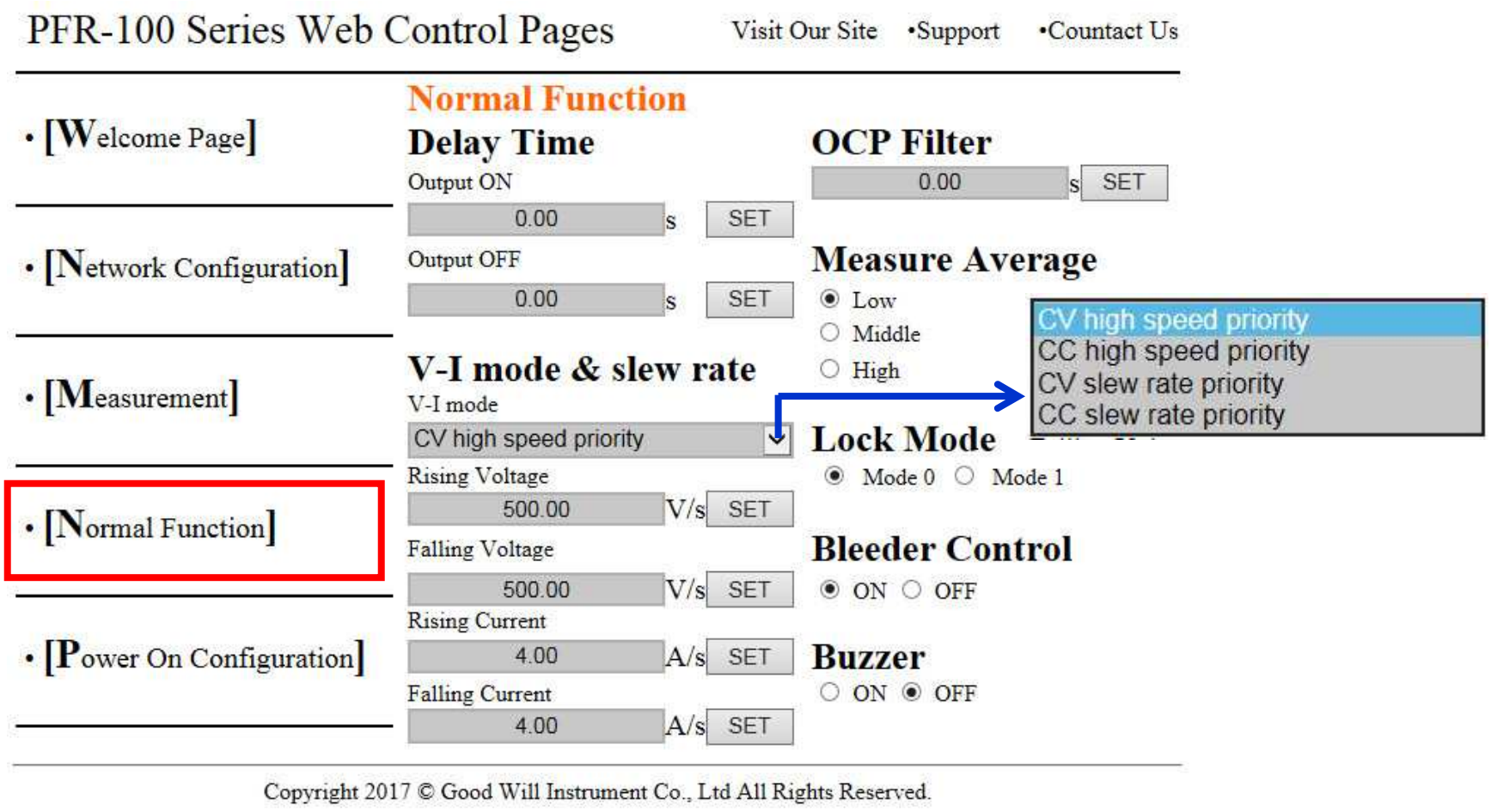


Rack mount adapter (Optional)

Rack mount adapter (EIA)

GRA-431-E

Rack mount adapter (JIS)

GRA-431-J

Optional Accessories

GPIB Cable, 2000mm

GTL-258

RS-232 Cable with DB9 Connector Kit

PSU-232

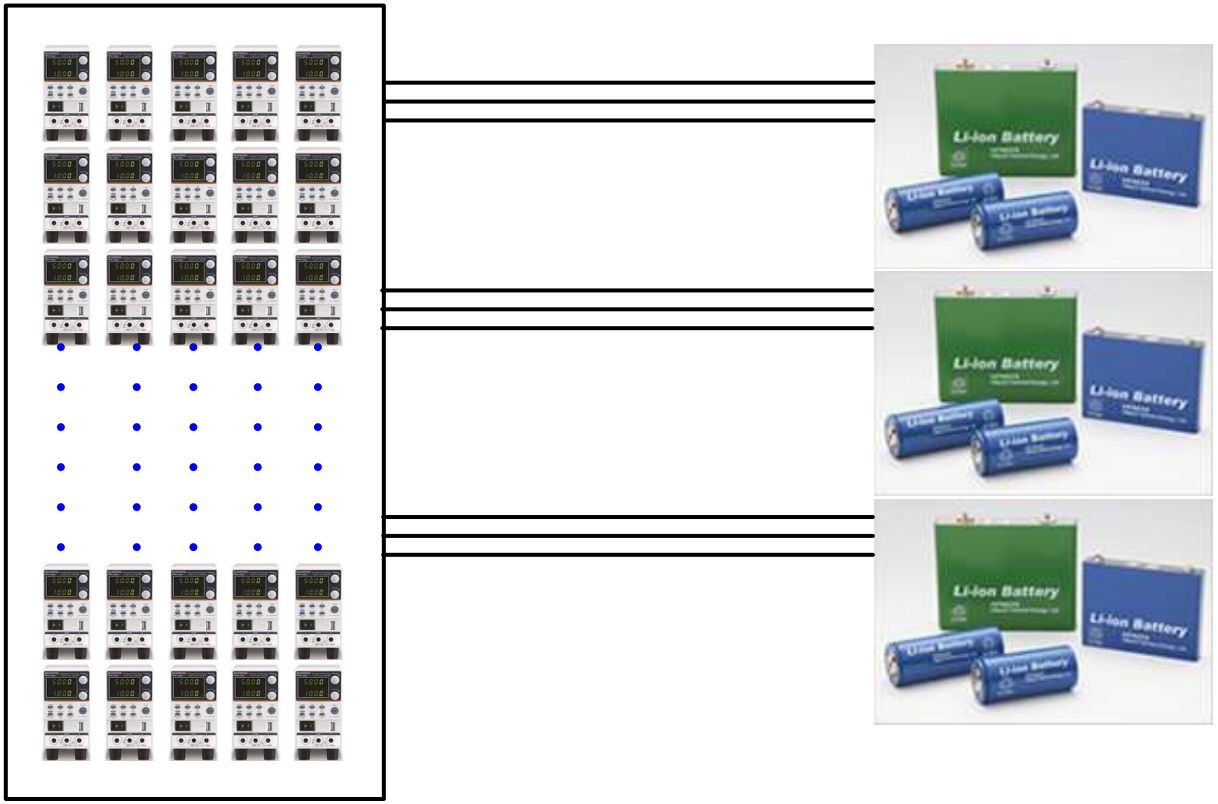
RS-485 Cable with DB9 Connector Kit

PSU-485

Application

Application1: Battery Testing

- EV Battery Pack: It is used to evaluate the battery management circuit.
- Qty.: 100 Units.



Application2: In-vehicle LED lamp

PFR-100L

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Condition1: 12V/6A
Condition2: 24V/3A

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