No.1075PY

Dear customers,

24 April 2026

ULVAC Components News

Sales Termination

Please be informed that following product will stop manufacturing
However, maintenance and sales of consumable parts will be continuously provided in future.

- Details -

1. Object model
   DC Power supply DC-2 / DC-4

2. Sales termination date
   31 March 2027

3. Maintenance term
   7 years after sales termination.

4. Succeeding model
   DC Power supply DC-2-D / DC-4-D

For distribution DC-2 / 4 → DC-2-D / DC-4-D Comparison Data

Sincerely

Munenori Tada
Sales Department Senior Manager
Components Business Unit
Components Business Head Quarter
ULVAC Inc.

End of Document

DC-2/DC-4 ⇔ DC-2-D/DC-4-D Model Comparison

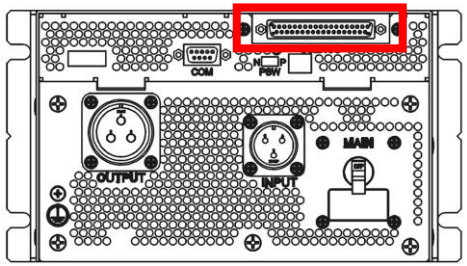
April 24, 2026

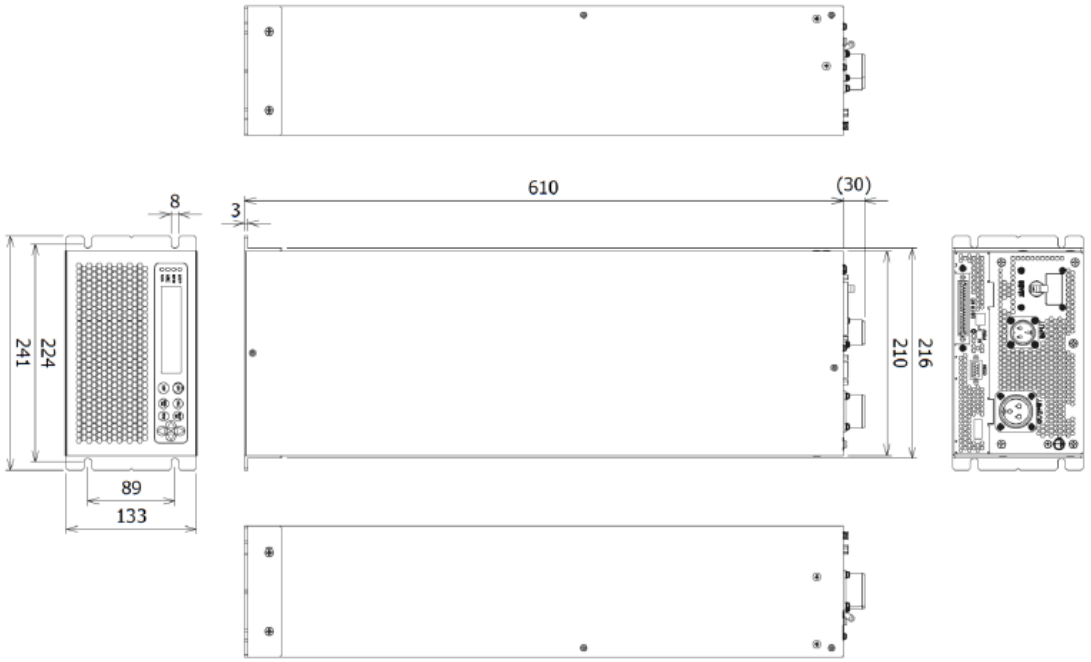
ULVAC Co., Ltd.

PM Dept., Component Business Unit

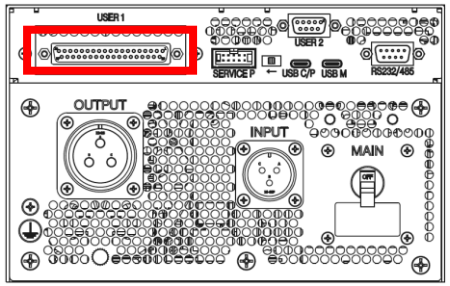
Appearance

DC-2/DC-4

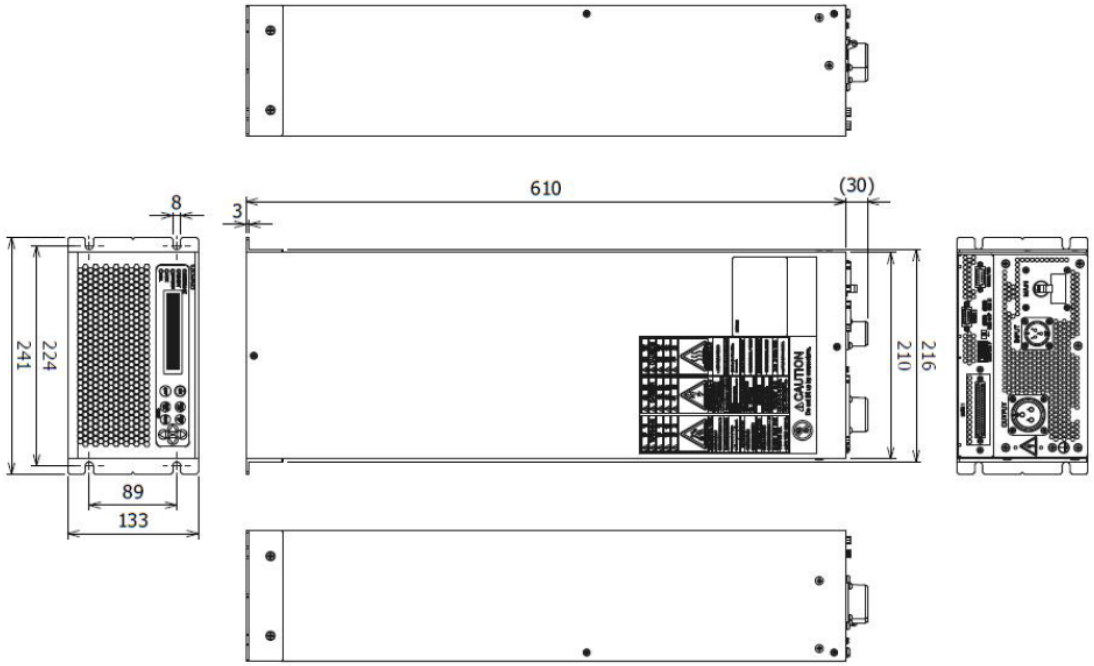




DC-2-D/DC-4-D



*The USER Port position is different.

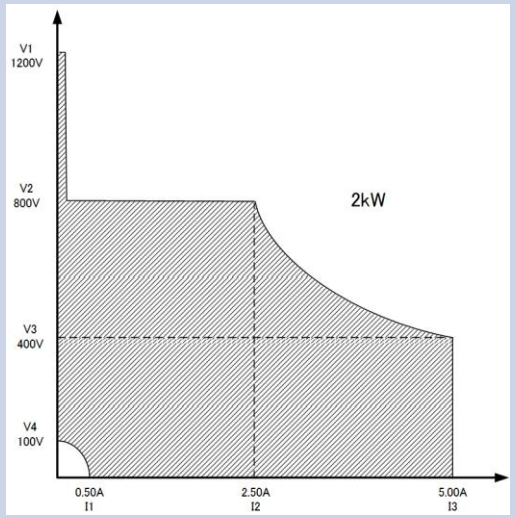


2kw/4kw DC Power Supply Main Specifications

Type		DC-2	DC-4	DC-2-D	DC-4-D
Input Specifications	Input Voltage	AC180~242V φ3 50/60Hz			
	Input capacity	3.5kVA or less	6kVA or less	3.5kVA or less	6kVA or less
Output Specifications	Maximum Rated Power	2kw	4kw	2kw	4kw
	Rated current	5A	10A	5A	10A
	Rated voltage	-800V		-800V -900V(Option)	
	Ignition Voltage	-1200V			
Control	Control Method	Constant Power Control (P Control)/ Constant Current Control (I Control)/Constant Voltage Control (V Control)			
	Power Control Guarantee Range	Rated 1% to 100%			
	Power Control Accuracy	Set Value ±1%			
	Communication Interface	Analog/Digital, RS-232C, RS485			
		----------		EtherCAT(Option)	
Dimensions (mm)		241(W)x610(D)x133(H)			
Cooling system		Forced air cooling			
Weight		15kg			

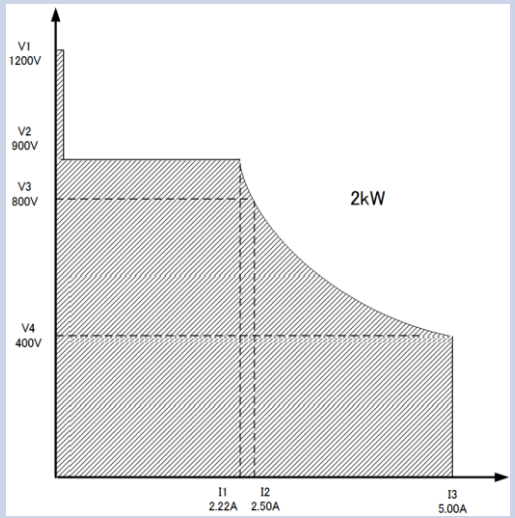
Output Range

DC-2



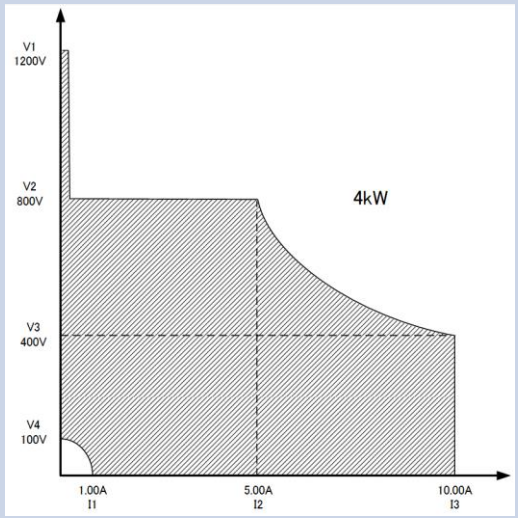
V1	1200V
V2	800V
V3	400V
V4	100V
I1	0.50A
I2	2.50A
I3	5.00A

DC-2-D



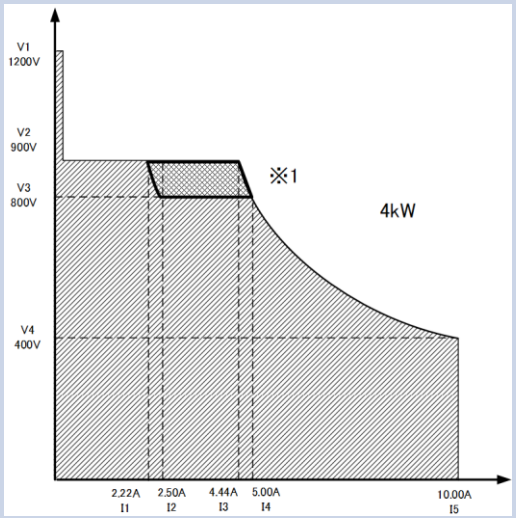
V1	1200V
V2	900V(Option)
V3	800V
V4	400V
I1	2.22A
I2	2.50A
I3	5.00A

DC-4



V1	1200V
V2	800V
V3	400V
V4	100V
I1	1.00A
I2	5.00A
I3	10.00A

DC-4-D



V1	1200V
V2	900V(Option)
V3	800V
V4	400V
I1	2.22A
I2	2.50A
I3	4.44A
I4	5.00A
I5	10.00A

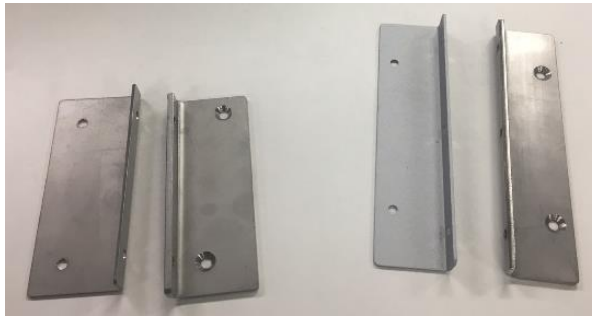
*1 Input voltage is limited.

Connection Options

- Both DC-2/DC-4 and DC-2 D/DC-4 D can be connected.

When connected to the front

Rear Connection



Sheet Metal

- Power supplies can be connected to a full rack size.
- Rack area can be reduced.

IO Assignment List

No differences.

DC-2 / DC-4

Pin No.	Signal name	Type	Voltage level	Return	Detail
1	COMA				Analog signal common for user interface
2	VOUT	AO	0-10V	COMA	Output voltage monitor signal*1
3	IOUT				Output current monitor signal*2
4	POUT				Output power monitor signal*3
5	COMA				Analog signal common for user interface
6~9	RESERVE				This is not used. Leave it open.
10	DC ON	DI*7	0-15V	COMD	DC is output at Low level.
11	READY	DO	0-15V/24V	COMD	Output at Low level when the output operation is possible. (Low level even during the operation)
12	OUTPUT				Output at Low level during the output operation.
13	SETPOINT				The DC unit outputs at Low level during the output following the set value.
14	FAIL				Output at Low level when an error is detected.
15	ARC MODE	DI*7	0-15V	COMD	Switching the ARC parameter to HIGH is A, and LOW is B. (See 4-6.)
16	HARC	DO	0-15V/24V	COMD	Low level output during hard arc processing * 4
17	MARC				Low level output during micro arc processing * 4
18	RESERVE				This is not used. Leave it open.
19	COMD				Digital signal common for user interface.
20	COML				LEVEL signal common for user interface.
21	LEVEL	AI	0-10V	COML	Power output set voltage (0 to 10V)*5
22	COMA				Analog signal common for user interface.
23					
24	RESERVE				This is not used. Leave it open.
25	COMD				Digital signal common for user interface.
26	RESET	DI*7	0-15V	COMD	Error reset (input at Low level)*6
27	PSEL				Output control mode change in combination: constant power, constant current and constant voltage; see 4-3-2.
28	ISEL				
29~33	RESERVE				This is not used. Leave it open.
34	COMD				Digital signal common for user interface.
35	REMOTE	DO	0-15V/24	COMD	Output at Low level with the USER mode selected.
36	RESERVE				This is not used. Leave it open.
37	INTERLOCK	DI*7	0-15V	COMD	The interlock is released at Low level.

※1 It comes to 0 to 1,200 V for the output of voltage level 0 to 10V of the output voltage monitoring signal
※2 It comes to 0 to rated output for the output of voltage level 0 to 10V of the output current monitoring signal
※3 It comes to 0 to rated output for the output of voltage level 0 to 10V of the output power monitoring signal
※4 A low-level output is executed for 50 us.
※5 P control: It comes to 0 to rated output for the output setting voltage level 0 to 10V.
I control: It comes to 0 to rated output for the output setting voltage level 0 to 10V.
V control: It comes to 0 to 1200 V for the output setting voltage level 0 to 10V.
※6 Only USER mode is enabled. Take 200 msec or more for the input (low level input). In the LOCAL mode, it is necessary to reset the system by operating the front panel. Other than resetting of ERROR, the output state is reset. * Refer to 4-12. RESET
※7 Although a pull-up is arranged for DI with 15V, the system also can be used by applying 24V etc from an external source. For more details, refer to [Table 5-5. USER control signal connection equivalent circuit] and [Fig. 5-2. Recommended digital I/O connection circuit]

DC-2-D / DC-4-D

Pin No.	Signal name	Type	Voltage level	Return	Detail
1	COMA		-		Analog signal is common for USER1 PORT.
2	VOUT	AO	0-10V	COMA	Output voltage monitor signal
3	IOUT				Output current monitor signal
4	POUT				Output power monitor signal
5	COMA		-		Analog signal is common for USER 1 PORT.
6~9	RESERVE		-		This is not used. Leave it open.
10	DC ON	DI	0-15V/24V	COMD	The DC becomes unable to output only at Low level.
11	READY	DO	0-15V/24V	COMD	Output at Low level when the output operation is possible. (Low level even during the operation)
12	OUTPUT				Output at Low level during the output operation.
13	SETPOINT				Low level output when the output values are within a certain range with respect to the command values.
14	FAIL				Low level output in the event of FAIL.
15	PARAMETER SET	DI	0-15V/24V	COMD	Switching the ARC parameter to High is A, and Low is B.
16	HARC	DO	0-15V/24V	COMD	Low level output of 100us during hard-arc process. *1
17	MARC				Low level output of 100us during micro-arc process. *1
18	AUX	-	15V	COMD	The output is +15V. Although it can be used as the power-supply voltage for DO of USER1 PORT of the power supply, do not use it for any other purposes.
19	COMD		-		Digital signal common for USER 1 PORT.
20	COML		-		LEVEL signal common for USER 1 PORT.
21	LEVEL	AI	0-10V	COML	Power output set voltage (0 to 10V)
22	COMA		-		Analog signal is common for USER 1 PORT.
23					
24	RESERVE		-		This is not used. Leave it open.
25	COMD		-		Digital signal common for USER 1 PORT.
26	RESET	DI	0-15V/24V	COMD	FAIL is reset at a low-level input. * 2
27	PSEL				The output control mode can be selected by the following combinations:
28	ISEL				
29~33	RESERVE		-		This is not used. Leave it open.
34	COMD		-		Digital signal common for USER 1 PORT.
35	REMOTE	DO	0-15V/24V	COMD	Output at Low level with the USER mode selected.
36	RESERVE		-		This is not used. Leave it open.
37	INTERLOCK	DI	0-15V/24V	COMD	The interlock is released at Low level.

Output control mode	PSEL (27PIN)	ISEL (28PIN)
Rated power control	Low	High
Rated current control	High	Low
Rated voltage control	High	High
WARNING*3	Low	Low

*1 Even if the arc processing time setting is 100us or less, the output will be 100us. Even if arc processing is performed multiple times during 100us, only one 100us output is generated. This time can be changed from the menu.
*2 Input Low level for 200msec or more.
*3 Since there is no corresponding output control mode, a warning will be processed.

ARC RESET

- ARC RESET Command is different. (Other commands may have different minimum and maximum values.)

DC-2	DC-4	DC-2-D	DC-4-D
Command: 0x2D COUNTER RESET		Command: 0x2D ACT RESET ARC COUNT	
Response Data: 1byte STATUS		Response Data: 1byte STATUS	
Send/Receive Example: 0x81 Response 0x00 bit 0x2D write command 0xAC check sum		Send/Receive Example: 0x81 Response 0x01 bit 0x2D write command 0 x 00 Send command # 0xAD check sum	

***Send Command Details**

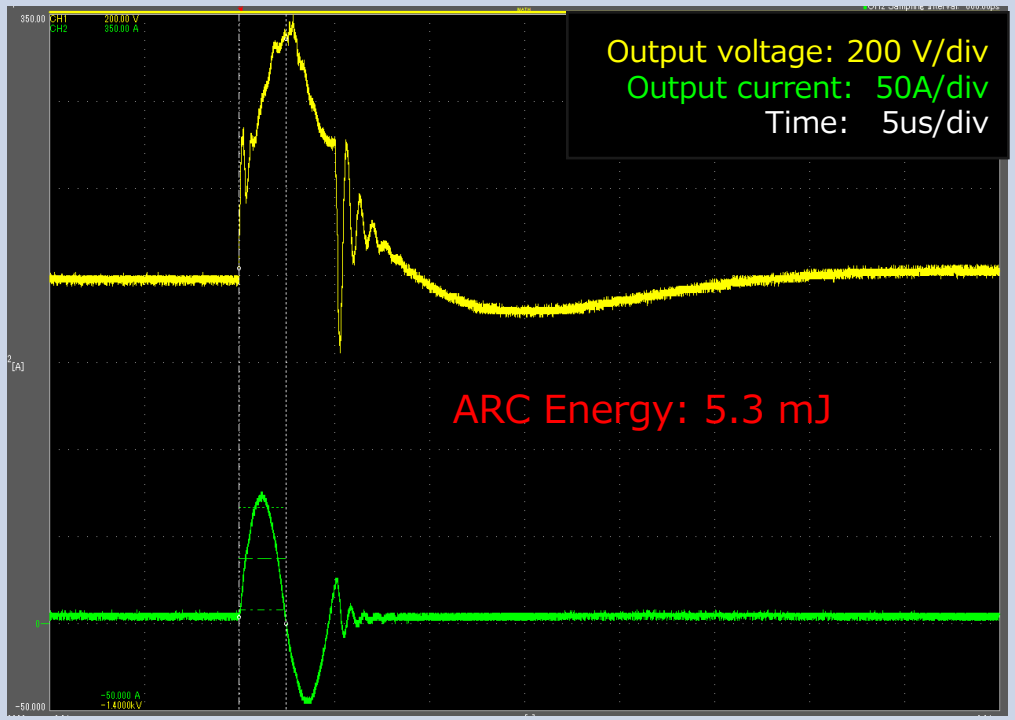
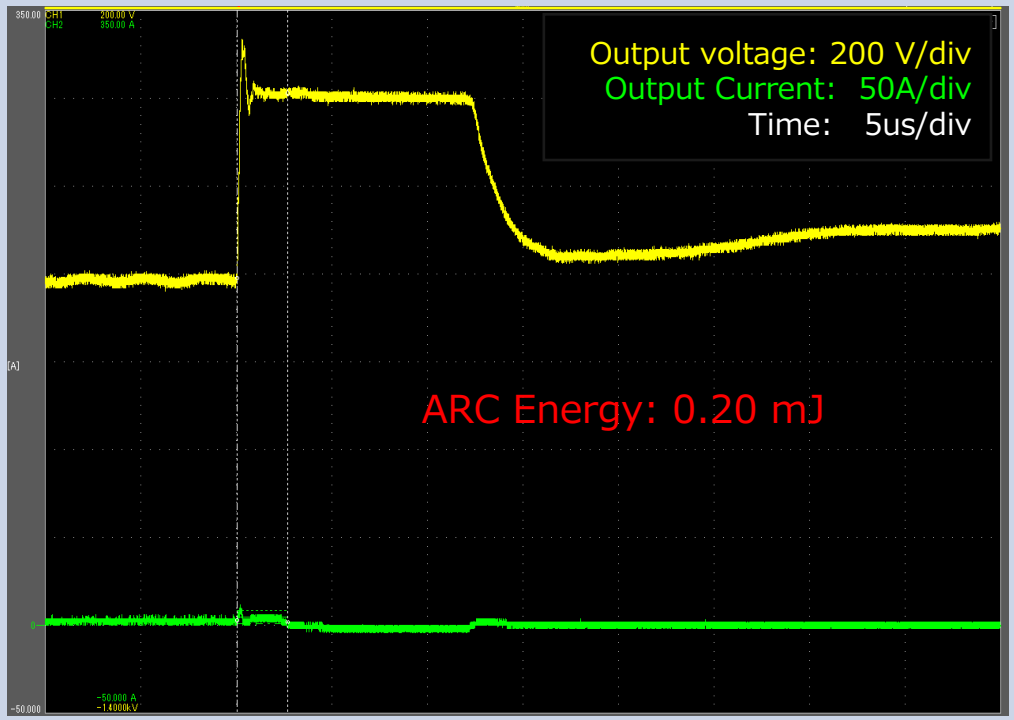
Cumulative MARC and HARC count reset : 0x00

Cumulative MARC count reset : 0x01

Cumulative HARC count reset : 0x02

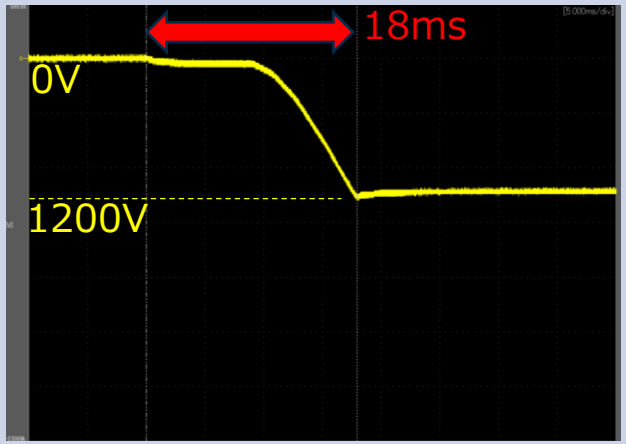
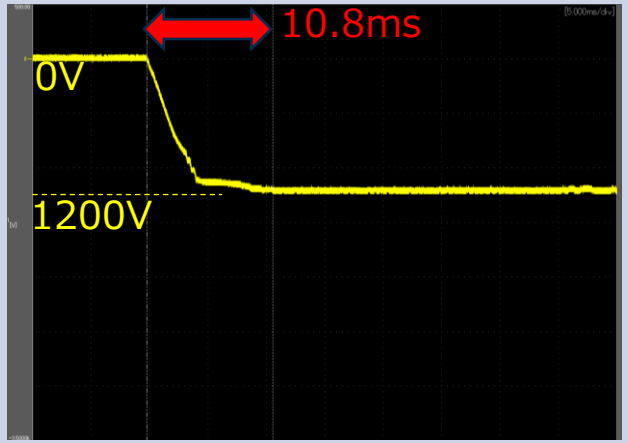
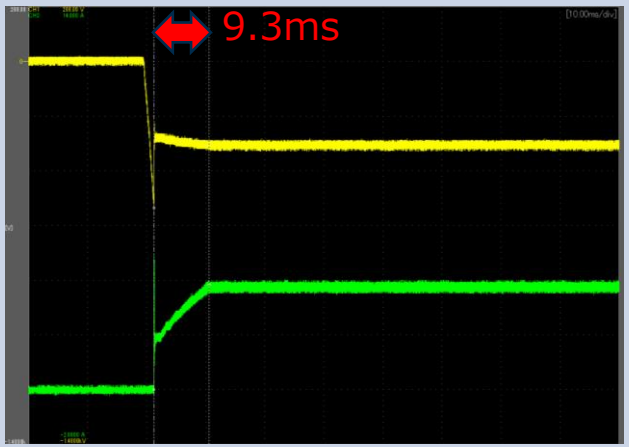
ARC waveform comparison

- ARC energy can be reduced.

DC-2/DC-4 MARC waveform	DC-2-D/DC-4-D MARC waveform
	

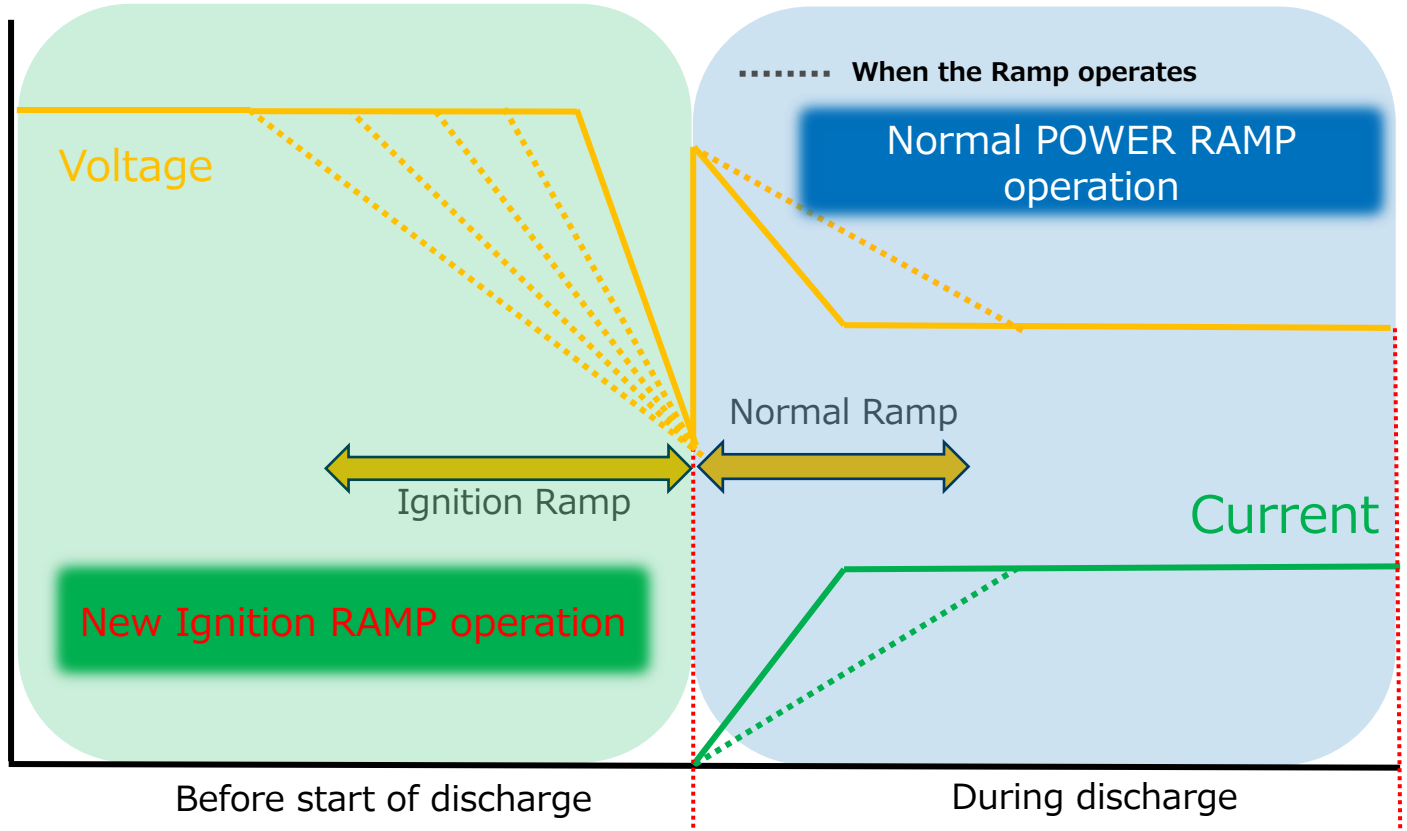
Comparison of ignition waveform and rising waveform

- Ignition/rising speed is high.

DC-2/DC-4 Ignition waveform	DC-2-D/DC-4-D Ignition waveform	DC-2/DC-4 Rising waveform	DC-2-D/DC-4-D Rising waveform
			
Output voltage: 500 V/div Time: 5ms/div	Output Voltage: 500 V/div Time: 5ms/div	Output Voltage: 200 V/div Output Current: 2A/div Time:10ms/div	Output Voltage: 200 V/div Output Current: 2A/div Time:10ms/div
			
		Al target +Ar discharge	Al target +Ar discharge

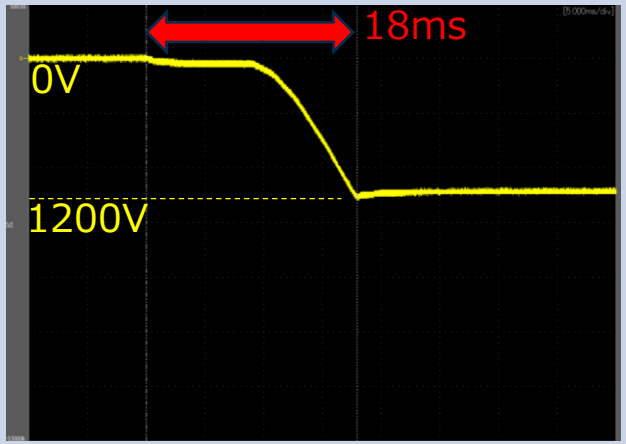
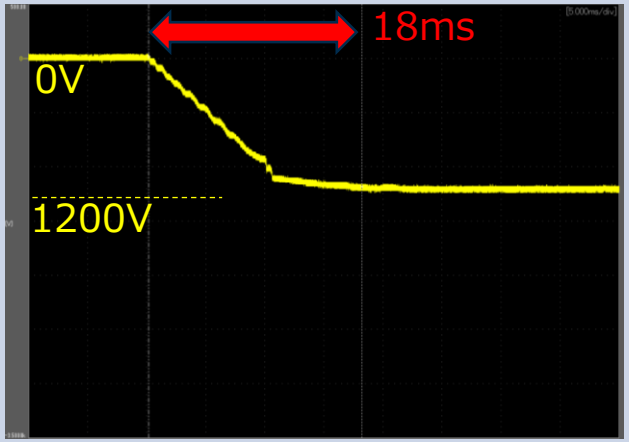
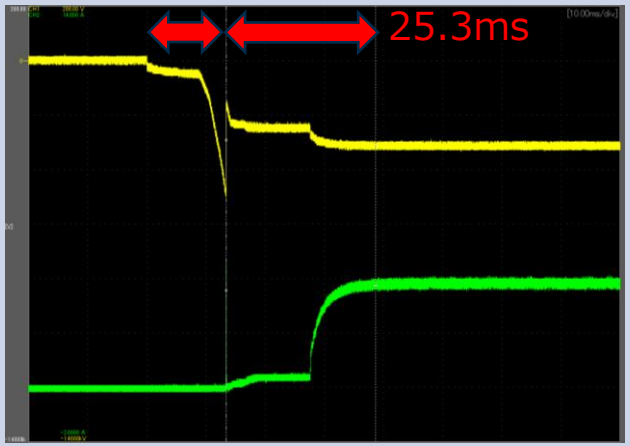
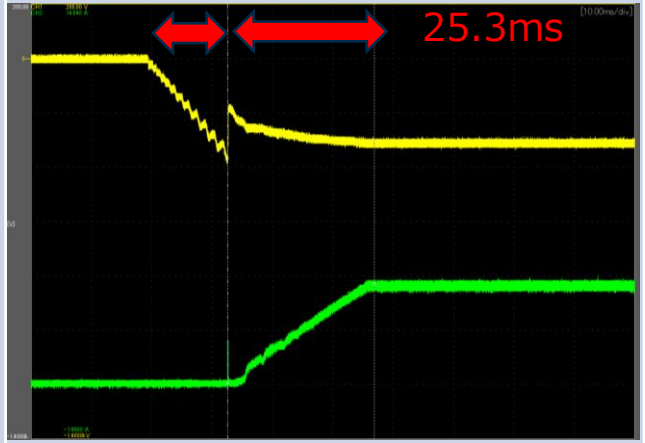
Lamp function

- Ramp up function adjusts rise time from ignition and discharge.
  *The ignition lamp is an option and the normal lamp is a standard function.



Speed matching with ramp-up function

- Conventional power supply behavior is also supported using the ramp function.

DC-2/DC-4 Ignition waveform	DC-2-D/DC-4-D Ignition waveform	DC-2/DC-4 Rise waveform	DC-2-D/DC-4-D Rise waveform
			
Output voltage: 500 V/div Time: 5ms/div	Output voltage: 500 V/div Time: 5ms/div Change parameter 	Output Voltage: 200 V/div Output Current: 2A/div Time:10ms/div	Output voltage: 200 V/div Output current: 2A/div Time:10ms/div Change parameter 

About Digital DC Power

Current Main Features [Option]

Input Voltage 200 VAC

Model	–	Option Machinery Number(M/N)				
DC-2-D DC-4-D	–	A	H	E	R	S

Model

DC-2-D
2kW/800V/5A

DC-4-D
4kW/800V/10A

Option

A: ARC processing

H: High Volt (900V)

E: Ether CAT communication

R: RAMP function

S: ARC return operation

Ex)

① DC-2-D
No Option
2 kW/800 V/5 A Rated Power Supply

② DC-4-D-HR
High Volt /RAMP Option
4 kW/900 V/10 A Rated Power Supply

③ DC-4-D-AHERS
ARC Processing/High Volt /
Ether CAT Communication/RAMP/ARC Reverting Operation Option
4 kW/900 V/10 A Power Supply Rated

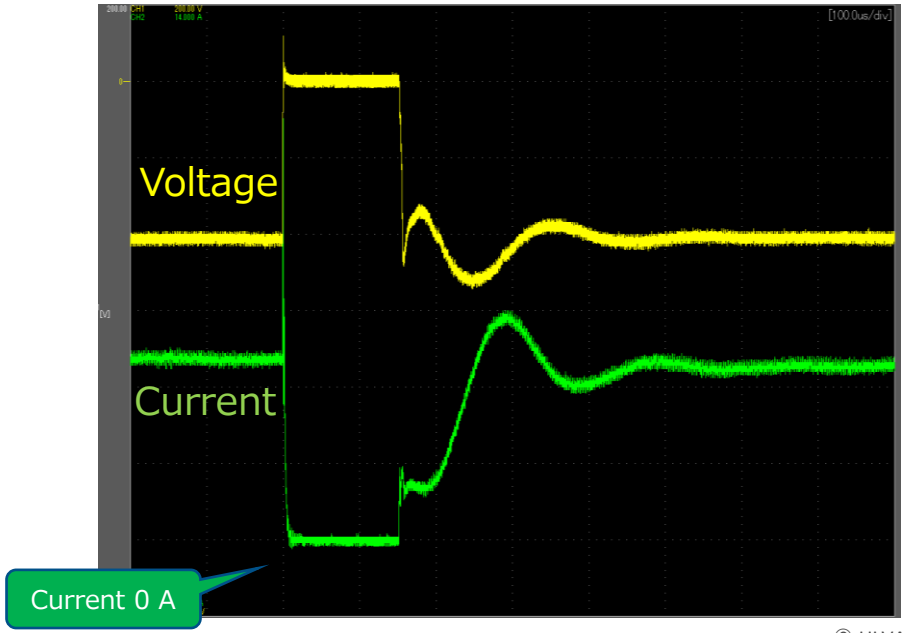
High-speed ARC processing [Option A]

- This contributes to process efficiency by covering the concept of ARC processing and realizing the fastest ARC recovery.
  - Technology was established to misfire ARC even at high-speed processing of 20us.
  - Process efficiency was improved by minimizing ARC processing.
  - Recovery was realized by shortening the pause time even at loads prone to misfire.

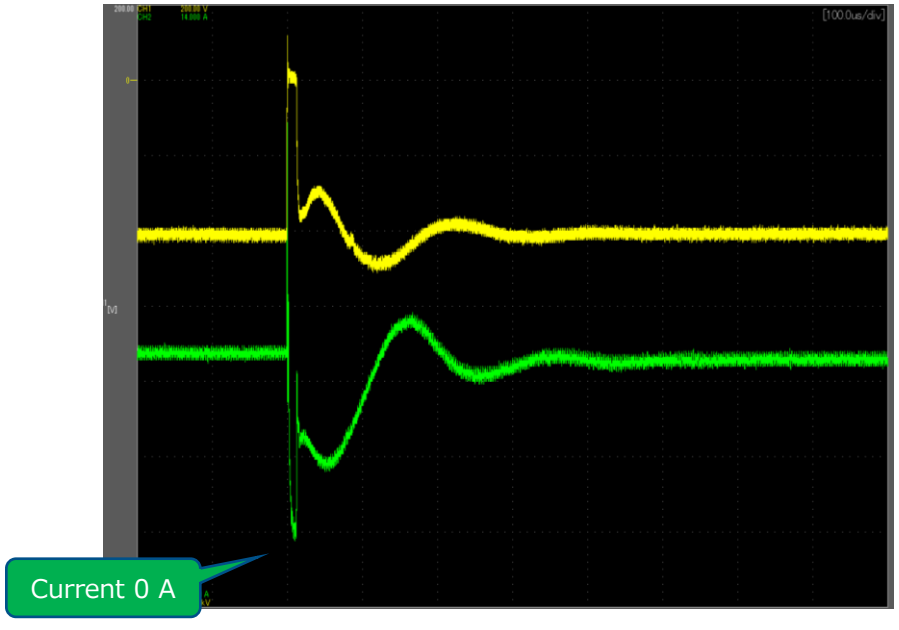
MARC processing time

Model	Initial value	Selection range
DC-2-D/4-D	100μs	50μ-5000μs
DC-2-D/4-D (A Option)	20μs	10μ-5000μs
Other companies	150μs	50μ-50000μs

Conventional Processing: ARC Processing Time: 150us

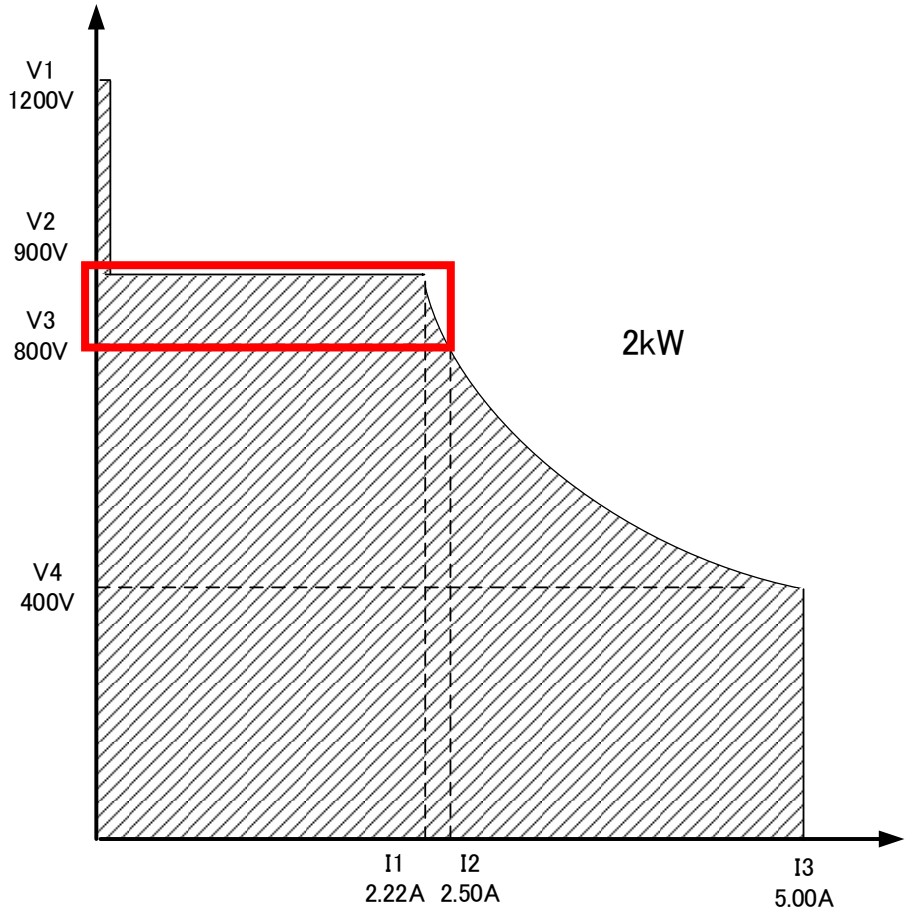


ULVAC Fastest Processing: ARC Processing Time: 20us

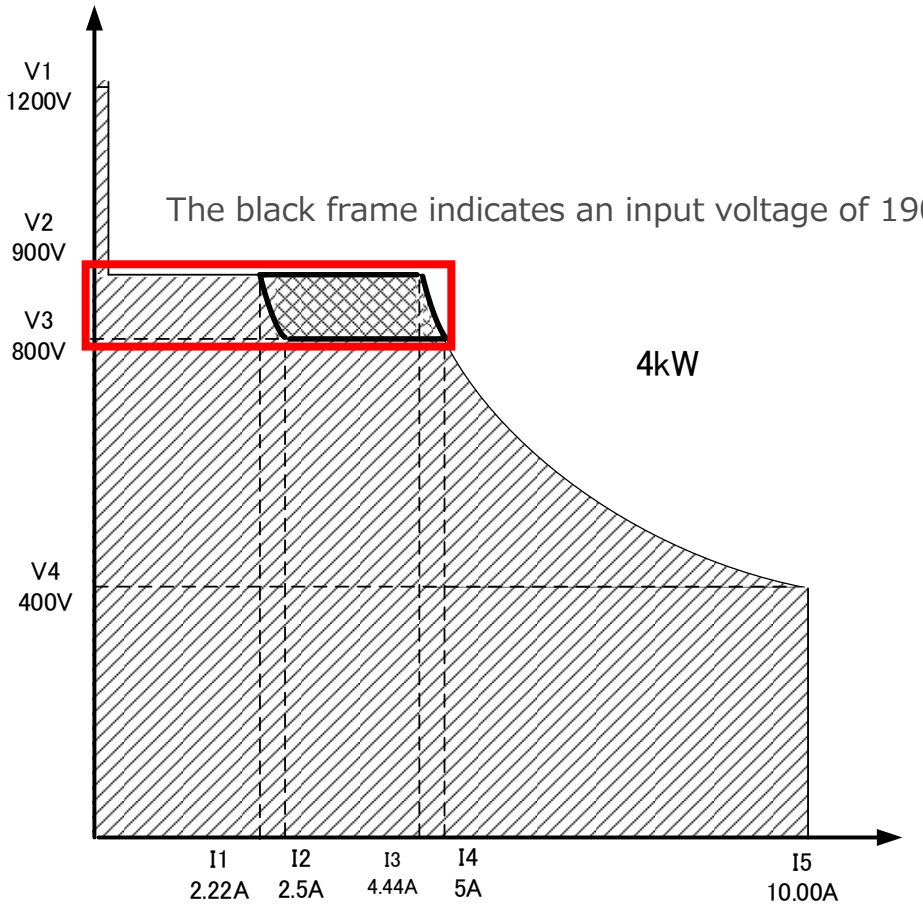


High Volt Specifications [Option H]

- The rating can be increased to 900 V to support low-pressure processes.
  - The rating can be optionally changed from 800 V to 900 V.



DC-2-D Output Range



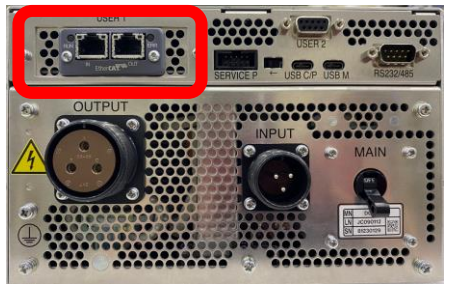
The black frame indicates an input voltage of 190 V or more.

DC-4-D Output Range

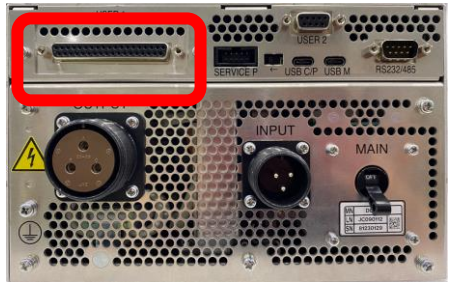
Ether CAT communication support [Option E]

- EtherCAT leads to investment not only in faster control but also in maximizing business efficiency.
  - Improved productivity : High real-time control in μs units
  - : Communication with all slaves with only one frame flow
  - Product stability : Synchronization of internal clocks of all slaves in ns order
  - Cost reduction : Standard Ethernet cables for easy expansion

◆ Ether CAT model

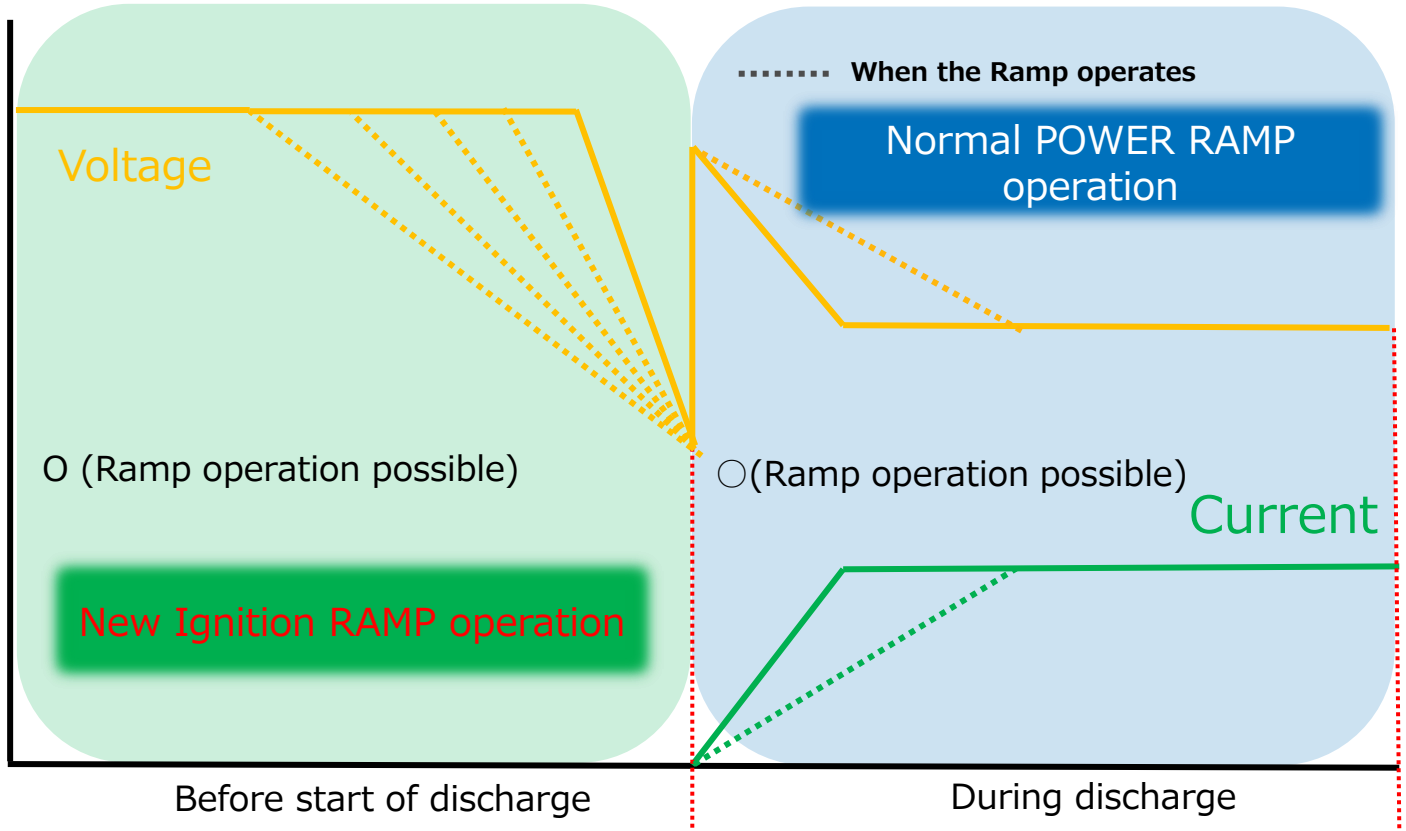


◆ User I/O model

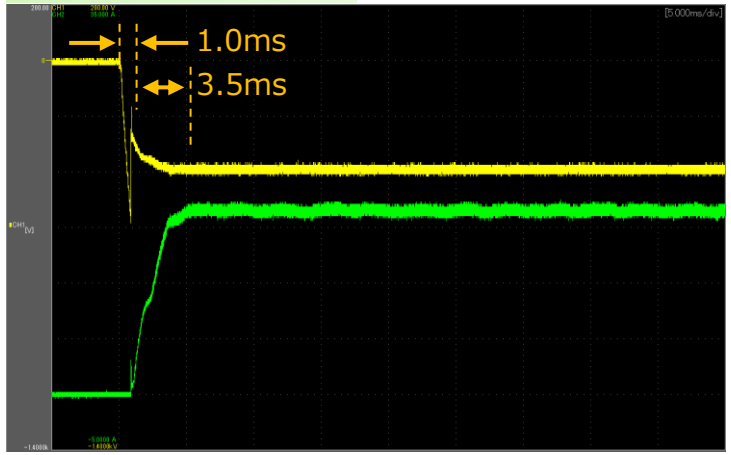


RAMP function [Option R]

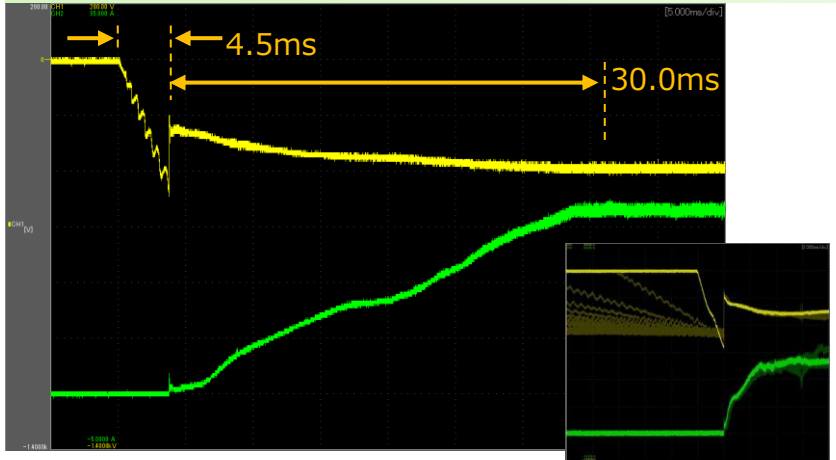
- Equipped with a ramp function, the power supply is controlled to expand the range of film formation processes.
  - Insulation-breakdown voltage is suppressed by the ignition ramp operation.
  - Inrush current is suppressed by suppressing voltage.



① No ramp operation



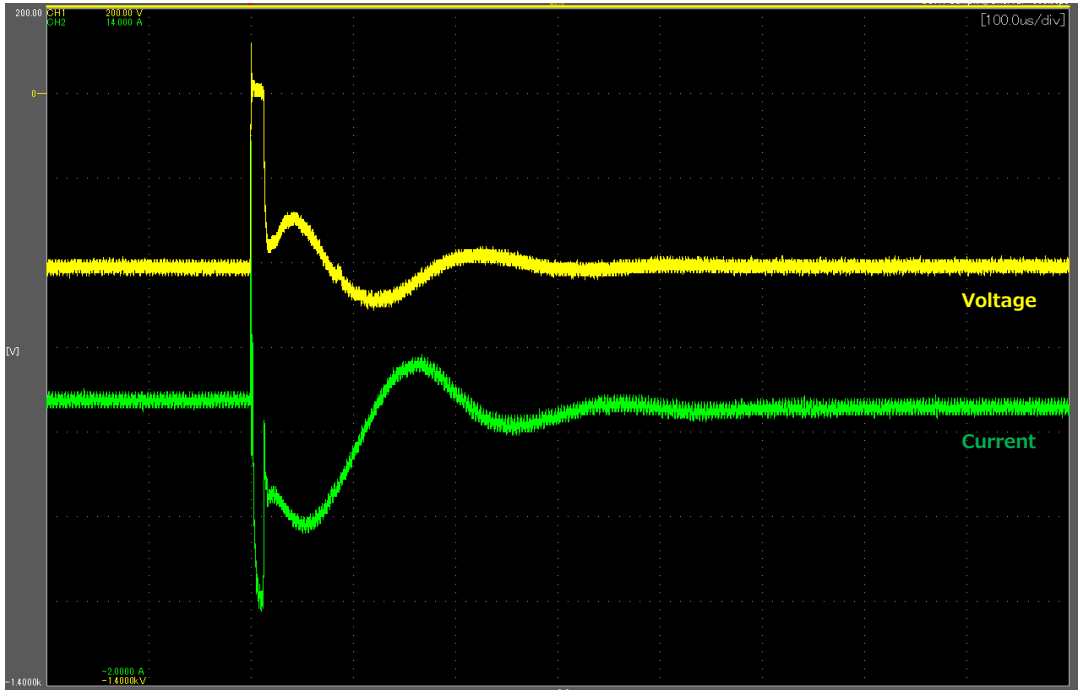
② Ramp operation (Ignition Ramp, Normal Ramp)



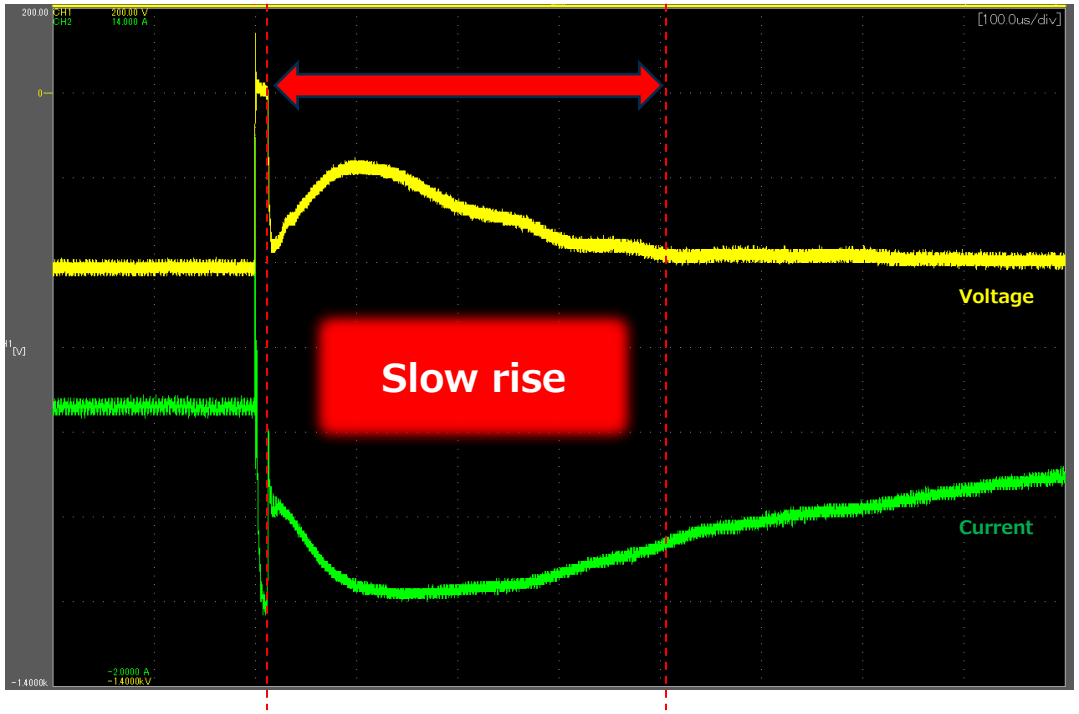
Soft Start function at arc recovery [Option S]

- Stable discharge is achieved by controlling the rise after arc processing.
  - Soft Start (=SS) function slows the rise and recovery can be controlled.
  - The rise speed after arc processing can be changed (1~5 steps).

SS: 5 (Initial value)



SS : 1



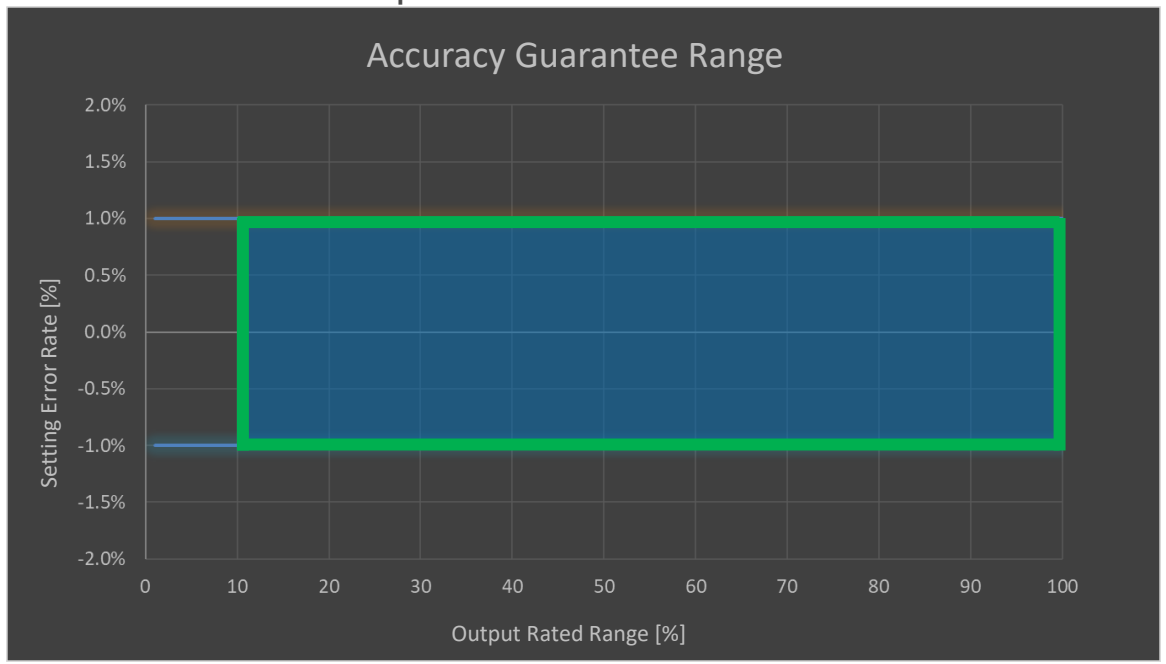
Option selection

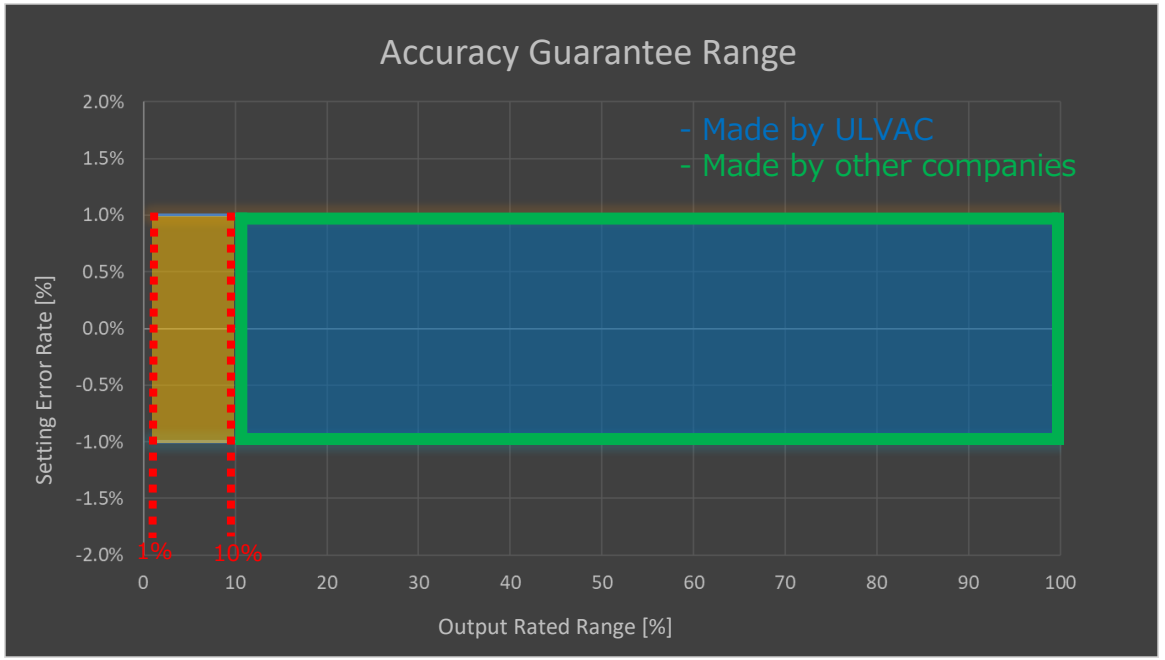
- Digital DC power supply performance can be selected by options.

Option	Option content
A Option	With option : Arc processing time can be set from 10 μs minimum. Initial value 20us Without option : Arc processing time can be set from 50 μs minimum. Initial value 100us
H option	With option : Rated voltage 900 V(There is no change in power and current.) Without option : Voltage 800 V
E Option	Optional : With EtherCAT (The 37 pin I/O port is lost.) Without option : 37Pin I/O port
R option	With option : With ignition RAMP Without option : Without ignition RAMP
S option	With option : With soft start function at the time of arc return Without option : Soft start function at the time of arc return is not provided.

Features: Low-frequency control accuracy

- By guaranteeing low-frequency accuracy during P control and expanding the control range, it supports low-power processes.
  - By guaranteeing 10% or less of the rated power, it can be completed in one unit without separating low-frequency and wide-area power supplies.
  - Expansion of the guaranteed range with ULVAC's original technology for specifications that cannot be found in other companies



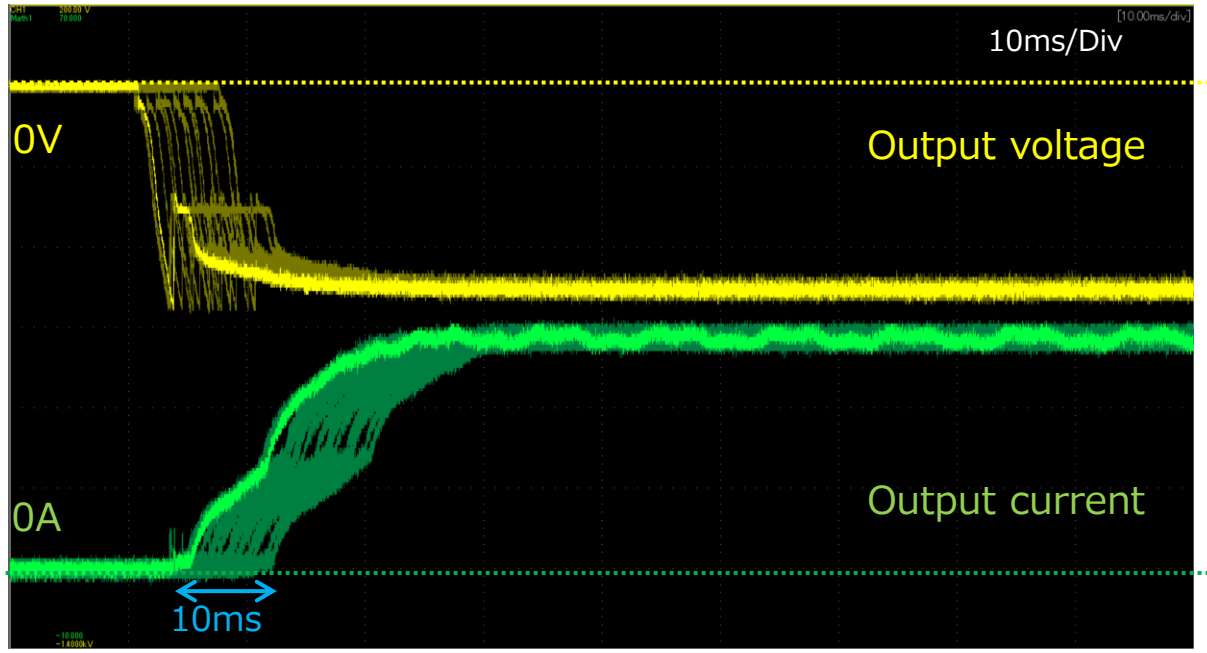


2kw/4kw power supply
: **1~10% of rated power is guaranteed at ±1%**
P control only

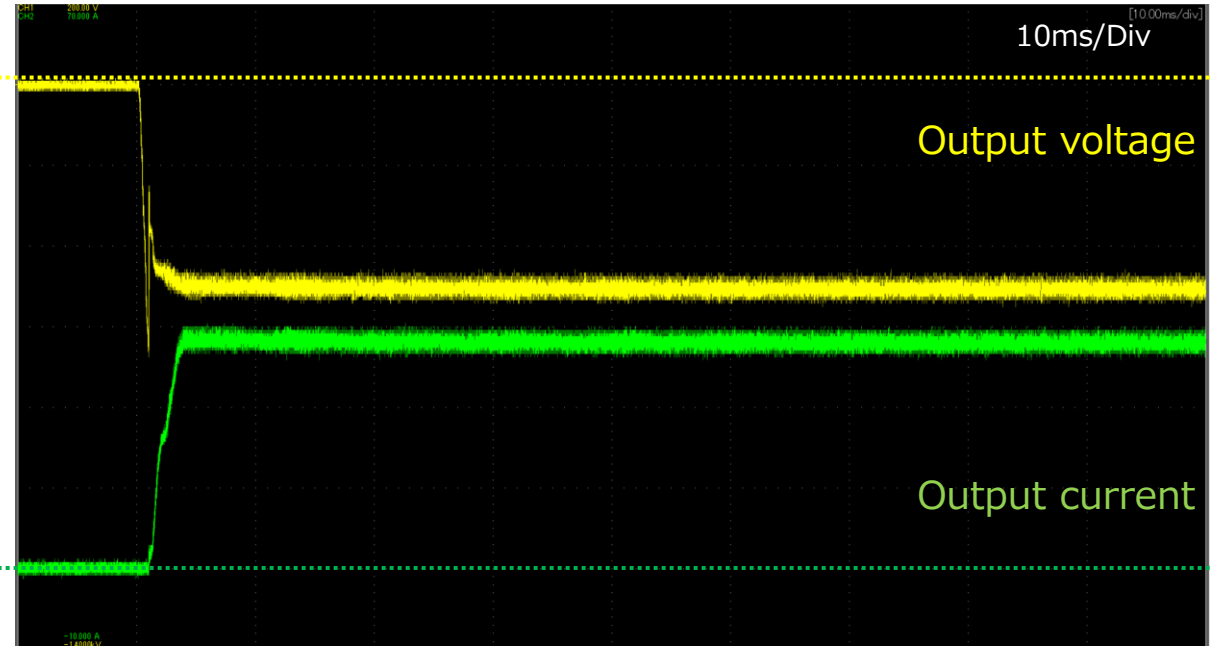
Features: Output repeatability

- This is a comparison of the rise-up operation of the conventional model and the Digital DC power supply for each 30 times.
  - The rise-up operation (response speed) is faster than that of the conventional model.
  - Less variation

DC-2/DC-4



DC-2-D/DC-4-D



Features: USB function/DIRECT JUMP function

- Menu operation can be performed by supplying power from the front panel USB (Type-C).
  - Settings can also be changed. Interlock is not released, so output is not possible.
  - Since 200 VAC is not required, settings can be checked and changed even during equipment maintenance or in a warehouse.

5 V supply via mobile battery or PC

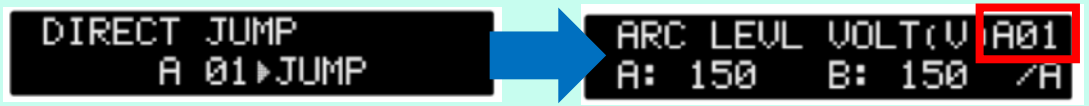
- Parameters can be changed using the DIRECT JUMP function.
  - Parameter setting can be smoothly performed by moving the screen to the target menu.

You can use the DIRECT JUMP function by pressing the FNC and ◀ buttons simultaneously.

Select alphabetical and numerical menu numbers, move ▶ to JUMP, and press the ENT button.

Example:When moving the screen to menu number A01

Menu number



Move to the target menu.

Features: Analog scale change function

- Allows you to freely change the interface analog scale, such as when switching from another manufacturer's power supply.
  - Allows you to change the scale of both Level scale and Monitor scale.

Level Scale	Standard		After change
Power	0~4kw :0~10V	→	0~**3kw** :0~10V
Voltage	0~1200V :0~10V	→	0~**1000V** :0~10V
Current	0~10A :0~10V	→	0~**8A** :0~10V

Monitor Scale	Standard		After Change
Power	0~4kw :0~10V	→	0~**1kw** :0~10V
Voltage	0~1200V :0~10V	→	0~**200V** :0~10V
Current	0~10A :0~10V	→	0~**5A** :0~10V

Note)Resolution may be degraded.

未来につながる「可能性の場」

"Field of Potentiality" for the Future

ULVAC