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# Datasheet

UDP4303S Programmable Linear DC Power

V 1.0

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# 1. Main Features

- UDP4303S: 32 V/3A, 32 V/3 A, 15 V/3 A, 6 V/10 A
- Electric isolation between 4 channels, independent output, with a maximum output power of 297 W
- 4.3 inch TFT-LCD
- Supports internal series and parallel connections for CH1 and CH2
- Hi resolution of 1µA for current measurement.
- Capability to measure and display dynamic ranges of current
- Outstanding programming and readback accuracy
- Fast transient response time: < 50 µs
- Front and rear panel output terminals
- Supports 2-wire and 4-wire for remote sensing
- Supports a maximum of 512 group serial outputs, with a minimum dwell time of 1 ms, and includes various built-in fundamental waveforms
- Low output ripple and noise: < 350 μV<sub>rms</sub> /2 mV<sub>pp</sub> μV<sub>rms</sub>/2 mV<sub>pp</sub>
- Command processing time: < 10 ms
- Automatic switchover low and high range measurement
- Supports timing output, energy consumption analysis (IoT), data recording and analysis
- Supports a minimum of 1 ms pulse current waveform
- Supports standard three rack-units (3U), 1/2-rack form factor
- Supports upper computer control
- Multiple protection: 0VP/0CP/0TP/Sense; 0CP time can be set to 0 ms-1000 ms
- High and low current measurements supports high-speed sampling at 8 kSa/s in full channel mode
- Various standard interfaces: USB Host, USB Device, RS-232, Sense, LAN, and Digital I/O based on SCPI (Standard Commands for Programmable Instruments)

# 2. Product Introduction

UDP4303S programmable linear DC power supply features two 32V/3A outputs, one 15V/3A output, and one 6V/10A output. It offers extremely low load regulation and low ripple noise output, with each channel isolated from the others. All four channels support remote sensing (4-wire) function. Channels 1 and 2 support internal series and parallel connections, making the device suitable for a wide range of applications.

The product is equipped with an RS232 communication interface, supporting SPI protocol, Ethernet, and multiple Digital I/O interfaces, which facilitate remote control. The 4.3-inch true-color LCD screen provides a rich functional interface, making it easy to use list/delay functions, trigger functions, monitoring functions, recorder functions, waveform display functions, output preset functions, system settings, language selection, and a web server.

# 3. Product Function

# 1. LCD Interactive Interface

UDP4303S provides users with a feature-rich, easy-to-operate human-computer interaction interface, and a 4.3-inch high-definition display. This interface displays the power supply's current set output voltage and current, actual output voltage and current, and over-voltage and over-current protection values. The interactive interface for each function is simple, comprehensive, and easy to operate.

< Home >			<del>ا</del> ۵ 🕫
CH1 CV	CH2 CV	CH3 CV	CH4 CV
32.000 v 0.0000 A 0.000 w	31.998 v 0.0000 A 0.000 w	15.000 v 0.0000 A 0.000 w	6.000 v 0.0000 A 0.000 w
Set 32.000 V 3.2000 A	Set 32.000 V 3.2000 A	Set 15.000 v 3.2000 A	Set 6.000 v 10.000 A
Limit 3.2000 A	Limit 3.2000 A		
Voltage Cur	rent OVP	ОСР Ор	tion Display

# 2. Series and Parallel Connections

UDP4303S simplifies wiring and usage by enabling serial and parallel connections between the main channel 1 and channel 2 without the need for external wiring.



### 3. Remote Sense

To avoid voltage drops caused by long wires connecting to the load, remote testing allows measurements to be made directly on the terminals of the DUT (Device Under Test), improving measurement accuracy. S+ and S- are the remote sensing terminals, while + and - are the output positive and negative terminals. When using the remote sense function, connect a pair of driver wires from the rear panel + and - terminals to the DUT, and lead S+ and S- to the DUT. Please refer to the

### UDP4303S user manual for details.



# 4. OVP/OCP

UDP4303S provides OVP(Over-Voltage Protection) and OCP(Over-Current Protection) functions. OVP and OCP points can be set using the function key on the screen. Once OVP or OCP occurs, the output will be turned off and an alert will pop up on the screen.

< Home >							ō 4<
CH1	C۷.	CH2	CV	CH3	CV	CH4	CV
32.000	) v	31.9	9 <b>98</b> v	15.00	<b>0</b> v	e	5.000 v
0.0000	) A	0.0000 A		0.000	<b>0</b> A	0.0000 A	
0.000	) w	0.0	w <b>000</b>	0.00	<b>0</b> w	C	<b>0.000</b> w
Set 32.000 3.2000	V A	Set 32 3.2	v 000. A 000	Set 15.00 3.200	V 0 A 0		6.000 v 10.000 A
Limit 33.000 3.2000	V A	Limit 3	3.000 V .2000 A	Limit 16.00 3.200	V 00 A 00	Limit	6.200 V 10.500 A
Voltage	Cur	rent	OVP	OCP	Ор	tion	Display

# 5. Output Waveform Display

UDP4303S provides an output waveform display function for observing the voltage and current output states.

< Wave >					Ö 44
STOP RL: 65	Cursor: 32,000 V		ZOOM 800 ms/div	,	
< CH1 >	0.000 mW				
MAX: 32.000 MIN: 0.003 MIN:					
MAX: 3.1991 A MIN: 0.000 mA					
MAX: 5.0869 W MIN: 0.000 mW	,				
Offset:		L			800 ms/div
0.00 mV	8.0 V/div			4.0 V/div	2.0 V/div
0.00 uA	1.0 A/div		1.0 A/div	1.0 A/div	2.0 A/div
0.00 mW	20.0 W/div		20.0 W/div	10.0 W/div	20.0 W/div
Run	v	Α	W	Rst-X	Rst-Y

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# 6. List Output

UDP4303S provides a list output function for generating arbitrary waveforms and freely editing programmable waveforms. These waveforms can be reproduced within the limit settings for voltage and current. Users can set the repetition cycle for the arbitrary waveforms, as well as the output voltage, current, and time for each group of data. Additionally, the instrument offers various output templates for selecting and editing arbitrary waveforms. The instrument will output the parameter based on the current settings. All channels, as well as series and parallel connections, support this function.

< List >					<b>₿</b> 4€	< Template >			
LIST:CH1	Stopped	No.	Volt(V)	Curr(A)	Time(s)	$\land$ $\Box$ $\checkmark$ $\downarrow$	م <sup>ر</sup> <sup>ع</sup> ر	ፖ、 🦳	- 1
Ctor		000	1.000	1.0000	1.000				
Stop	ped	001	1.000	1.0000	1.000	CH1 Current: 02.0		ait Obj: V Asvimum: 0	
Cycles:	Infinite	002	1.000	1.0000	1.000	Current. 05.0		laximum: 0	0.000 V
		003	1.000	1.0000	1.000		P	eriod: 0	030.000 s
End State:	Outp Off	004	1.000	1.0000	1.000		Ir	nterval: 0	001.000 s
Groups:	005						C	iycles: 0	01
						FreeSpace: 507 NeedS	pace: 30 Ir	nverted: C	Off
Startup	Insert	Dele	te Clear	Cycles	<b>t</b> ⊒(1/2)	Type Edit Obj Curre	ent Maximun	n Minimum	<b>t</b> ⊒(1/2)

### 7. Delayer

UDP4303S provides a delayer function that supports all channels, series, and parallel connections. This function is used to control the output state of the selected channel ON or OFF.

< Delayer >	>						₿ 4
DELAYER:0	CH1 Sto	pped	No.	State		Ti	me(s)
Cto			000	OFF			1.000
Stopped			001	ON			1.000
Cvcles:	Infinite		002	OFF			1.000
Find Chate	Last		003	ON			1.000
End State	Last		004	OFF			1.000
Groups:	005						
Startup	Insert	Delet	te	Clear	Су	cles	<b>1</b> ⊐(1/2)

### 8. Monitor

UDP4303S provides a monitor function that supports all channels, series, and parallel connections. The monitor function informs the user whether the voltage, current, or power of the channel meets the set condition by configuring the monitor condition and selecting a response mode. When the condition is met, an alert is triggered according to the selected response mode.

< Monitor	>								₿≮
CH1			N	Ionitor					
CONDITIO	DN:								
U > 00	.000 V	And	P <	000.00	w	Dr	>	0.0000	А
STOP MO	DE:								
Outp	ut Off			$\checkmark$					
Warning 🔽 Stoppe						ped			
Beep	er			$\checkmark$					
Startup	On/Of	f C	Dutpu	it War	ning	Be	eepe	r	

## 9. Trigger

UDP4303S provides a digital I/O port on the rear panel, supporting trigger input and trigger output. The digital I/O port has four independent data cables. Each can be used for trigger input or trigger output separately.

Trigger input: The digital I/O port can receive a trigger signal form an external source. When the preset trigger condition is met, the controlled source (output channel) will be enabled to turn on/off the output, or the inverse output state.

Trigger output: When the output of the controlled source (output channel) is enabled, the digital I/O port will output a high or low-level signal.

< Trigger > 🖞 🖞						- Ö 44	< Trigge	r >						- Ö 44	
			Trig	gger							Tri	gger			
D1 01	JT	D2		D3	OUT	D4	OUT	D1	IN	D2		D3	OUT	D4	OUT
Ctrl Source Trig Condii Polarity: Current Le	e: tion: evel:		PAR Output Negativ Low	t Off ve				Ctrled C Trig Typ Sensitiv Respon	Channel: be: vity: se:		CH1 High L Middle Outpu	CH2 CH: evel t Off	3 CH4	SER F	AR
Data Line	In/Out	S	ource	Polarit	y Leve		Dn/Off	Data Lir	ne In/C	out Ti	rig Type	Sensitiv	ity Respo	onse (	Dn/Off

## 10. Recorder

UDP4303S provides a recorder function that supports all channels, series, and parallel connections. This function allows users to save voltage, current, and power data for all channels to a USB flash drive. The recorded data is saved in a list format on the USB flash drive.

< Recorde	< Recorder > 🖞 🛱							
	Recorder							
Stopped								
Path:	D:/Re	D:/Record.csv						
Channel:	CH1	CH2 CH3	CH4 SER	PAR				
Value:	V	A W						
Interval:	0001	.0 s						
Samples:	0000	000						
Duration	: 0000	:00:00						
Path	Channel	Value	Interval		Startup			

## 11. WEB Server

UDP4303S has a built-in web server. After opening the instrument's web page in a browser, users can view some basic information and control the instrument (log in with a password before controlling the instrument).

< Setup >					Ö 44
		Se	tup		
Beeper:		Ab	out		
Baudrate:	Model:		UDP4303	3S	0.000.000
Brightnes	Serial Nu	mber:	510A354	0.000.000	
P-MEM:	Software	Ver:	V1.01		0.000.000
P-OUT:	Bootload	er Ver:	V1.00		
Safe Mod	Web Pass	word:	UgfYqVI	В	
Basic	LAN	Apply	Default	Upgrade	About

# 4. Specification

Model		UDP4303S				
		CH1 and CH2: 0-32 V×2				
	Voltage	CH3: 0-15 V				
Data di Ostari t		CH4: 0-6 V				
Rated Output		CH1 and CH2: 0-3 A×2				
value	Current	CH3: 0-3 A×1				
		CH4: 0-10 A				
	Power	297 W				
	Danalation Data	Power regulation rate: < 0.01%+2 mV				
	Regulation Rate	Load regulation rate: < 0.01%+2 mV				
	Ripple and Noise	< 350 µV <sub>rms</sub> /2 mV <sub>pp</sub> (20 Hz-20 MHz)				
		< 50 µs				
	<b>-</b> • .	(Less than 50 $\mu s$ of time is required to recover within the ±15 mV				
Constant Voltage	l ransient	settling range following a load change from 50% to 100% of full				
	Response lime	load. The output voltage error recovers to the stable output value				
		of ±15 mV.)				
	Command	< 10 ms				
	Processing Time	Continuously adjustable from 0 to rated voltage.				
	Output Range	Continuously adjustable from 0 to rated voltage.				
		Power regulation rate: < 0.01%+250 μA				
	Regulation Rate	Load regulation rate: < 0.01%+250 µA				
Constant Current	Ripple Current	< 2 mArms				
	Output Range	Continuously adjustable from 0 to rated voltage.				
		Voltage full scale: 5 digit; LCD				
	Display	Current full scale: 5 digit; LCD				
		Low current: 5 digitt (CH4 outputs 10 A with 6-digit disply)				
	Programming	Voltage: 1 mV				
	Resolution	Current: 0.1 mA				
	Readback	Voltage: 1 mV				
	Resolution	Current: 0.1 mA (low current: 1 µA), sampling rate: 8 KSA/S				
Measurement	One-year	Voltage: CH1-CH3: ±(0.03%+8 mV)/ CH4: ±				
	Accuracy for	(0.04%+4 mV)				
	Programming	Current: CH1-CH3:±(0.15%+5 mA)/CH4: ±				
	(25±5℃)	(0.15%+10 mA)				
	One-year	Voltage: CH1-CH3: ±(0.03%+8 mV)/ CH4: ±				
	Accuracy for	(0.08%+3 mV)				
	Readback	Current: CH1-CH3: ±(0.15%+5 mA)/CH4: ±				

	(25±5℃)	(0.15%+10 mA)				
		0.25%+28 µA (low current measured at constant conditions)				
Voltage		Rise: Full load < 50 ms; Empty load <30 ms				
Programming	CHI-CH3	Fall: Full load < 50 ms; Empty load < 400 ms				
Response Time		Rise: Full load <15 ms; Empty load < 14 ms				
(1% of the total	CH4					
variation)		Fall: Full load <20 ms; Empty load < 100 ms				
Temperature	CH1	Voltage: 0.01%+4 mV; Current: 0.01%+2 mA				
Coefficient per℃	CH2	Voltage: 0.01%+4 mV; Current: 0.01%+2 mA				
(% of	CH3	Voltage: 0.01%+4 mV; Current: 0.01%+2 mA				
output+offset)	CH4	Voltage: 0.01%+4 mV; Current: 0.01%+3 mA				
Lock Key		$\checkmark$				
Waveform Display						
Timer						
Delayer						
Recorder, Analyzer,	Monitor					
Interface		USB Host, USB Device, LAN, and Digital I/O				
Storage Loading		Not less than 10 groups				
Screen		4.3-inch TFT LCD, WVGA (480*272)				
Input Voltage		AC 100 V/120 V/220 V/230 V ±10%, 50/60 Hz				
Operating Tempera	ture	0°C to + 40°C				
Storage Temperatu	re	-10℃ to+60℃				
Humidity		20% to 80% RH.				
Altitude		Below 2000 meters				
General Specification	on					
Color		Black				
Weight		10.5 kg				
Dimension (W×H×D)		225.00 mm × 159.60 mm × 445.00 mm				
Packing Quantity		1 set/piece				

# 5. Packing List

Accessories	Quantity	Remarks
UDP4303 Programmable Linear	1	
DC Power	1	
3C Power Cord	1	
Factory Calibration Report	1	
USB Cable	1	

# 6. Contact Us

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