

Preliminary

# WRA120 SERIES



3PH AC - DC DIN RAIL MOUNTABLE  
120W  
INDUSTRIAL CONTROL EQUIPMENT

## FEATURES

- 3 PHASE AC INPUT VOLTAGE
- COMPACT DESIGN
- HIGH EFFICIENCY UP TO 88%

## SELECTION CHART

# WRA 120 - 24

Wattage  $\left\{ \begin{array}{l} 12 : 12VOUT \\ 24 : 24VOUT \end{array} \right.$

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. (min.)	EFF. (typ.)
<b>Single Output Models</b>						
WRA120-12	3 $\phi$ 340~575VAC	120 WATTS	+ 12 VDC	10A	85%	87%
WRA120-24	3 $\phi$ 340~575VAC	120 WATTS	+ 24 VDC	5A	86%	88%

## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

GENERAL						
Characteristics	Conditions	min.	typ.	max.	unit	
Isolation voltage	Input / Output	3,000			VAC	
Isolation resistance	Input / Output, @ 500VDC	100			M $\Omega$	
Ambient temperature	Operating at Vinom	-25		+ 71	°C	
Derating	Vi nom, from +61 to +71°C			2.5	% / °C	
Storage temperature	Non operational	-25		+ 85	°C	
Relative humidity	Vi nom, Io nom	20		95	% RH	
Dimension	Screw terminal type	L123.6 x W74.3 x D112			mm	
Cooling	Free air convection					
Case material	Metal					



## SPECIFICATION

All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

### INPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Nominal Voltage *1			1 $\phi$ or 3 $\phi$ 380 / 480 VAC			
Rated input voltage	Io nom		400		500	VAC
Input voltage range	Ta min ... Ta max, Io nom	AC IN	340		575	VAC
		DC IN	480		820	VDC
Rated input current	Io nom	Vi : 380VAC		0.5		A
		Vi : 500VAC		0.35		A
Line frequency	Vi nom, Io nom		47		63	Hz
Inrush current	Vi nom, Io nom			10		A
P. F. C.	Vi : 500VAC, Io nom			0.6		

### OUTPUT SPECIFICATIONS

Characteristics	Conditions		min.	typ.	max.	unit
Output voltage accuracy (Adjusted before shipment)	Vi nom, Io max		-0		+ 1	%
Minimum load	Vi nom		0			%
Line regulation	Io nom, Vi min ... Vi max				$\pm$ 1	%
Load regulation	Vi nom, Io min ... Io nom	single mode			$\pm$ 1	%
Temperature coefficient	Vi nom, Io min				$\pm$ 0.02	% / °C
Ripple & noise	Vi nom, Io nom, BW = 20MHz				100	mV
Hold up time	Vi nom, Io nom		20			ms
Voltage trim range	Vi nom, Io nom	12V model	11.4		14.5	VDC
		24V model	22.5		28.5	VDC
DC ON indicator threshold at start up	Vi nom, Io nom	12V model	10		11.2	VDC
		24V model	17.6		19.4	VDC
DC LOW indicator threshold at start up	Vi nom, Io nom	12V model	10		11.2	VDC
		24V model	17.6		19.4	VDC
Efficiency	Vi nom, Io nom, Po / Pi		Up to 88%			

### CONTROL AND PROTECTION

Characteristics	Conditions		min.	typ.	max.	unit
Input fuse			1A / 600VAC internal / phase			
Rated over load protection	Vi nom		115		135	%
Power Rdy (for 24V model only)	Threshold voltage of contact closed(at start up)		17.6		19.4	VDC
	Electrical isolation		500			VDC
	Contact rating at 60VDC				0.3	A
Over voltage protection	Vi nom, Io nom	12V model	14.5		17.4	V
		24V model	30		33	V
Output short circuit	Vi nom	Continuous	Current limited			
Over temperature	Detect on heatsink, shut down O/P voltage, recovers automatically after temperature goes down.		100		110	°C

\*1. Single phase input is permissible, but output is derated to 75%.

## SPECIFICATION

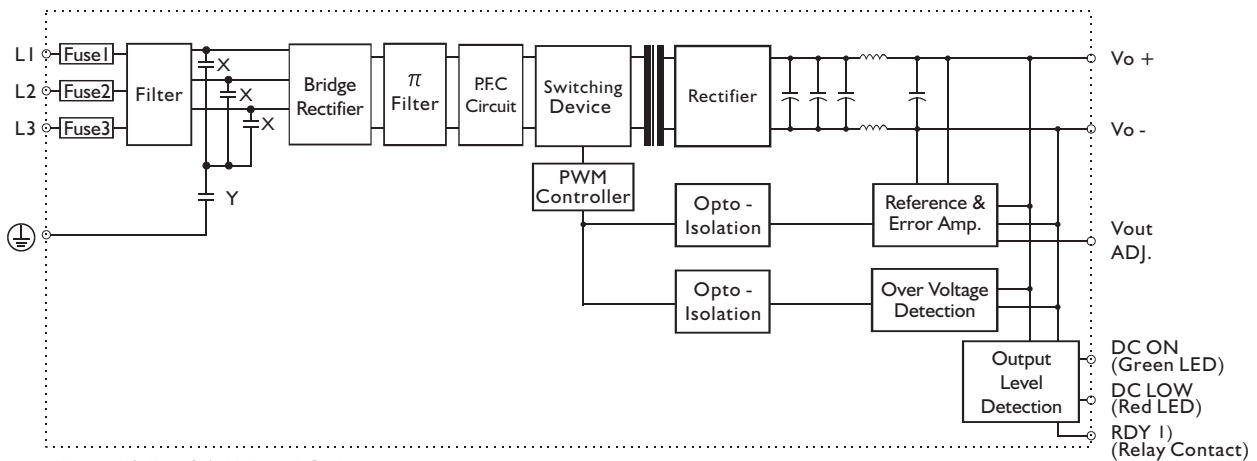
All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

## APPROVALS AND STANDARDS

UL / cUL	UL508 Listed, UL60950-1 Recognized
TUV	EN60950-1
CE	EN61000-6-3, EN55022 class B, EN61000-3-2, EN61000-3-3 EN61000-6-2, EN55024

## CIRCUIT SCHEMATIC

• Block diagram for WRA120 series



Note: 1) For 24V Model Only

## PHYSICAL CHARACTERISTICS

CASE SIZE

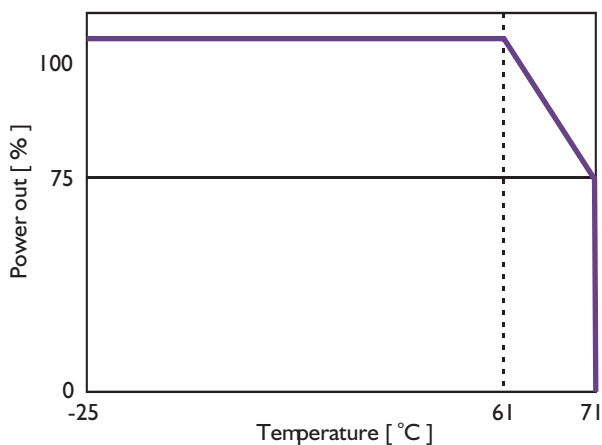
SCREW TERMINAL TYPE

123.6 x 74.3 x 112 mm (4.87 x 2.92 x 4.41 inches)

WEIGHT

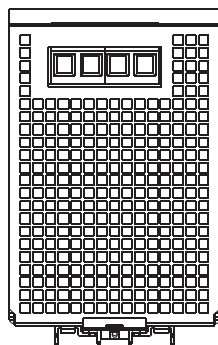
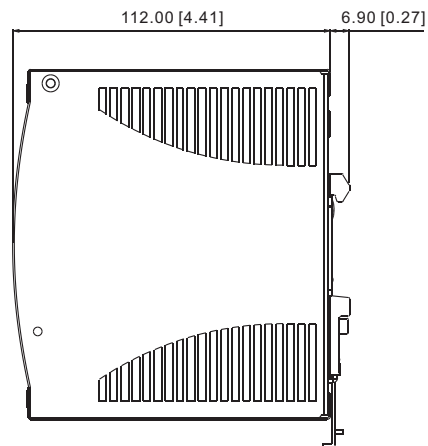
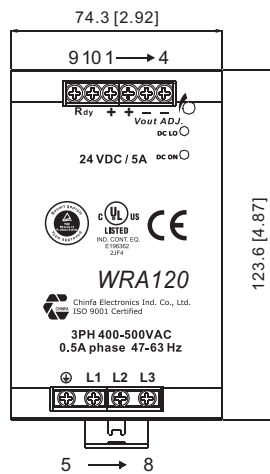
800g

## DERATING



## MECHANISM & PIN CONFIGURATION

mm [inch]



### CONSTRUCTION

Easy snap-on mounting onto the DIN-Rail (TS35/7.5 or TS35/15), unit sits safely and firmly on the rail.

### INSTALLATION

Ventilation / Cooling  
 Normal convection  
 All sides 25mm free space  
 For cooling recommended  
 Connector size range  
 10-24AWG flexible / solid cable,  
 8 mm stripping at cable end recommends

## PIN ASSIGNMENT

PIN NO.	Designation	Description
1	V +	Positive output terminal
2	V +	Positive output terminal
3	V -	Negative output terminal
4	V -	Negative output terminal
5	⊕	Ground this terminal to minimize high-frequency emissions
6	L1	Input terminals
7	L2	Input terminals
8	L3	Input terminals
9	RDY	A normal open relay contact for DC ON level control
10	RDY	(Never connect except 24V model)
	DC ON	Operation indicator LED
	DC LO	DC LOW voltage indicator LED
	Vout ADJ.	Trimmer-potentiometer for Vout adjustment