

3. ABSOLUTE MAXIMUM RATINGS

Stresses in excess of the absolute maximum ratings may cause performance degradation, adversely affect long-term reliability, and cause permanent damage to the supply.

PARAMETER	DESCRIPTION / CONDITION	MIN	NOM	MAX	UNIT
$V_{i\ maxc}$	Maximum Input	Continuous		264	VAC

4. INPUT SPECIFICATIONS

General Condition: $T_A = 0 \dots 50^\circ\text{C}$ unless otherwise specified.

PARAMETER	DESCRIPTION / CONDITION	MIN	NOM	MAX	UNIT
$V_{i\ nom}$	Nominal Input Voltage	100	115/230	240	VAC
			380	¹	VDC
V_i	Input Voltage Ranges	Normal operating ($V_{i\ min}$ to $V_{i\ max}$)		264	VAC
				400	VDC
$V_{i\ red}$	Derating Input Voltage Range	90		180	VAC
$I_{i\ max}$	Max Input Current			16	A_{rms}
$I_{i\ p}$	Inrush Current Limitation	$V_{i\ min}$ to $V_{i\ max}$, $T_{NTC} = 25^\circ\text{C}$		60	A_p
F_i	Input Frequency	47	50/60	63	Hz
PF	Power Factor	$V_{i\ nom}$, 50 Hz, $> 0.3 I_{i\ nom}$	0.95		WVA
$V_{i\ on}$	Turn-on Input Voltage ²	Ramping up	74	84	VAC
			170	180	VDC
$V_{i\ off}$	Turn-off Input Voltage	Ramping down	72	80	VAC
			170	175	VDC
		Input Out of Range	270	278	VAC
			402	410	VDC
η	Efficiency	$V_{i\ 115VAC}$, $0.2 \cdot k_{nom}$, $V_{x\ nom}$, $T_A = 25^\circ\text{C}$		90	
		$V_{i\ 115VAC}$, $0.5 \cdot k_{nom}$, $V_{x\ nom}$, $T_A = 25^\circ\text{C}$		92	
		$V_{i\ 115VAC}$, k_{nom} , $V_{x\ nom}$, $T_A = 25^\circ\text{C}$		89	
		$V_{i\ 230VAC}$, $0.2 \cdot k_{nom}$, $V_{x\ nom}$, $T_A = 25^\circ\text{C}$		90	
		$V_{i\ 230VAC}$, $0.5 \cdot k_{nom}$, $V_{x\ nom}$, $T_A = 25^\circ\text{C}$		94	
		$V_{i\ 230VAC}$, k_{nom} , $V_{x\ nom}$, $T_A = 25^\circ\text{C}$		91	
T_{hold}	Hold-up Time	$V_i = 90\text{Vac}$ to 264Vac , $V_1 \geq 11.4\text{ V}$, $C_{out} = 5000\ \mu\text{F}$, 80% nominal output power, Time from de-assert INPUT_OK to Vout out of regulation or OUTPUT_OK de-asserts	5	10	ms

¹ For PFS1200-12-054NA and PFS1200-12-054NAC, Input HVDC range is 180 VDC to 350 VDC; input AC range is 90 VAC ~ 264 VAC.

² The Front-End is provided with a minimum hysteresis of 3 V during turn-on and turn-off within the ranges.

4.1 INPUT FUSE

Slow-acting 16 A input fuse (5 x 20 mm) in series the L line inside the power supply protect against severe defects. The fuse is not accessible from the outside and are therefore not serviceable parts.

4.2 INRUSH CURRENT

The AC-DC power supply exhibits low X-capacitance resulting in a low and short peak current, when the supply is connected to the mains. The internal bulk capacitor will be charged through an NTC which will limit the inrush current.

NOTE: Do not repeat plug-in / out operations within a short time, or else the internal in-rush current limiting device (NTC) may not sufficiently cool down and excessive inrush current or component failure(s) may result.

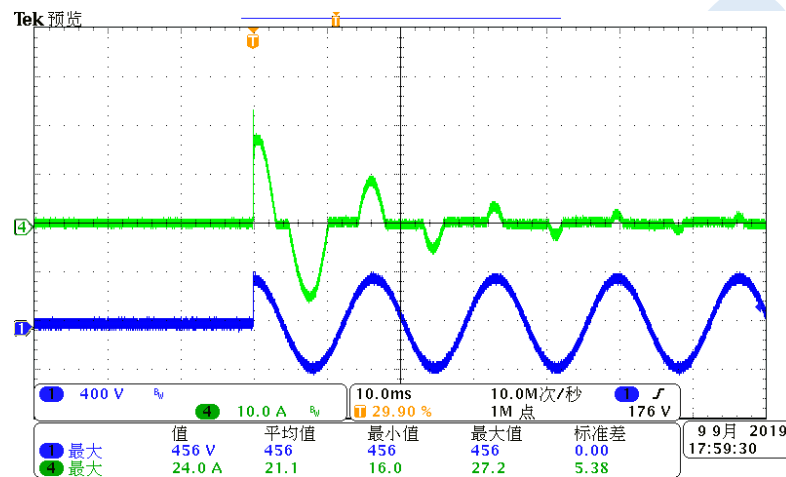


Figure 2. Inrush current, $V_{in} = 264V_{ac}$, 90°
CH1: V_{in} (400V/div), CH4: I_{in} (10A/div)

4.3 INPUT UNDER-VOLTAGE

If the sinusoidal input voltage stays below the input under voltage lockout threshold $V_{i on}$, the supply will be inhibited. Once the input voltage returns within the normal operating range, the supply will return to normal operation again.

4.4 POWER FACTOR CORRECTION

Power factor correction (PFC) is achieved by controlling the input current waveform synchronously with the input voltage. An analog controller is implemented giving outstanding PFC results over a wide input voltage and load ranges. The input current will follow the shape of the input voltage.