

Eaton 93PS 8-40kW UPS Technical Specification

Manufacturer's declaration in accordance with IEC 62040-3

IEC 62040-3 Subclause	MODEL RATING (1.0 p.f.)	8-40 kW	
	Frame	20 kW	40 kW
	Model catalogue reference	93PS-XX(20)-YY-	93PS-XX(40)-YY-
	Number of power modules (UPM)	1	1 or 2
	Number of internal batteries	0 to 2 x 32 blocks	0 to 4 x 32 blocks
	UPS options	Long life batteries (LL) Internal maintenance bypass switch (MBS) External maintenance bypass switch External battery cabinets	
	Upgradability	Yes, up to 20 kW	Yes, up to 40 kW
	External paralleling	Up to 6 units with HotSync technology	
5.1.1	UPS topology	Double conversion, 3-level IGBT converters	
5.3.4	UPS performance classification	VFI-SS-111	

MECHANICAL

Frame		20 kW	40 kW	
	UPS dimensions (width x depth x height)	335 x 750 x 1300 mm, C-model: 335 x 750 x 645 mm	480 x 750 x 1750 mm	
	Weight, UPS and internal batteries	<u>1 x Power module</u>	<u>1 x Power module</u>	<u>2 x Power module</u>
	UPS (C-model)	86 kg	-	-
	UPS + 0 BAT	116 kg	181 kg	208 kg
	UPS + 1 BAT	198 kg	260 kg	287 kg
	UPS + 2 BAT	280 kg	342 kg	369 kg
	UPS + 3 BAT	N/A	423 kg	450 kg
	UPS + 4 BAT	N/A	505 kg	532 kg
	Weight, UPM (power module)	28 kg (< 25 kg w/o fan panel & DC capacitors)		
	Small External Battery Cabinet dimensions (width x depth x height)	335 x 750 x 1300 mm		
	Large External Battery Cabinet dimensions (width x depth x height)	761 x 750 x 1750 mm		
	UPS Cable entry	Rear		
	UPS Degree of protection	IP 20		
	UPS colour	Black; RAL 9005		
	Mean Time To Repair (MTTR)	< 8 minutes (Power module) / < 15 minutes (UPS)		

Updated: 10.5.2019

Document: Eaton 93PS 8-40kW technical specification Rev 016

The technical specification is subject to change without notice

Eaton 93PS 8-40kW UPS Technical Specification

Manufacturer's declaration in accordance with IEC 62040-3

IEC 62040-3 Subclause	MODEL RATING (1.0 p.f.)	8-40 kW
--------------------------	-------------------------	---------

ELECTRICAL CHARACTERISTICS

OUTPUT

5.3.2 f	Number of output phases	3 phases + neutral			
	Crest factor	3			
5.3.2 b	Rated output voltage	220/380 V; 230/400 V; 240/415 V, configurable			
5.3.2 b	Output voltage variation, steady state	< 1%			
5.3.2 i	Total voltage harmonic distortion	< 1.5%			
	100% linear load	< 3.5%			
	100% non-linear load	< 3.5%			
5.3.2 q	Voltage unbalance at reference unbalanced load	< 0.5%			
5.3.2 j	Voltage transient (r.m.s) at 100% step load	4 %			
	Recovery time to steady state at 100% step load	100 ms			
5.3.2 c	Rated output frequency	50 or 60 Hz, configurable			
	Output frequency variation	± 0.1 Hz (1 x UPM), ± 0.15 Hz (2 x UPM)			
	Slew rate	0.4 Hz/s			
5.3.2 d and 5.3.2 e	Maximum frequency range for synchronization with bypass	± 4 Hz as default. User settable 0.5 to 5 Hz.			
	Maximum synchronized phase error	< 2° with static balanced load			
	Maximum slew-rate when synchronizing	0.4 Hz/s			
5.3.2 k	Rated output power	20 kW frame		40 kW frame	
		8 kW / 8 kVA		8 kW / 8 kVA	
		10 kW / 10 kVA		10 kW / 10 kVA	
		15 kW / 15 kVA		15 kW / 15 kVA	
		20 kW / 20 kVA		20 kW / 20 kVA	
5.3.2 l	Overload capability On inverter and on inverter, stored energy mode	15 kW Power module (20 and 40 kW frame)		20 kW Power module (20 and 40 kW frame)	
		Power rating 8-10 and 20 kW	Power rating 15 and 30 kW	Power rating 8-15 and 30 kW	Power rating 20 and 40 kW
		10 min 135%	10 min 110%	10 min 135%	10 min 110%
		60 sec 155%	60 sec 125%	60 sec 155%	60 sec 125%
		10 sec 185%	10 sec 150%	10 sec 185%	10 sec 150%
		300 ms >185%	300 ms >150%	300 ms >185%	300 ms >150%
		Overload capability ESS mode		Continuous < 110% load 20 ms 1000% load	
		Overload capability On bypass		Continuous < 125% load 20 ms 1000% load	

Updated: 10.5.2019

Document: Eaton 93PS 8-40kW technical specification Rev 016

The technical specification is subject to change without notice

Eaton 93PS 8-40kW UPS Technical Specification

Manufacturer's declaration in accordance with IEC 62040-3

IEC 62040-3 Subclause	MODEL RATING (1.0 p.f.)	8-40 kW			
5.3.2 m	Output current limitation, short-circuit capability	1 x 15 kW UPM 54 A, 300ms	1 x 20 kW UPM 72A, 300 ms	2 x 15 kW UPM 108 A, 300ms	2 x 20 kW UPM 144A, 300 ms
6.4.2.10.3 and 6.4.2.10.4	Fault clearing capability	1 x 15 kW UPM Circuit breaker B10 / C6	1 x 20 kW UPM Circuit breaker B10 / C6	2 x 15 kW UPM Circuit breaker B16 / C10	2 x 20 kW UPM Circuit breaker B25 / C10
5.3.2 o and 5.3.2 p	Load power factor Rated Permitted range	1.0 0.8 lagging to 0.8 leading			

ESS MODE CHARACTERISTICS

	Transfer time to double-conversion Mains available Mains failure	No break Typically 2 ms
	Output voltage variation setting	± 10% of nominal voltage, default
	Output frequency variation setting	± 4 Hz, default
	Storm detection	UPS locks into double-conversion mode when three power line disturbances have forced the unit to double-conversion three times (user adjustable) within a one-hour period (user adjustable).
	High Alert mode	UPS will stay on double-conversion for one hour (user adjustable), after which the unit will automatically return to operate on ESS.

BYPASS

Frame		20 kW	40 kW
	Type of bypass	Static	
	Bypass rating	20 kW	40 kW
	Bypass voltage range	220/380 V; 230/400 V; 240/415 V tolerance -15% / +10% of rated voltage	
	Transfer time break	No break	
	Maintenance bypass	Optional; internal or external	
	Bypass fuse i^2t value, Pre-arc i^2t Total clearing i^2t	<u>standard</u> 1000 A ² s 3700 A ² s	<u>standard</u> 1900 A ² s 7100 A ² s
	Required external bypass protective fuse, recommended rating	Circuit breaker C40	Circuit breaker C80
	Rated conditional short-circuit current, I_{cc} Static bypass Optional integrated maintenance bypass	100kA (internal ultra rapid fusing) 10kA (see User's and Installation Guide for protective fusing)	

Updated: 10.5.2019

Document: Eaton 93PS 8-40kW technical specification Rev 016

The technical specification is subject to change without notice

Eaton 93PS 8-40kW UPS Technical Specification

Manufacturer's declaration in accordance with IEC 62040-3

IEC 62040-3 Subclause	MODEL RATING (1.0 p.f.)	8-40 kW
--------------------------	-------------------------	---------

BATTERY CHARACTERISTICS

5.4.2.2 d	Battery technology	12 V, VRLA			
5.4.2.2 a	Battery design life	5 or 10 years			
5.4.2.2 b	Battery quantity	Internal	32 blocks, 192 cells per battery string		
		External	28-40 blocks per string		
		C-model	28-36 blocks per string		
5.4.2.2 c	Battery voltage	Internal	384 V		
		External	336V – 480V		
		C-model	336V – 432V		
5.4.2.2 e	Nominal Ah capacity (C10)	9Ah, 9Ah Long life or 7Ah Long life			
5.4.2.2 f	Stored energy time	See separate declaration			
5.4.2.2 o	Recharge profile	ABM or float			
5.4.2.2 q	End of discharge voltage	1.67 VPC to 1.75 VPC Configurable or automatic (load adaptive)			
5.4.2.2 r	Charge current limit		<u>1 x 15kW UPM</u>	<u>1 x 20kW UPM</u>	<u>2 x 15kW UPM</u>
		Default	5A, configurable	5A, configurable	10A, configurable
		Load ≤80%	1...18A	1...25A	2...36A
		Load >80%	1...10A	1...15A	2...20A,
	Battery start option	Yes			

COMMUNICATION CIRCUITS

5.6	Standard connectivity ports	2 Mini-slot ports for optional cards, Device USB and Host USB, RS-232 service port, relay output, 5 building alarm inputs and a dedicated EPO, Web and SNMP card included as standard
	Complete list of indications and interface devices	See User's and Installation Guide

COMPLIANCE WITH STANDARDS

IEC 62040-1	Safety Degree of protection	Access Operator access IP 20; protection against medium sized foreign matter (incl. finger), no protection against vertically dripping water.
IEC 62040-2	Electromagnetic Compatibility Immunity Emissions	EMC Category C3 EMC Category C2
IEC 62040-4 EN 50581	Environmental Aspects - Requirements and Reporting	Yes

Updated: 10.5.2019

Document: Eaton 93PS 8-40kW technical specification Rev 016

The technical specification is subject to change without notice