

# DRA I 20 SERIES



AC - DC DIN RAIL MOUNTABLE  
120W  
INDUSTRIAL CONTROL EQUIPMENT

## FEATURES

- COMPACT DESIGN
- HIGH EFFICIENCY UP TO 87%
- P.F.C. FUNCTION AVAILABLE (OPTION)
- PARALLEL MODELS AVAILABLE (OPTION)
- INPUT VOLTAGE 115/230VAC SELECTABLE

## SELECTION CHART

### DRA I 20 - 12 x y z

Wattage

12 : 12VOUT  
24 : 24VOUT  
48 : 48VOUT

A : SCREW TERMINALS  
B : DETACHABLE CONNECTOR

P : WITH PARALLEL FUNCTION  
S : W/O PARALLEL FUNCTION

F : WITH P.F.C. FUNCTION  
S : W/O P.F.C. FUNCTION

## MODEL LIST

MODEL NO.	INPUT VOLTAGE	OUTPUT WATTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT	EFF. <sup>1)</sup> (typ.)	EFF. (min.)
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### Single Output Models

DRA I 20-12xyz	115 / 230 VAC	120 WATTS	+ 12 VDC	10A	84%	82%
DRA I 20-24xyz	115 / 230 VAC	120 WATTS	+ 24 VDC	5A	86%	84%
DRA I 20-48xyz	115 / 230 VAC	120 WATTS	+ 48 VDC	2.5A	87%	85%

Note 1): 2% diminish for parallel models.

## SPECIFICATION

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

GENERAL						
Characteristics	Conditions	min.	typ.	max.	unit	
Switching frequency	Vi nom, Io nom	80			KHz	
Isolation voltage	Input / Output	3,000			VAC	
Isolation resistance	Input / Output, @ 500VDC	100			MΩ	
Ambient temperature	Operating at Vinom, Io 70%...100%	-10		+ 50	°C	
Derating	Vi nom, Ionom +5I to +71°C			1.5	% / °C	
Storage temperature	Non operational	-25		+ 85	°C	
M.T.B.F.	According to MIL-HDBK-217F, GF40		200,000		Hrs	
Relative humidity	Vi nom, Ionom	20		95	% RH	
Dimension	Screw terminal type	L125 x W63.5 x D126			mm	
	Detachable connector type	L142 x W63.5 x D126			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
Rated input voltage	Io nom	115 / 230(selectable)			VAC
Input voltage range	Ta min ... Ta max, AC Io nom	115V selected	93	132	VAC
		230V selected	186	264	VAC
		230V selected only	210	370	VDC
Line frequency	Vi nom, Io nom	47		63	Hz
Inrush current	Vi nom, Io nom	Vi : 115VAC		24	A
		Vi : 230VAC		48	A
P. F. C. (optional)	Vi : 230VAC, Io nom		0.7		

#### OUTPUT SPECIFICATIONS

Characteristics	Conditions	min.	typ.	max.	unit
Output voltage accuracy (Adjusted before shipment)	Vi nom, Io max	-0		+ 1	%
Minimum load	Vi nom	5			%
Line regulation	Io nom, Vi min ... Vi max			± 0.5	%
Load regulation	Vi nom, Io min ... Io nom	non - parallel models		± 1	%
		parallel models		± 5	%
Temperature coefficient	Vi nom, Io min			± 0.3	% / °C
Ripple & noise	Vi nom, Io nom, BW = 20MHz			50	mV
Hold up time	Vi nom, Io nom	Vi = 115VAC	25		ms
		Vi = 230VAC	30		ms
Voltage trim range 2)	Vi nom, Io nom	12V models	11.4	14.5	VDC
		24V models	22.5	30	VDC
		48V models	45	55	VDC
DC ON indicator threshold at start up	Vi nom, Io nom	12V models	10	11	VDC
		24V models	21	22	VDC
		48V models	42	44	VDC
DC LOW indicator threshold after start up	Vi nom, Io nom	12V models	10	11.2	VDC
		24V models	20.5	22.5	VDC
		48V models	41	45	VDC
Parallel operation	For parallel model only			3	unit
Efficiency	Vi nom, Io nom, Po / Pi	Up to 87%, See model list			

NOTE 2 : N / A for parallel model. Output voltage is fixed in house. Cannot be trimmed by user.

#### CONTROL AND PROTECTION

Characteristics	Conditions	min.	typ.	max.	unit
Input fuse		T4A / 250VAC internal			
Rated over load protection	Vi nom	105		125	%
Power Rdy (for 24V model only)	Threshold voltage of contact closed(at start up)	21.1		23.1	VDC
	Threshold voltage of contact open(after start up)	20.6		19.0	VDC
	Electrical isolation	500			VDC
	Contact rating at 60VDC			0.3	A
Over voltage protection	Vi nom, Io nom	125		145	%
Output short circuit	Vi nom, Io nom	Hiccup mode			

## SPECIFICATION

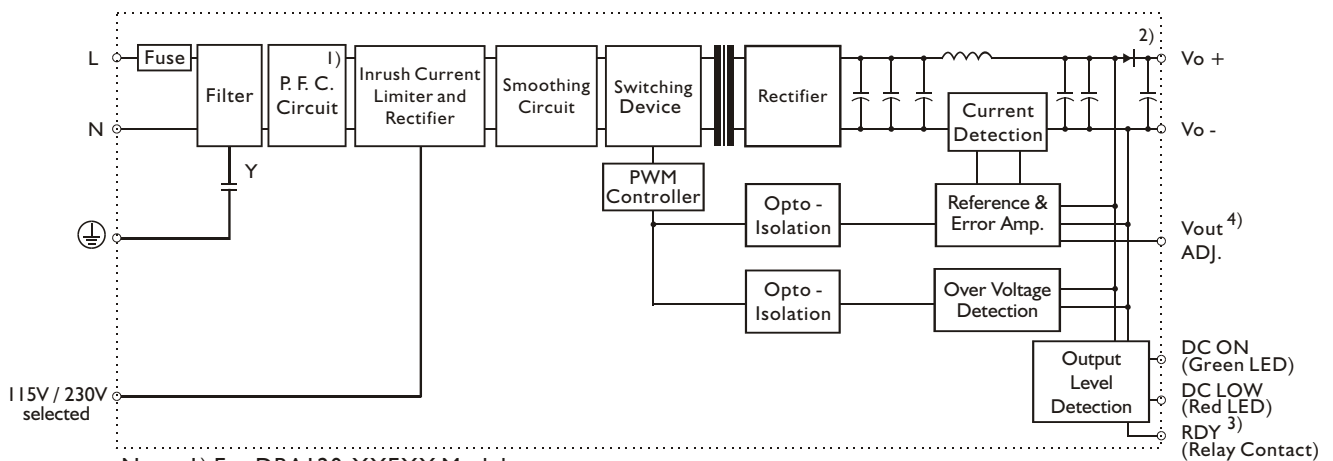
All Specifications Typical At Nominal Line, Full Load, 25°C Unless Otherwise Noticed

## APPROVALS AND STANDARDS

UL / cUL	UL508 Listed
TUV	EN60950
CE	EN50081-1 EN50082-2 EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8

## CIRCUIT SCHEMATIC

• Block diagram for DRA120 series



- Note: 1) For DRA120-XXFXX Model  
 2) For DRA120-XXXPX Model  
 3) For 24V Model Only  
 4) N/A For DRA120-XXXPX Model

## PHYSICAL CHARACTERISTICS

### CASE SIZE

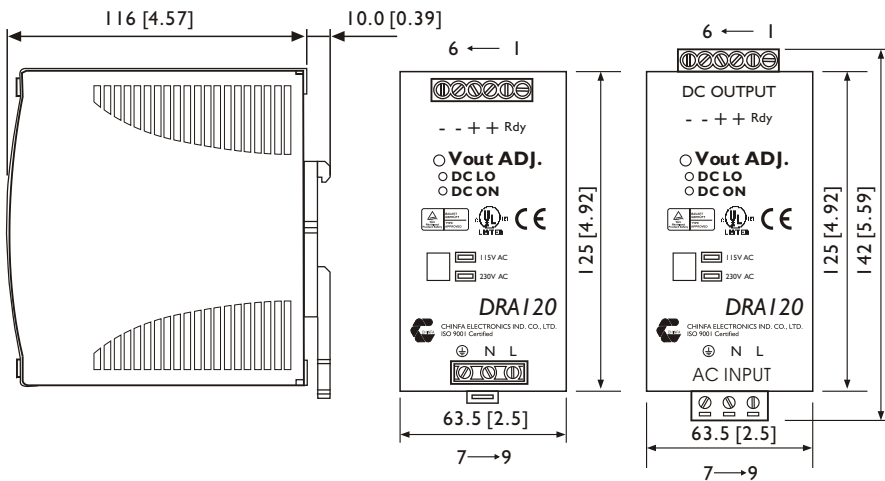
SCREW TERMINAL TYPE	125 x 63.5 x 126 mm 4.92 x 2.5 x 4.96 inches
DETACHABLE CONNECTOR TYPE	142 x 63.5 x 126 mm 5.59 x 2.5 x 4.96 inches

### WEIGHT

P. F. C TYPE	860g
None P. F. C TYPE	640g

## 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

Above/below 25m/m free space

For cooling recommended

Connector size range

Screw terminal:

10-24AWG flexible / solid cable,

8 m/m stripping at cable end recommends

Detachable connector:

14-24AWG flexible / solid cable,

7 m/m stripping at cable end recommends

## PIN ASSIGNMENT

PIN NO.	Designation	Description
1	RDY	A normal open relay contact for DC ON level control (Never connect except 24V model)
2	OUT	V +
3		V +
4		V -
5		V -
6	IN	⊕
7		N
8		L
9	OTHER	DC ON
		DC LO
		Vout ADJ.
		I 15 / 230

## DERATING

