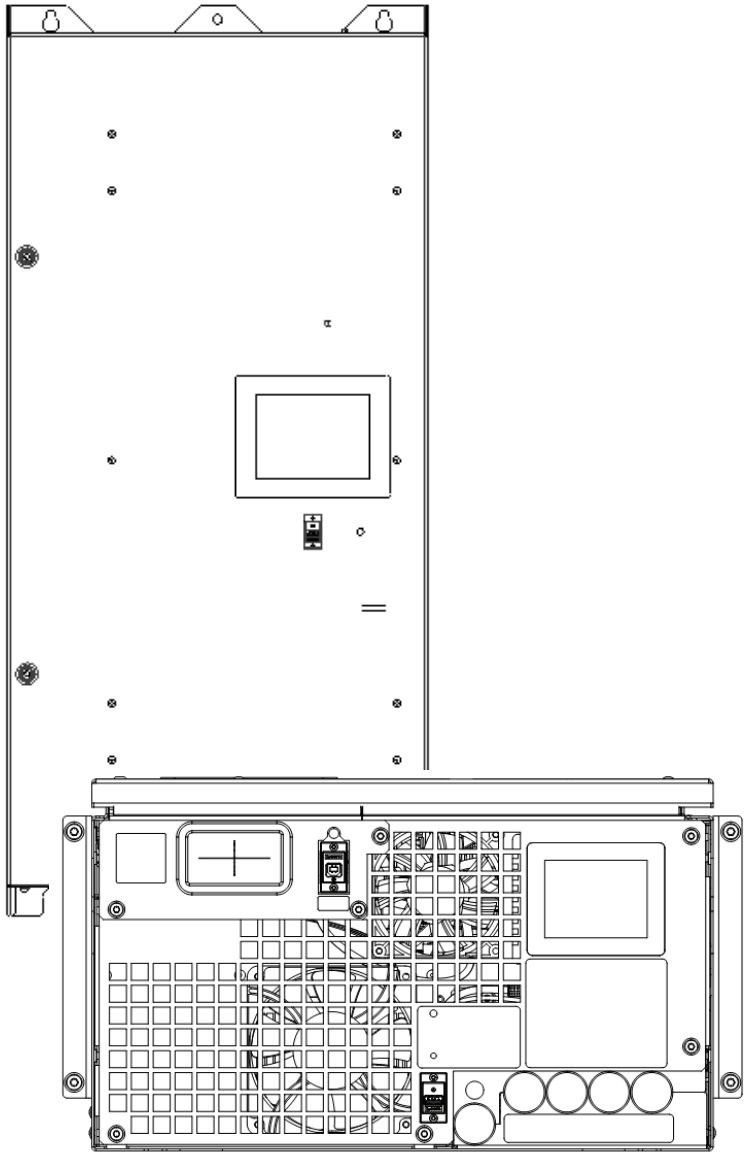
Technical Data **TD158044EN** Effective February 2022

Eaton HCUn



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Technical specifications

Table 1. Technical specifications

Description	Specification
Electrical characteristics	
Standard rms output current ratings	Chassis: 20 A, 30 A, 50 A, 60 A Wall: 20 A, 30 A, 50 A, 60 A
Nominal voltage	208–415 Vac, –15%/+10%
Nominal frequency	50/60 Hz, ±3 Hz auto sensing
Connection type	Three-phase/three-wire or three-phase/four-wire
Compensation type	Three-phase only or three-phase + neutral
Earthing systems	TT, TN-C, TN-S, TN-C-S, IT, corner ground, centre-tapped delta, and HRG
Network voltage distortion	Maximum 20% phase-to-phase (up to 30th order)
Voltage notch limits	Notch depth: 10%, notch area (AN): 13,667 V µs at 400 V as per IEEE® 519-2014, Annex C
Technical product characteristics	
Power electronics	3-level IGBT
Control topology	Digital harmonic FFT Digital instantaneous reactive power
Efficiency and losses	208 Vac ≥ 95% Three-phase compensation: ≤ 17.7 W/A Three-phase + N compensation: ≤ 19.7 W/A 380–415 Vac ≥ 97% Three-phase compensation: ≤ 20.4 W/A Three-phase + N compensation: ≤ 22.6 W/A
Current transformer	Any ratio with 1 A or 5 A secondary; Class 1.0 accuracy; 50/60 or 400 Hz rated (instrument rated or better); Grounded; can be shared with other devices
CT VA loading	1 A: 0.04 VA 5 A: 1 VA
Quantity of CT	Two or three CTs for three-phase loads; three CTs are required for four-wire with neutral connected loads
CT position	Grid or load sense
Control basis	Closed or open loop
Spectrum cancellation and selection	2nd to 51st harmonic order; discrete, fully selectable adjustable per harmonic order (amplitude % and ON/OFF)
Modes of operation	Multi-modes simultaneously or discrete • Phase harmonic correction • Neutral harmonic correction with user-adjustable current limit up to three times unit rating • Power factor correction (cos) • Mains current load balancing
Operational features	% THDi setpoint, % THDv setpoint, Target PF setpoint
Harmonic attenuation and filtering performance	THDi < 3% in closed loop control; maximum 20:1 THDi (typical reduction with load harmonic above 50% unit rating) requires 3% or higher inductive impedance per nonlinear load
Power factor correction	Optimize PF and target PF (cos φ) programmable leading (capacitive) or lagging (inductive)
Mains current load balancing	Negative and zero sequence; selectable individually or simultaneously
Resonance avoidance	Output at specific harmonic order turned off if resonance or lack of impedance detected or manually turned off
Paralleling characteristics	
Scalability and expandability	Up to 12 units in parallel per set of CT; any size unit combination possible (maximum nth order subject to network characteristics)
Parallel operation options	Primary/Secondary, Multi-primary, Multi-primary/Multi-secondary (primaries receive CT connection) Main units (primary capable): 20 A, 30 A, 50 A, 60 A Expansion units (secondary only—no CT connection): 60 A
Paralleling architecture	Distributed redundancy with no independent controller required
Parallel sequence options	Load share: all operating units function at the same ouput percentage. Cascade: lead/lag with unit rotation; one unit operates to full capacity before next unit turns on; timed rotation
Unit ID assignment	Automatic parallel ID assignment capability or can be set manually
HMI and service provisions	
Display	Magelis STU HMI, high definition color touchscreen TFT QVGA 64 k
Operator interface	Chassis mount: 5.70 inches (144 mm) supplied for mounting remotely Wall mount: 5.70 inches (144 mm) Expansion units: no HMI required
User interface options	Plain language, no cryptic code. Multiple languages: English, French, Spanish, Portuguese, Chinese, Korean, German, Russian, and Polish
Service port	2 x USB ports for firmware update, diagnostics file, and event log download, connection to PC. Diagnostics can be downloaded via PC even if the unit is de-energized
Commissioning features	On-board step-by-step commissioning wizard via HMI On-board commissioning report for download—no additional software required Automatic CT calibration, polarity detection, and correction Phase sequence insusceptible Automatic unit neutral connection check

Product selection

Table 2. Product selection—HCUn 208–415 V, 50/60 Hz

Rated current (A)	Neutral rated current (A)	Rated kvar at 415 V	Enclosure rating	Mounting type	Unit type	Cable entry	Frame	Mass lb (kg)	Catalog number
20	60	14	IP00/type OPEN ①	Chassis	Main	Bottom	12	134.48 (61)	**HCUN020Y4CH00**
30	90	22	IP00/type OPEN ①	Chassis	Main	Bottom	12	134.48 (61)	**HCUN030Y4CH00**
50	150	36	IP00/type OPEN ①	Chassis	Main	Bottom	12	165.35 (75)	**HCUN050Y4CH00**
60	180	43	IP00/type OPEN ①	Chassis	Main	Bottom	12	165.35 (75)	**HCUN060Y4CH00**
60	180	43	IP00/type OPEN ①	Chassis	Expansion	Bottom	12	165.35 (75)	**HCUN060Y4CH00E**
20	60	14	UL® type 1	Wallmount	Main	Bottom	13	163.14 (74)	**HCUN020Y4N1**
30	90	22	UL type 1	Wallmount	Main	Bottom	13	163.14 (74)	**HCUN030Y4N1**
50	150	36	UL type 1	Wallmount	Main	Bottom	13	196.21 (89)	**HCUN050Y4N1**
60	180	43	UL type 1	Wallmount	Main	Bottom	13	196.21 (89)	**HCUN060Y4N1**

① UL type OPEN models shall be installed with fuse kit (HCUNFUSKIT230 or HCUNFUSKIT560) on line side to maintain $_{c}UL_{US}$ compliance.

Dimensions and installation guidelines

Table 3. Eaton HCUn unit dimensions and installation guidelines

Frame size figure	Description	Exterior dimensions in inches (mm)		
		Height	Width	Depth
12	Eaton HCUn chassis IP00/UL type OPEN	37.80 (960.0)	17.32 (440.0)	10.43 (265.0)
13	Eaton HCUn wallmount UL type 1	56.69 (1440.0)	17.52 (445.0)	10.43 (265.0)

Note: UL type OPEN dimensions exclude fuse kit.

Frame size 12

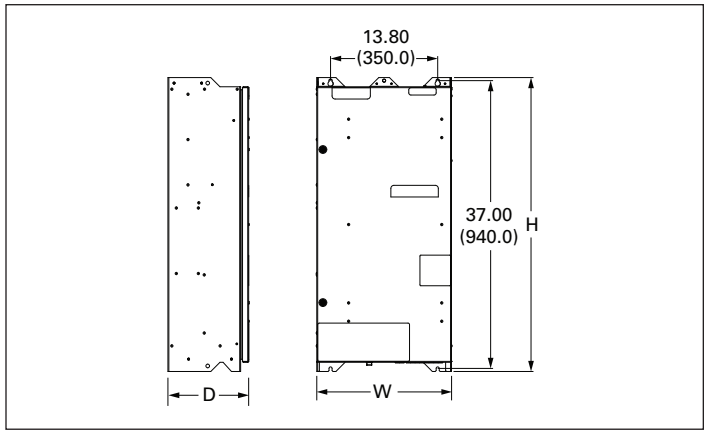


Figure 1. Chassis mount IP00/UL Type OPEN

- HMI only on main unit—supplied loose in the box for mounting remotely
- Expansion unit has the same dimensions as the main unit, except no HMI provided

Note: Fuse kit shall be installed on line side to maintain $_{c}UL_{US}$ compliance.

Frame size 13

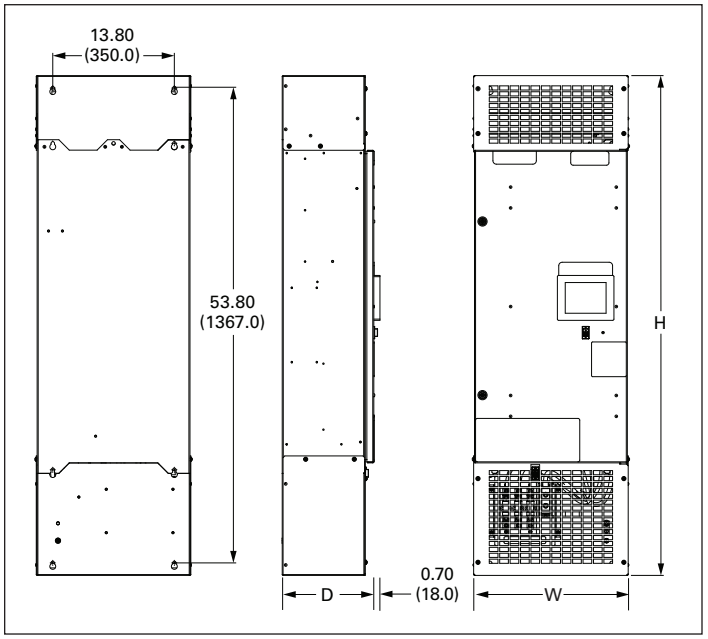
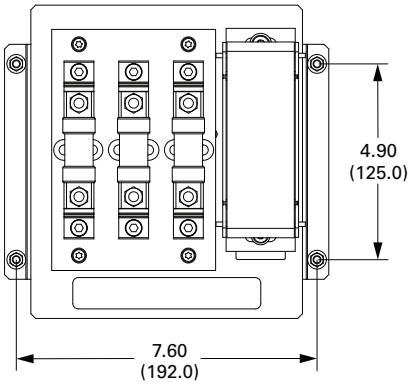


Figure 2. Wall mount UL Type 1

- HMI only on main unit
- Expansion unit has the same dimensions as the main unit, except no HMI provided

Note: All dimensions are indicative. Please refer to the dimensions in the Installation manual and engineering drawings for design purposes.

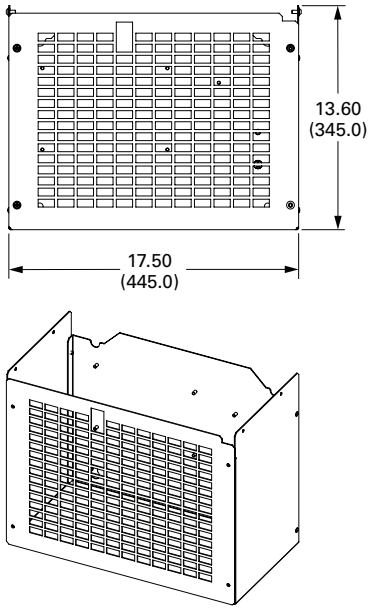
Accessories



HCUNFUSKIT230—for 20 A and 30 A chassis models
HCUNFUSKIT560—for 50 A and 60 A chassis models

Note: Fuse kit required on line side of chassis IP00 model to maintain $_{c}UL_{US}$ compliance.

Figure 3. Fuse kit—dimensions in inches (mm)



HCUNBTMKIT01—optional cable termination box for chassis IP00 models

Figure 4. Terminal kit—dimensions in inches (mm)

Note: All dimensions are indicative. Please refer to the dimensions in the installation manual and engineering drawings for design purposes.

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Printed in USA
Publication No. TD158044EN / Z25913
February 2022

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