

WDR Series

Ultra-Wide Input DIN Rail Power Supply with High PFC

Ultra-wide input single-output DIN rail power supply designed for industrial power systems. Available in **60W – 480W**, with **5 / 12 / 24 / 48 VDC** output, **180–550 VAC** single or two-phase input, **4.7KVAC** reinforced isolation, built-in active **PFC** on 240W/480W, up to **93%** efficiency, and **UL508** approval.

DOCUMENT

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AT A GLANCE

60-480 W OUTPUT POWER	180-550 VAC ULTRA-WIDE AC INPUT	4.7 KVAC I/O ISOLATION (WDR-60)	up to 93 % EFFICIENCY
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WDR Series Overview

Ultra-wide input single-output DIN rail power supply designed for industrial power systems.

The DAPPRA WDR Series is an ultra-wide input DIN rail power supply series designed for industrial power systems. It covers four power ratings — 60W, 120W, 240W and 480W — with single-output configurations of 5V, 12V, 24V and 48V DC.

The series accepts an ultra-wide AC input of 180–550 VAC for single-phase or two-phase operation, making it suitable for 220V, 380V, 400V and 480V mains networks, as well as two-phase operation of three-phase systems without a neutral. The WDR-240 and WDR-480 include built-in active PFC for reduced harmonic current and improved power quality. All models feature a slim metal housing, built-in DC OK relay contact, and complete protection functions.

CORE SPECIFICATIONS

Series	DAPPRA WDR Series
Product Type	Ultra-Wide Input DIN Rail Power Supply with High PFC
Output Power	60 / 120 / 240 / 480 W
Output Voltage	5 / 12 / 24 / 48 VDC
Input Voltage	180–550 VAC (single/two-phase) · 254–780 VDC
Active PFC	Built-in on WDR-240 & WDR-480 (PF ≥ 0.84)
Isolation	4.7 KVAC (WDR-60) · 3 KVAC (WDR-120/240/480)
Efficiency	up to 93% (WDR-480-48)
Cooling	Fanless natural convection
Protection	Short circuit / Overload / Over voltage / Over temperature
DC OK	Built-in relay contact on all models
Housing	Metal — 32 / 40 / 63 / 85.5 mm widths
Mounting	TS35/7.5 or TS35/15 DIN rail
Certification	UL508 · UL61010 · EAC TP TC 004 · BIS IS 13252

WDR Series Key Features

Engineered for ultra-wide input, high-isolation industrial power supply applications.

ULTRA-WIDE AC INPUT 180–550 VAC

Supports single-phase and two-phase mains networks. Also accepts 254–780 VDC input. Suitable for 220V, 380V, 400V and 480V power systems.

BUILT-IN ACTIVE PFC (240W / 480W)

The WDR-240 and WDR-480 models feature built-in active PFC with $PF \geq 0.84$ at 400VAC and 230VAC under full load, compliant with BS EN/EN61000-3-2.

HIGH I/O ISOLATION UP TO 4.7KVAC

The WDR-60 provides 4.7KVAC reinforced isolation between input and output, ensuring excellent safety isolation in high-voltage industrial environments.

ULTRA-WIDE OPERATING TEMPERATURE RANGE

WDR-60 operates from -30°C to $+85^{\circ}\text{C}$ (derating above $+60^{\circ}\text{C}$). WDR-120/240/480 operate from -25°C or -30°C to $+70^{\circ}\text{C}$ with derating above $+50^{\circ}\text{C}$.

BUILT-IN DC OK RELAY CONTACT

All WDR models include a built-in DC OK relay contact for remote status monitoring. Contact Close = PSU turns on / DC OK. Contact Open = PSU turns off / DC Fail.

SLIM METAL HOUSING FROM 32 MM

WDR-60 is only 32 mm wide; WDR-120 is 40 mm; WDR-240 is 63 mm; WDR-480 is 85.5 mm. Metal housing enhances heat dissipation.

COMPLETE PROTECTION FUNCTIONS

Short circuit protection, overload protection (constant current limiting with auto-recovery), over voltage protection and over temperature protection are built in.

TS35 DIN RAIL MOUNTING

Admissible DIN rail: TS35/7.5 or TS35/15. UL508 approved. 3 years warranty.

WDR Series Model Code & Selection

Select the appropriate WDR model according to the required output power, output voltage and input configuration.

Model Code Structure

WDR - 240 - 24

FIELD	MEANING	AVAILABLE VALUES
WDR	Series prefix	WDR
240	Output Wattage — rated output power in Watts	60 / 120 / 240 / 480
24	Output Voltage — nominal DC output voltage	5 / 12 / 24 / 48 VDC

Example: WDR-240-24 = WDR Series, 240W output power, 24V DC output, with built-in active PFC.

MODEL LIST

MODEL	OUTPUT VOLTAGE	OUTPUT CURRENT	RATED POWER	EFFICIENCY	I/O ISOLATION	WIDTH
WDR-60-5	5 VDC	10 A	50 W	83.5%	4.7 KVAC	32 mm
WDR-60-12	12 VDC	5 A	60 W	86.5%	4.7 KVAC	32 mm
WDR-60-24	24 VDC	2.5 A	60 W	89%	4.7 KVAC	32 mm
WDR-60-48	48 VDC	1.25 A	60 W	90.5%	4.7 KVAC	32 mm
WDR-120-12	12 VDC	10 A	120 W	89.5%	3 KVAC	40 mm
WDR-120-24	24 VDC	5 A	120 W	91%	3 KVAC	40 mm
WDR-120-48	48 VDC	2.5 A	120 W	92%	3 KVAC	40 mm
WDR-240-24	24 VDC	10 A	240 W	91%	3 KVAC	63 mm
WDR-240-48	48 VDC	5 A	240 W	91%	3 KVAC	63 mm
WDR-480-24	24 VDC	20 A	480 W	92%	3 KVAC	85.5 mm
WDR-480-48	48 VDC	10 A	480 W	93%	3 KVAC	85.5 mm

Output current and output wattage must not exceed the rated value on the specification. Models WDR-240 and WDR-480 include built-in active PFC.

WDR Series Dimensions

Slim metal housing with a compact footprint designed for space-constrained control cabinets.
All dimensions in mm, tolerance ± 1 mm.

WDR-60

Width (W)	32 mm
Height (H)	125.2 mm
Depth (D)	102 mm
Housing	Metal, slim design
Front Panel	+V ADJ / DC OK

WDR-120

Width (W)	40 mm
Height (H)	125.2 mm
Depth (D)	113.5 mm
Housing	Metal, slim design
Front Panel	+V ADJ / DC OK

WDR-240

Width (W)	63 mm
Height (H)	125.2 mm
Depth (D)	113.5 mm
Housing	Metal, slim design
Front Panel	+V ADJ / DC OK

WDR-480

Width (W)	85.5 mm
Height (H)	125.2 mm
Depth (D)	128.5 mm
Housing	Metal, slim design
Front Panel	+V ADJ / DC OK

Measurement unit: mm. Data is manually measured and may contain minor deviations — please refer to the actual product for final dimensions. Mounting: TS35/7.5 or TS35/15 DIN rail.

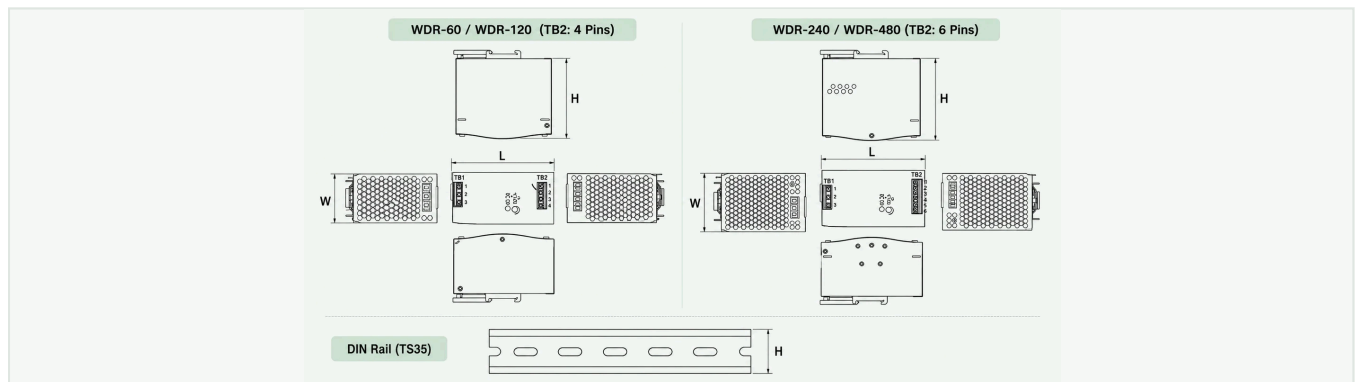


FIGURE 1 • WDR SERIES MECHANICAL DIMENSIONS

WDR Series Installation

The WDR Series supports DIN rail mounting with specific ventilation clearance and orientation requirements for reliable operation.

01 / 06

Vertical Orientation Only

The appropriate mounting orientation is vertical — input terminals at the bottom and output terminals at the top. Upside-down, horizontal or table-top mounting is not allowed.

02 / 06

Ventilation Clearance

Always allow good ventilation clearances around the unit: 5 mm left and right, 40 mm above and 20 mm below. Keep 15 mm clearance if adjacent to a heat source.

03 / 06

TS35 DIN Rail Mounting

Admissible DIN rail: TS35/7.5 or TS35/15. Fit over the top hat rail, slide downward until it hits the stop, press against the bottom for locking.

04 / 06

FG Must Be Connected to PE

The FG (Frame Ground) terminal must be connected to PE (Protective Earth) for safety and to ensure proper EMC performance.

05 / 06

Operating Temperature Limits

WDR-60: -30 to +85°C (derating above +60°C). WDR-120/240/480: -25 or -30 to +70°C (derating above +50°C).

06 / 06

Pollution Degree 2 Environment

Install the unit only in a pollution degree 2 environment — typically dry, well-ventilated locations such as control cabinets.

WDR Series Wiring & Terminal

The WDR Series uses two terminal blocks: TB1 for input and TB2 for output. TB2 pin order varies by model — verify the terminal label before wiring.

TB1 — INPUT TERMINAL (ALL MODELS)

PIN NO.	ASSIGNMENT
1	FG (Frame Ground)
2	AC/L2
3	AC/L1

Supports single-phase and two-phase input. FG must be connected to PE.

TB2 — OUTPUT TERMINAL (WDR-60) — 4 PINS

PIN NO.	ASSIGNMENT
1	DC OUTPUT -V
2	DC OUTPUT +V
3, 4	DC OK relay contact

WDR-60 TB2 order is -V first, +V second.

TB2 — OUTPUT TERMINAL (WDR-120) — 4 PINS

PIN NO.	ASSIGNMENT
1, 2	DC OK relay contact
3	DC OUTPUT -V
4	DC OUTPUT +V

WDR-120 TB2 order differs from WDR-60 — relay contact is first.

TB2 — OUTPUT TERMINAL (WDR-240) — 6 PINS

PIN NO.	ASSIGNMENT
1, 2	DC OK relay contact
3, 4	DC OUTPUT +V
5, 6	DC OUTPUT -V

TB2 — OUTPUT TERMINAL (WDR-480) — 6 PINS

PIN NO.	ASSIGNMENT
1, 2	DC OUTPUT +V
3, 4	DC OUTPUT -V
5, 6	DC OK relay contact

WDR-480 TB2 order differs from WDR-240 — +V is first.

DC OK RELAY CONTACT

STATE	CONDITION
Contact Close	PSU turns on / DC OK
Contact Open	PSU turns off / DC Fail
Max Rating (60/120)	30V / 1A resistive load
Max Rating (240/480)	60VDC/0.3A, 30VDC/1A, 30VAC/0.5A

Wiring Note: The FG pin must be connected to PE. TB2 pin order varies between WDR-60, WDR-120, WDR-240 and WDR-480 — always verify the terminal label before wiring. Both -V pins and both +V pins (on 6-pin models) should be connected to prevent excessive current stress on a single contact.

WDR Series Wiring Specification

Recommended wire gauge, terminal torque settings, and input configuration for the WDR Series.

RECOMMENDED WIRE			TERMINAL TORQUE		INPUT CONFIGURATION	
AWG	CURRENT	CROSS-SECTION	MODEL GROUP	TORQUE		
18	0–6 A	0.75 mm ²	WDR-60 / 120	5 kgf-cm	Single-Phase	L1 live, L2 neutral
16	6–10 A	1.00 mm ²	WDR-240 / 480	10 kgf-cm	Two-Phase	L1 & L2 to two phases
14	13–16 A	1.52 mm ²			DC Input	254–780 VDC
12	16–25 A	2.5 mm ²			Freq. Range	47–63 Hz

Use stranded copper wire only.
≥80°C (e.g. UL1007).

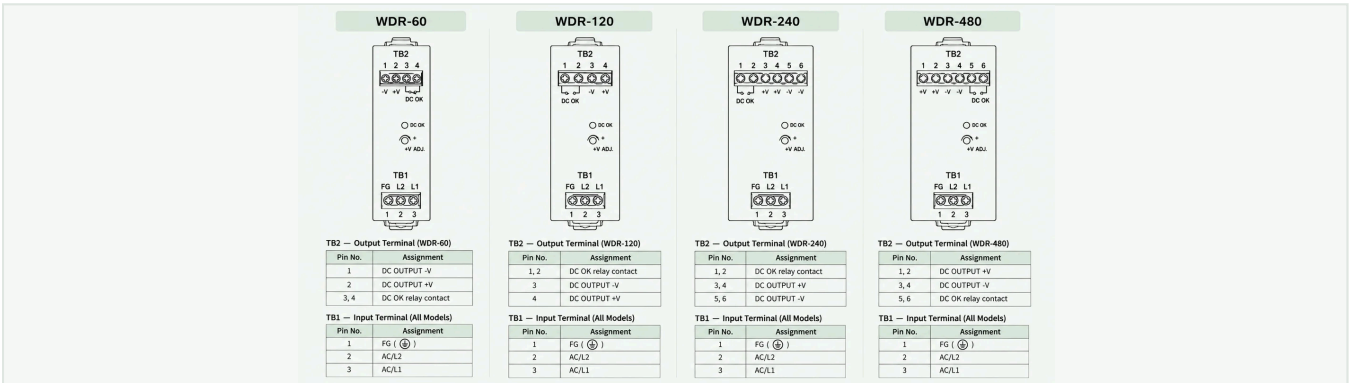


FIGURE 2 · WDR SERIES TERMINAL PIN ASSIGNMENT

DC Output Voltage Adjustment: All WDR models include a front-panel (+V ADJ) with up to +20% adjustment range, and a DC OK indicator LED. Output current and output wattage must not exceed the rated value on the specification.

WDR Series Safety & Cautions

Read and follow all safety instructions before installing, wiring, maintaining or modifying the WDR Series power supply.

01 • ELECTRICAL SHOCK HAZARD

Risk of electrical shock and energy hazard. All failures should be examined by a qualified technician. Do not remove the case.

02 • PRIMARY / SECONDARY ISOLATION

Connecting both the primary and the secondary sides together is not allowed — risk of electric arcs and electric shock (danger to life).

03 • BURN HAZARD

Do not touch the unit in operation and shortly after disconnection.

04 • FIRE & SHORT CIRCUIT

The openings should be protected from foreign objects or dripping liquids.

05 • PROTECTIVE EARTH

The FG (Frame Ground) must be connected to PE (Protective Earth).

06 • RATED OUTPUT

Output current and output wattage must not exceed the rated value on its specification.

07 • BEFORE SERVICING

Disconnect the system from supply voltage before any installation, maintenance or modification work.

08 • FUSE REPLACEMENT

For continued protection against risk of fire, replace only with the same type and rating of fuse.

09 • EMC DIRECTIVE

The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.

Pollution Degree 2: Applies where there is only non-conductive pollution that might temporarily become conductive due to occasional condensation. Generally refers to dry, well-ventilated locations, such as control cabinets.

WDR Series Industrial Applications

The WDR Series is suitable for industrial control systems, semiconductor fabrication equipment, factory automation, electromechanical apparatus, surveillance and telecommunication applications.

▣ Industrial Control Systems	▣ Semiconductor Fabrication	▣ Factory Automation
▣ Electromechanical Apparatus	▣ Surveillance Systems	▣ Telecommunication
▣ Electrical Panels	▣ Process Control	▣ Test & Measurement

TYPICAL USE CASES

THREE-PHASE NETWORKS Supports two-phase input without a neutral, suitable for 380V and 480V industrial power networks.	HIGH-ISOLATION ENVIRONMENTS WDR-60 offers 4.7KVAC reinforced isolation for high-voltage industrial environments.
SEMICONDUCTOR EQUIPMENT Built-in active PFC on 240W/480W models reduces harmonic current, suitable for strict power quality requirements.	OUTDOOR & EXTREME ENVIRONMENTS WDR-60 operates from -30°C to +85°C, supporting extreme temperature applications.

FAQ & Contact Information

Frequently asked questions and DAPPRA contact details.

What is the DAPPRA WDR Series?

The DAPPRA WDR Series is an ultra-wide input single-output industrial DIN rail power supply series. It covers 60W, 120W, 240W and 480W with 5V, 12V, 24V and 48V output configurations, supporting 180–550 VAC single-phase or two-phase input.

What is the input voltage range of the WDR Series?

All WDR Series models support an ultra-wide AC input range of 180–550 VAC (single-phase or two-phase) or 254–780 VDC. The WDR-120, WDR-240 and WDR-480 are designed for two-phase input and can accept two phases of a three-phase power network without a neutral.

What output voltages are available in the WDR Series?

The WDR-60 offers 5V, 12V, 24V and 48V output options. The WDR-120 offers 12V, 24V and 48V; the WDR-240 and WDR-480 offer 24V and 48V.

Which WDR models have built-in active PFC?

The WDR-240 and WDR-480 models have built-in active PFC function with $PF \geq 0.84$ at 400VAC and 230VAC under full load, compliant with BS EN/EN61000-3-2.

What is the isolation voltage of the WDR Series?

The WDR-60 provides 4.7KVAC reinforced isolation between input and output. The WDR-120, WDR-240 and WDR-480 provide 3KVAC input-to-output isolation.

What is the efficiency of the WDR Series?

Efficiency ranges from 83.5% (WDR-60-5) up to 93% (WDR-480-48), depending on the model and output voltage. The WDR-240 and WDR-480 achieve up to 91% and 93% respectively.

What is the operating temperature range of the WDR Series?

The WDR-60 operates from -30°C to +85°C with derating above +60°C. The WDR-120, WDR-240 and WDR-480 operate from -25°C or -30°C to +70°C with derating above +50°C.

What is the terminal pin assignment of the WDR Series?

TB1 (Input, all models): Pin 1 = FG, Pin 2 = AC/L2, Pin 3 = AC/L1. TB2 pin order varies by model: WDR-60 TB2: 1 = -V, 2 = +V, 3,4 = Relay Contact. WDR-120 TB2: 1,2 = Relay Contact, 3 = -V, 4 = +V. WDR-240 TB2: 1,2 = Relay Contact, 3,4 = +V, 5,6 = -V. WDR-480 TB2: 1,2 = +V, 3,4 = -V, 5,6 = Relay Contact.

Does the WDR Series include a DC OK relay contact?

Yes. All WDR Series models include a built-in DC OK relay contact for remote status monitoring. The contact rating is 30V/1A resistive load (WDR-240 and WDR-480 also support 60VDC/0.3A and 30VAC/0.5A).

What certifications does the WDR Series have?

The WDR Series is certified to UL508, UL61010 (WDR-60), EAC TP TC 004, BIS IS 13252, IEC62368-1 CB, AS/NZS 62368.1, and complies with BS EN/EN61000-6-2 industrial immunity level.

Contact DAPPRA

For product selection, technical support, samples or quotation, please contact us through the channels below.

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Notice: Specifications, dimensions and model availability in this datasheet are subject to change without prior notice. Please refer to the latest DAPPRA official documentation or contact DAPPRA for the most current information. WDR Series Datasheet · Doc No. WDR-DS-001 · Rev. 1.0 · 2024-01.