

Electrical Sector Solutions

Volume 2: Commercial Distribution



Powering Business Worldwide

Type EP 3–25 kVA



Contents

Description

Description	Page
General-Purpose Encapsulated Transformers	
Catalog Number Selection	V2-T2-94
Product Selection	V2-T2-94
Single-Phase.	V2-T2-94
Three-Phase	V2-T2-100
Accessories	V2-T2-109
Technical Data and Specifications.	V2-T2-109

Product Description

Note: The following pages provide listings for most standard transformer ratings and catalog numbers. For other ratings or catalog numbers not shown, or for special enclosure types (including stainless steel), refer to Eaton.

Type EP and EPT

- Encapsulated design
- Suitable for indoor or outdoor applications
- Totally enclosed, non-ventilated enclosures
- Enclosures are NEMA 3R rated
- Mountable in any position indoors and upright-only outdoors
- 180°C insulation system
- 115°C rise standard; 80°C optional
- Available in ratings through 37.5 kVA single-phase; 75 kVA three-phase

Application Description

The basic purpose of a transformer is voltage transformation as near as practically possible to the load for economy and distribution of power. Typical loads for dry-type distribution transformers include lighting, heating, air conditioners, fans and machine tools. Such loads are found in commercial, institutional, industrial and residential structures.

Features, Benefits and Functions

- 60 Hz operation (50/60 Hz optional)
- Short-term overload capability as required by ANSI
- Meet NEMA ST-20 sound levels

Standards and Certifications

- UL listed
- CSA certified



Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards. All 600 volt class transformers are UL listed unless otherwise noted.

Seismically Qualified

Eaton manufactured dry-type distribution transformers are seismically qualified and exceed requirements of the Uniform Building Code (UBC), International Building Code (IBC), and California Code Title 24.

General-Purpose Encapsulated Transformers

Single-Phase Encapsulated—Type EP, 60 Hz

277 Volts to 120/240 Volts ^①

kVA	Full Capacity Taps		Type	°C Temp. Rise	Frame	Wiring Diagram Number	Weight Lbs (kg)	Weathershield	Catalog Number
	FCAN	FCBN							
0.5	—	—	EP	115	FR58AP	524A	26 (12)	Indoor–Outdoor	S27N11P51P
1	—	—	EP	115	FR59AP	524A	31 (14)	Indoor–Outdoor	S27N11P01P
1.5	—	—	EP	115	FR67P	524A	42 (19)	Indoor–Outdoor	S27N11P16P
2	—	—	EP	115	FR176P	524A	65 (30)	Indoor–Outdoor	S27N11P02P
3	—	—	EP	115	FR176	524A	55 (25)	Indoor–Outdoor	S27N11S03N
5	—	—	EP	115	FR177	524A	113 (51)	Indoor–Outdoor	S27N11S05N
7.5	—	—	EP	115	FR178	524A	123 (56)	Indoor–Outdoor	S27N11S07N
10	—	—	EP	115	FR179	524A	193 (88)	Indoor–Outdoor	S27N11S10N
15	—	—	EP	115	FR180	524A	180 (82)	Indoor–Outdoor	S27N11S15N
25	—	—	EP	115	FR182	524A	375 (170)	Indoor–Outdoor	S27N11S25N

240 x 480 Volts to 120/240 Volts

kVA	Full Capacity Taps		Type	°C Temp. Rise	Frame	Wiring Diagram Number	Weight Lbs (kg)	Weathershield	Catalog Number
	FCAN	FCBN							
0.050	—	—	EP	115	FR52	3A	7 (3)	Indoor–Outdoor	S20N11S81N
0.075	—	—	EP	115	FR54	3A	7 (3)	Indoor–Outdoor	S20N11S85N
0.100	—	—	EP	115	FR54	3A	7 (3)	Indoor–Outdoor	S20N11S82N
0.150	—	—	EP	115	FR55	3A	8 (4)	Indoor–Outdoor	S20N11S83N
0.25	—	—	EP	115	FR57P	3A	12 (5)	Indoor–Outdoor	S20N11P26P
0.5	—	—	EP	115	FR57P	3A	16 (7)	Indoor–Outdoor	S20N11P51P
0.75	—	—	EP	115	FR58AP	3A	26 (12)	Indoor–Outdoor	S20N11P76P
1	—	—	EP	115	FR67P	3A	31 (14)	Indoor–Outdoor	S20N11P01P
1.5	—	—	EP	115	FR67P	3A	42 (19)	Indoor–Outdoor	S20N11P16P
2	—	—	EP	115	FR68P	3A	42 (19)	Indoor–Outdoor	S20N11P02P
3	—	—	EP	115	FR176	3A	65 (30)	Indoor–Outdoor	S20N11S03N
3	②	②	EP	115	FR176	3A	65 (30)	Indoor–Outdoor	S20K11S03N
5	—	—	EP	115	FR177	3A	113 (51)	Indoor–Outdoor	S20N11S05N
5	②	②	EP	115	FR177	9A	105 (48)	Indoor–Outdoor	S20K11S05N
7.5	—	—	EP	115	FR178	3A	105 (48)	Indoor–Outdoor	S20N11S07N
7.5	②	②	EP	115	FR178	9A	123 (56)	Indoor–Outdoor	S20K11S07N
10	—	—	EP	115	FR179	3A	193 (88)	Indoor–Outdoor	S20N11S10N
10	②	②	EP	115	FR179	9A	193 (88)	Indoor–Outdoor	S20K11S10N
15	—	—	EP	115	FR180	3A	216 (98)	Indoor–Outdoor	S20N11S15N
15	③	③	EP	115	FR180	23A	216 (98)	Indoor–Outdoor	S20L11S15N
25	—	—	EP	115	FR182	3A	385 (175)	Indoor–Outdoor	S20N11S25N
25	③	③	EP	115	FR182	23A	375 (170)	Indoor–Outdoor	S20L11S25N
37.5	③	③	EP	115	FR300A	248A	735 (334)	Indoor–Outdoor	S20L11S37 ^④

Notes

① Contact Eaton for availability of 0.05–0.25 kVA designs.

② 1 at +10% FCBN at 240 volts; 2 at –5% FCBN at 480 volts.

③ 2 at +5% FCBN at 240 volts; 4 at –2.5% FCBN at 480 volts.

④ Floor-mount only.

Contact your local Eaton sales office for CE Mark transformer requirements. For other ratings or catalog numbers not shown, or for special enclosure types (including stainless steel), refer to Eaton. Frame drawings/dimensions information begins on **Page V2-T2-216**.

Single-Phase Type EPZ Encapsulated



Class I, Division 2, Hazardous Location Transformers

Product Description

Note: The following pages provide listings for most standard transformer ratings and catalog numbers. For other ratings or catalog numbers not shown, or for special enclosure types (including stainless steel), refer to Eaton.

- Encapsulated design
- Suitable for indoor or outdoor applications
- Totally enclosed, non-ventilated enclosures
- 180°C insulation system
- 115°C rise standard; 80°C rise optional
- Mountable in any position indoors. Upright only outdoors
- Available in ratings up to 600 volts primary, 25 kVA single-phase, 75 kVA three-phase
- Available in NEMA Type 4X enclosure

Application Description

Type EPZ and EPTZ transformers are labeled as “Suitable for use in Class I, Division 2, Groups A, B, C and D locations, as defined by NEC Article 501, with NEC-recommended installation procedures for dry-type transformers rated under 600 volts nominal operation.”

A Class I, Division 2 location per Section 500 of the NEC is defined as:

6. A location in which volatile flammable liquids or gases are handled, processed or used, but that normally will be confined within closed containers or systems from which they can escape only in case of accidental rupture or breakdown of the container or system.
7. Or, a location where ignitable concentrations of gases or vapors are normally prevented by positive mechanical ventilation and that might become hazardous through failure of the ventilation equipment.

Contents

Description

Description	Page
Motor Drive Isolation Transformers	V2-T2-111
Mini-Power Centers	V2-T2-119
Totally Enclosed Non-Ventilated Transformers	V2-T2-124
Class I, Division 2, Hazardous Location Transformers	
Catalog Number Selection	V2-T2-128
Product Selection	V2-T2-128
Accessories	V2-T2-129
Technical Data and Specifications	V2-T2-129
Open-Type Core and Coil Assembly Transformers	V2-T2-130
Marine Duty Transformers	V2-T2-133
Buck-Boost and Low Voltage Lighting Transformers	V2-T2-144
Medium Voltage Distribution Transformers	V2-T2-173

Standards and Certifications

- UL listed



Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards.

Seismically Qualified

Eaton manufactured dry-type distribution transformers are seismically qualified and exceed requirements of the International Building Code (IBC) and California Code Title 24.

8. Or, a location that is adjacent to a Class I, Division 1 location and ignitable concentrations of gases or vapors might occasionally enter.

Atmospheres classified by NEC Section 500 as Group A includes acetylene. Group B includes gases such as hydrogen and formaldehyde. Group C may contain gases or vapors such as ethyl ether, ethylene, or the equivalent. Atmospheres classified as Group D may contain gases or vapors such as acetone, ammonia, benzene, butane, cyclopropane, ethanol, gasoline, hexane, methanol, methane, natural gas, naphtha, propane or the equivalent.

Features, Benefits and Functions

- NEMA 3R enclosure
- 60 Hz operation
- Aluminum windings (copper optional)
- Short-term overload capability as required by ANSI
- Meet NEMA ST-20 sound levels

Catalog Number SelectionPlease refer to Section 2.7 **Page V2-T2-187**.**2****Product Selection**Additional Product Selection information begins on **Page V2-T2-189**.**Single-Phase—Type EPZ, 60 Hz****480 Volts to 120/240 Volts**

kVA	Full Capacity Taps		Type	°C Temp. Rise	Frame	Wiring Diagram Number	Weight Lbs (kg)	Catalog Number
	FCAN	FCBN						
0.05	—	—	EPZ	115	FR57H	524H	13 (6)	Z48N11S51A
0.75	—	—	EPZ	115	FR58H	524H	21 (10)	Z48N11S76A
1	—	—	EPZ	115	FR59H	524H	31 (14)	Z48N11S01A
1.5	—	—	EPZ	115	FR67H	524H	40 (18)	Z48N11S16A
2	—	—	EPZ	115	FR68H	524H	40 (18)	Z48N11S02A
3	—	—	EPZ	115	FR176H	524H	65 (30)	Z48N11S03A
5	—	—	EPZ	115	FR177H	524H	113 (51)	Z48N11S05A
7.5	—	—	EPZ	115	FR178H	524H	123 (56)	Z48N11S07A
10	—	—	EPZ	115	FR179H	524H	193 (88)	Z48N11S10A
15	—	—	EPZ	115	FR180H	524H	216 (98)	Z48N11S15A
25	—	—	EPZ	115	FR182H	524H	375 (170)	Z48N11S25A

Three-Phase—Type EPTZ, 60 Hz**480 Delta Volts to 208Y/120 Volts Three-Phase**

kVA	Full Capacity Taps		Type	°C Temp. Rise	Frame	Wiring Diagram Number	Weight Lbs (kg)	Catalog Number
	FCAN	FCBN						
3	—	2 at -5%	EPTZ	115	FR201H	70A	116 (53)	Z48G28T03A
6	—	2 at -5%	EPTZ	115	FR200H	70A	143 (65)	Z48G28T06A
9	—	2 at -5%	EPTZ	115	FR103H	70A	166 (75)	Z48G28T09A
15	—	2 at -5%	EPTZ	115	FR95H	70A	275 (125)	Z48G28T15A
30	—	2 at -5%	EPTZ	115	FR243H	66A	422 (191)	Z48G28T30A
45	—	2 at -5%	EPTZ	115	FR244H	66A	660 (299)	Z48G28T45A
75	—	2 at -5%	EPTZ	115	FR245H	66A	1275 (580)	Z48G28T75A ^①

480 Delta Volts to 240 Delta Volts with 120 Volt Lighting Tap on B Phase^②

kVA	Full Capacity Taps		Type	°C Temp. Rise	Frame	Wiring Diagram Number	Weight Lbs (kg)	Catalog Number
	FCAN	FCBN						
6	—	2 at -5%	EPTZ	115	FR102H	95A	115 (52)	Z48G22T06A
9	—	2 at -5%	EPTZ	115	FR97H	95A	160 (73)	Z48G22T09A
15	—	2 at -5%	EPTZ	115	FR195H	95A	340 (155)	Z48G22T15A
30	—	2 at -5%	EPTZ	115	FR243H	62A	422 (191)	Z48G22T30A
45	—	2 at -5%	EPTZ	115	FR244H	62A	660 (299)	Z48G22T45A

Notes^① Floor-mount only.^② Center Tap capacity limited to 5% of rated kVA.For 316 grade stainless steel enclosure, replace 10th character of catalog number with an "SS" suffix. Contact your local Eaton sales office for CE Mark transformer requirements. For other ratings or catalog numbers not shown, or for special enclosure types (including stainless steel), refer to Eaton. Frame drawings/dimensions information begins on **Page V2-T2-216**.