Technical Data Sheet

TruFit™ Power Distribution Unit (PDU)

400 – 800 kVA

About this document

Document information

File name	:	ABB_PDU_TDS_TFT_400-800KVA_REV-C
Model	:	400 – 800kVA TruFit PDU - UL
Date of issue	:	05/20/2022
Issued by (department)	:	Product Marketing
Checked by (department)	:	R&D Engineering
Article number	:	…
Document number	:	TDS-PDU-MK-0183
Revision	:	REV-C
Revision date	:	03/17/2023

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1 Introduction

ABB TruFit 400 – 800kVA PDU is a three-phase power conditioning unit for distribution of computer grade power to data processing equipment and other critical loads. Equipped with DOE 2016 compliant, high-efficiency transformers and an innovative metering/monitoring system, the TruFit PDU reliably provides clean power to critical loads.

1.1 Key features and benefits

SACE Tmax XT breakers provide **true** reliability through extreme breaking capacity in compact frames ensuring safe and reliable interruption of faults.

Front access only design enables better **fit** and optimal usage of valuable white space through elimination of side or rear clearances for all configurations.

Innovative, centralized monitoring solution with optional integrated thermal monitoring provides a more holistic view of equipment health/**fit**ness.

Compartmentalized design helps minimize exposure to potential arc flash events and ensures routine services can be conducted quickly and safely without exposure to hazardous voltage.

Improved sustainability through with high-efficiency, DOE 2016 compliant transformers and revenue-grade metering accuracy down to the sub-feed or branch circuit level to provide users the visibility required to optimally balance loads and maximize utilization.

Key applications

- Data centers
- Healthcare facilities
- Financial institutions
- Colleges/Universities

1.2 Mechanical characteristics

Dimensions (W x D x H)	**Main transformer cabinet:** 60 x 48 x 84 inches / 1524 x 1219.2 x 2133.6 mm **Sidecars** (*optional*)**:** Right distribution sidecar - 30 x 48 x 84 inches / 762 x 1219.2 x 2133.6 mm Right sub-feed isolation sidecar - 30 x 48 x 84 inches / 762 x 1219.2 x 2133.6 mm		
Weight	**Main transformer cabinet:**		
	400 - 800kVA	</= 5500 lbs	</= 2495 kg
	Sidecars (*optional*)**:**		
	Distribution 30”W front facing	</= 550 lbs	</= 250 kg
	Sub-feed isolation 30”W front facing	</= 600 lbs	</= 273 kg
Floor loading	**Main transformer cabinet:**		
	400 – 800kVA	</= 275 lbs/ft^2	</= 1343 kg/m^2
	Sidecars (*optional*)**:**		
	Distribution 24”W front facing	</= 55 lbs/ft^2	</= 270 kg/m^2
	Sub-feed isolation 30”W front facing	</= 60 lbs/ft^2	</= 294 kg/m^2

1.3 General specification

Standards	ETL listed to UL 891
Audible noise level	NEMA ST20
Access requirements	Front only for installation, operation, and maintenance
Degree of protection against hazards and water ingress	IP20
Cooling	Convection cooled
Ventilation	Perforated top and bottom plates (optional solid kickplates for raised floor installations)
PDU frame cabinet color	RAL 9005 (black)
Transport	On pallet Cabinet suitable for handling by forklift
Mounting	Floorstand mounting holes provided
Cable entry	Top and/or bottom

1.4 Environmental characteristics

Ambient operating temperature range	[° F/° C]	32 - 104° F / 0 - 40° C
Ambient non-operating temperature range	[° F/° C]	-13 - 131° F / -25 - 55° C
Relative humidity range	[%]	10 - 95%, non-condensing
Altitude without de-rating	[ft/m]	Up to 3280 ft / 1000 m
Altitude with de-rating	[ft/m]	3609 ft / 1100 m: -3% 3937 ft / 1200 m: -6% 4265 ft / 1300 m: -9% 4593 ft / 1400 m: -12%

1.5 Heat dissipation at full load

kVA rating	Heat Output (kW)	Heat Output (BTU/hr)
400kVA	8.0 kW	27,297 BTU/hr
500kVA	10 kW	34,121 BTU/hr
600kVA	12 kW	40,946 BTU/hr
750kVA	15 kW	51,182 BTU/hr
800kVA	16 kW	54,594 BTU/hr

2 Electrical characteristics

2.1 Transformer

kVA rating	[kVA]	400, 500, 600, 750, 800
Input/primary voltage		480 VAC, 3-phase, 3-wire + ground
Input voltage window		+/-10%
Output/secondary voltage		Dual re-tappable 415/240V & 208/120V, 3-phase, 4-wire + ground 415/240 VAC, 3-phase, 4-wire + ground 208/120 VAC, 3-phase, 4-wire + ground
Winding material		Aluminum (std.), Copper (opt.)
Input/output frequency	[Hz]	60 +/-5% (57 – 63Hz)
Efficiency		DOE 2016 compliant
Percent Impedance	[%]	4.5 – 8.0 (≤ 500kVA) 5.0 – 8.0 (≥ 600kVA)
Voltage THD (added)		1% max.
Insulation class		Class 220
Temperature rise	[°C]	150 (std.), 115 (opt.)
Inrush		11x (std.), 5x (opt.)
K-rating		K4 (std.), K13 & K20 (opt.)
Compensation taps		(4) 2.5% full load compensation taps, (2) above & (2) below nominal
Core temperature setpoints	[°C]	190 – warning/alarm, 220 – overtemperature shutdown

2.2 Main input circuit breaker

		400kVA	**500kVA**	**600kVA**	**750kVA**	**800kVA**
Amp setting	[A]	600	750	900	1200	1200
Trip unit		Electromagnetic LSI, 100% rated				
Interrupt rating @ 480V	[kAIC]	65 (std.), 100 (opt.)				
Accessories		Internal 24VDC shunt trip mechanism interfaced to both local and remote EPO. * *Customer shall provide dry contacts for remote EPO*				

3 Output/distribution specifications

3.1 Panelboard distribution

Panelboard types/brand		GE by ABB 42-pole, ABB ProLine 42-pole
Panelboard voltage rating	[V]	GE by ABB – up to 240 ABB ProLine – up to 480
Panelboard short circuit rating	[kAIC]	GE by ABB – up to 10 ABB ProLine – up to 35
Panelboard and main breaker rating	[A]	225A, 400A
Secondary main breaker rating	[%]	80 (std.), 100 (opt.)
Secondary main breaker trip unit		Thermal-magnetic (std.), Electromagnetic LSI (opt.)
Branch circuit breaker poles	[poles]	1, 2, 3
Branch circuit breaker ratings	[A]	15 – 100 **ABB ProLine branch breakers >50A are side-specific*
Branch circuit breaker rating	{%]	80%
Branch circuit breaker trip unit		Thermal-magnetic
Branch circuit breaker type		Bolt-on

3.2 Sub-feed circuit breakers

		ABB Tmax XT4	ABB Tmax XT5	ABB Tmax XT6
Poles		3	3	3
Amp rating	[A]	250A	400A	600A, 800A
Rated voltage	[V]	600	600	600
Short circuit interrupt ratings	[kAIC @ 240V]	65, 100	65, 100	65, 100
	[kAIC @ 480V]	25	35	35
Trip unit options	Ekip dip LSI	Standard	Standard	Standard
Sub-feed breaker rating	[%]	100	100	100
UL current limiting compliant		Yes	Yes	Yes
Mechanical life	[# operations]	25,000	20,000	20,000

4 PowerView metering and monitoring

4.1 Features and functionalities

Features	PowerView Core	PowerView Pro
Basic metering/monitoring		
• Primary & secondary of transformer (PSB)	Standard	Standard
• Branch circuit management (BCM) ○ Up to (4) 42p panelboards (252 circuits)	Optional	Optional
• Sub-feed circuit management (SFCM) ○ Up to (16) 3-wire or 4-wire sub-feed breakers	Optional	Optional
Monitoring system standard parameters • Voltage-current RMS • MIN current • MAX current • kW (power) • kWh • kVAr • kVA-load • kVAh • Max energy demand • Power factor (PF) • Crest factor • Total harmonic distortion (THD) up to 9th order	Standard	Standard
Accuracy	+/-2%	+/-1%
Harmonics measurements	Up to 9th order	Up to 35th order
Waveform capture	Not available	Standard
Custom circuit naming/numbering	Not available	Standard
Custom grouping of circuits	Not available	Standard
Global time synch via NTP	Not available	Standard
Breaker status monitoring (open, closed, tripped) via Discrete Input Board (DIB)	Not available	Optional
Integrated thermal monitoring via Thermocouple Interface Board (TIB)	Not available	Optional

4.2 PowerView Branch Circuit Management (BCM)

BCM features/specifications
True RMS current, peak current (resettable), minimum current (resettable) for each branch circuit
Panel board phase current
Voltage, power, energy, power factor and THD (current) for each branch circuit
Voltage, power, energy, power factor and THD (current) at the panel board level
User configurable warning and alarm thresholds for each circuit
User configurable warning and alarm statuses for each circuit

4.3 PowerView Sub-feed Circuit Management (SFCM)

SFCM features/specifications
Real time current, peak current (resettable), minimum current (resettable) for each sub-feed circuit
Voltage, power, energy, power factor and THD (current)
User configurable warning and alarm thresholds for each sub-feed circuit
User configurable warning and alarm statuses for each sub-feed circuit

5 Control and communications

5.1 System display

The PDU Control Panel is a 6.5” color, touch screen graphical display which provide the following information to the user:

- Mimic diagram indication PDU status
- PDU measurements
- History of events (alarms and messages)
- PDU settings
- Operation command

5.2 Communications interfaces

Modbus over RTU (via RS485)	Standard
Modbus over TCP (via Ethernet)	Standard
Serial service port (via USB)	Standard
Customer download port (via USB)	Standard
Local EPO interfaced to main input breaker shunt trip	Standard
Remote EPO - Emergency Power OFF (n/c contact, customer supplied)	Standard
User Interface Board (UIB)	Standard

6 Options

6.1 Electrical options

1. 100kA or 200kA primary SPD
2. 100kA or 200kA secondary SPD

6.2 Mechanical options

1. Solid kick-plates for raised floor installations
2. Seismic rated under-floor floorstands (12” – 60”H)

https://new.abb.com/ups/power-distribution

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