

TRANSFORMERS FOR RAIL DATASHEET BROCHURE



“ The Eco-rail® range offers considerably lower power consumption when compared with conventional transformers both within the existing class I and class II earth less systems. The range offers both copper or aluminium in a multitude of variations.

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Coming Soon

Points Heating Transformers (PHT's)	-
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* Please contact us if you would like to be notified when this product range is available



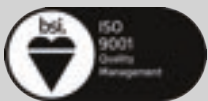
**Aluminium FSP
Signalling Transformers**
Network Rail Accepted
Product: PA05/06391



**Copper FSP
Signalling Transformers**
Network Rail Accepted
Product: PA05/05761

DATASHEET BROCHURE

Rail Signalling Transformers & Point Drive Transformer Rectifiers



“The Eco-rail® range offers considerably lower power consumption when compared with conventional transformers both within the existing class I and class II earth less systems. The range offers both copper or aluminium in a multitude of variations.



**Copper FSP
Point Drive Rectifiers**
Network Rail Accepted
Product: PA05/06329



Rail Signal Transformers

Contribution to safeguarding the environment for our future generations by way of ultra efficient transformer technology is a relatively untapped resource and we believe that we should play a significant role in reducing the wasted energy generated by our electrical power industries and distribution systems.

ATL is developing and deploying ultra efficient transformer solutions to the industry and we are proud to offer our NG (New generation) eco-rail® range of transformers specifically designed to reduce the wasted power consumption of Network rail signalling transformers within the supply FSP (functional supply point) equipment by up to 45%.

KEY FEATURES

- Class II Hybrid and Class I system Compatibility.
- Smallest & lightest in their class.
- Ultra High efficiencies > 97%, reducing carbon emissions & environmental impact.
- Low Standby Losses –up to 62.% Reduction in wasted energy.
- Reduced Full-Load losses –up to 45% Reduction.
- 1 million hours Maintenance and Service Free Operation
- Ultra-Low Inrush Current – As low as 1.5 times full load current.
- A stable of single and multi output configurations for multi-regional UK distribution voltages and system topologies.

Aluminium range offering (all above and below):

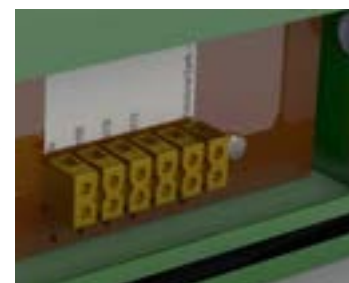
- 30% reduction in cost and weight
- Multi Zone Cable Access for efficient installation.
- ATL's Lightweight aluminium windings and connection technology eradicate the use of expensive and fast exhausting copper reserves to support sustainability.

Class II
Double Insulated
Compartment
with full viewing
window

Lifting Eyes
Available on
Large Models

Hinged Front Door
With Captive Screws

Class I
Terminals



Class I & Class II Rated

- Class II compartment inside the enclosure
- Class I terminals housed inside the enclosure



Light Weight

Light weight and compact the eco-rail® range is the smallest and the lightest in their class.

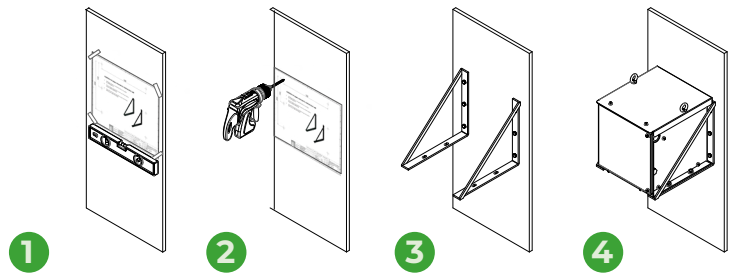
Legacy Brackets



Legacy brackets available for hassle free installation where legacy back plate installation is required particularly SIN scheme renewals reducing loading stresses on old timber backplates typically found in legacy signalling location cases reducing fatigue installers

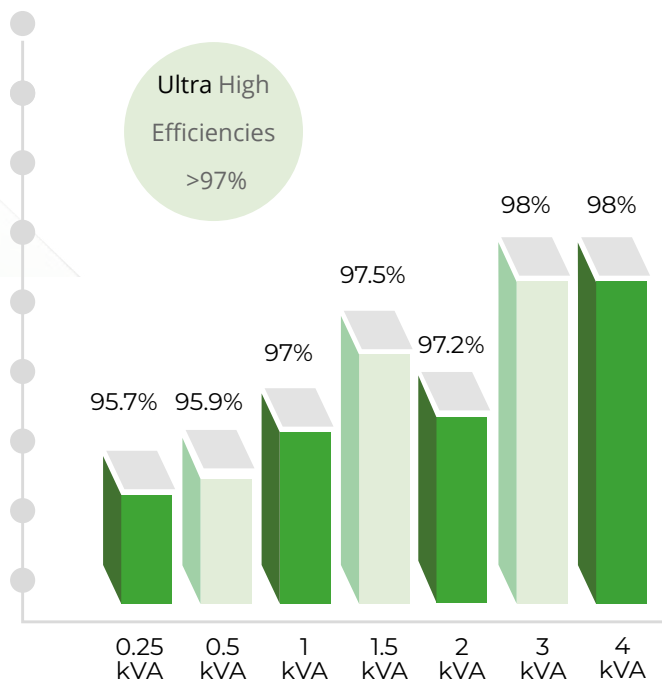
4 Simple Steps

- 1) Align the template, ensuring it's straight with the backplate and using masking tape, tape the template to the backplate.
- 2) Drill the holes marked on the drill template
- 3) Fix the brackets using the required bolts.
- 4) Place the enclosure on the brackets and bolt the enclosure using the required bolts.

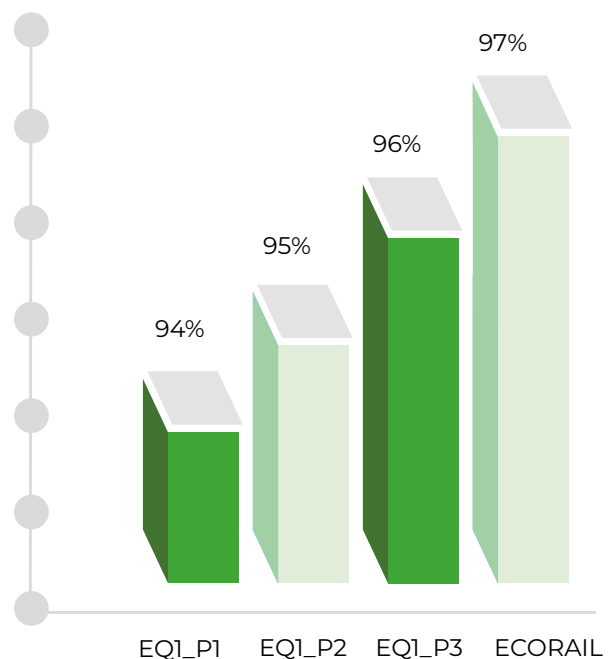


Efficiency & Economical Factors

All of our eco-rail® transformers have very high efficiencies, chart 1 below show the efficiencies of the ecorail copper wound transformers and chart 2 shows equivalent product efficiencies against the eco-rail® range.



Our range of eco-rail® transformers deliver high efficiencies of up to >97%.



All of our ecoRail® transformers have very high efficiencies. For example, our 1kVA eco-rail® transformer has 97% efficiency while a 1kVA equivalent product has 94% efficiency

Data Specification

Aluminium Wound 650/110V Single Output FSP Transformers

Model		1000VA	1500VA	2000VA	3000VA	5000VA	10,000VA
Electrical Specification		T2966	T3065	T2967	T2968	T2969	T3149
PAD's Number		091/049118	091/049119	091/049120	091/049121	091/049122	091/000067
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650
	Primary taps (VAC)	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682
	Recommended Primary fuse protection	4A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2	25 A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>97	>97	>97	>97
	Inrush (x times rated current)	<5	<4	<4	<7	<4	<6
	% impedance	<4	<5	<5	<5	<5	<4
	X/R ratio	0.5	0.9	1.0	0.9	1.6	0.8
Output	Secondary rated voltage (V)	110	110	110	110	110	110
	Secondary taps (VAC)	0–105 – 110 – 115	0–105 – 110 – 115	0–105 – 110 – 115	0–105 – 110 – 115	0–105 – 110 – 115	0–105 – 110 – 115
	Rating (VA)	1000	1500	2000	3000	5000	10,000
	% Regulation	<4	<4	<3	<3	<3	<3
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		42.2	60.12	63.9	94.14	136.23	332.7
No load losses (Watts)		10.66	14.0	11.37	17.27	25.03	121.1
Weight (kg)		22	26	33	38	65	139

Data Specification

Aluminium Wound 650/110V Multi Output FSP Transformers

Model		1000VA Dual Output	1400VA Quad Output (110 - 135V)	1400VA Quad Output (110 - 140V)	2000VA Quad Ouput
Electrical Specification		T3073	T3074	T3074-2	T3075
PAD's Number		091/049123	091/049154	0091/045795	0091/049124
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650
	Primary taps (VAC)	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682
	Recommended Primary fuse protection	4A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>96	>96
	Inrush (x times rated current)	<2	<2	<2	<6
	% impedance	<4	<5	<5	<4
	X/R ratio	0.4	0.6	0.6	0.6
Output	Secondary rated voltage (V)	110 110	110 110 110 110	110 110 110 110	110 110 110 110
	Secondary taps (VAC)	0-105- 110 -115 0-105- 110 -115	0-105- 110 -115-135 0-105- 110 -115-135 0-105- 110 -115-135 0-105- 110 -115-135	0-105- 110 -115-140 0-105- 110 -115-140 0-105- 110 -115-140 0-105- 110 -115-140	0-105- 110 -115 0-105- 110 -115 0-105- 110 -115 0-105- 110 -115
	Rating (VA)	1000	1400	1400	2000
	% Regulation	<4	<4	<4	<4
	Insulation Resitance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		47.1	64.99	64.99	82.13
No load losses (Watts)		13.91	15.01	15.01	13.13
Weight (kg)		24	30	30	32

Data Specification

Aluminium Wound 230/110V Single Output FSP Transformers

Model		1000VA	1500VA	2000VA	3000VA	5000VA	10,000VA
Electrical Specification		T3359	T3363	T3367	T3371	T3379	T3383
PAD's Number		0091/044321	0091/044322	0091/044323	0091/044324	0091/044325	0091/044326
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230	230
	Primary taps (VAC)	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241
	Recommended Primary fuse protection	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2	20A BS88 & 10x38 gG IEC 60269-1&2	32A BS88 & 10x38 gG IEC 60269-1&2	63A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>97	>97	>97	>97
	Inrush (x times rated current)	<5	<4	<4	<7	<4	<6
	% impedance	<5	<5	<5	<5	<5	<4
	X/R ratio	0.50	0.9	1.0	0.95	1.6	0.8
Output	Secondary rated voltage (V)	110	110	110	110	110	110
	Secondary taps (VAC)	0–105 – 110 –115	0–105 – 110 –115	0–105 – 110 –115	0–105 – 110 –115	0–105 – 110 –115	0–105 – 110 –115
	Rating (VA)	1000	1500	2000	3000	5000	10,000
	% Regulation	<4	<4	<3	<3	<3	<3
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		42.2	60.12	63.9	94.14	136.23	332.7
No load losses (Watts)		10.66	14.0	11.37	17.27	25.03	121.1
Weight (kg)		22	26	33	38	65	139

Data Specification

Aluminium Wound 230/110V Multi Output FSP Transformers

Model		1000VA Dual Output	1400VA Quad Output (110 - 135V)	1400VA Quad Output (110 - 140V)	2000VA Quad Ouput
Electrical Specification		T3387	T3391	T3395	T3399
PAD's Number		0091/044327	0091/044328	0091/044329	0091/044330
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230
	Primary taps (VAC)	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241
	Recommended Primary fuse protection	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>96	>96
	Inrush (x times rated current)	<2	<2	<2	<6
	% impedance	<4	<5	<5	<4
	X/R ratio	0.40	0.6	0.6	0.6
Output	Secondary rated voltage (V)	110 110	110 110 110 110	110 110 110 110	110 110 110 110
	Secondary taps (VAC)	0–105– 110 –115 0–105– 110 –115	0–105– 110 –115-135 0–105– 110 –115-135 0–105– 110 –115-135 0–105– 110 –115-135	0–105– 110 –115-140 0–105– 110 –115-140 0–105– 110 –115-140 0–105– 110 –115-140	0–105– 110 –115 0–105– 110 –115 0–105– 110 –115 0–105– 110 –115
	Rating (VA)	1000	1400	1400	2000
	% Regulation	<4	<4	<4	<4
	Insulation Resitance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		47.1	64.99	64.99	82.13
No load losses (Watts)		13.91	15.01	15.01	13.13
Weight (kg)		24	30	30	32

Data Specification

Aluminium Wound 400-415-440/110V Single Output FSP Transformers

Model		1000VA	1500VA	2000VA	3000VA	5000VA	10,000VA
Electrical Specification		T3360	T3364	T3368	T3372	T3380	T3384
PAD's Number		0091/044331	0091/044332	0091/044333	0091/044334	0091/044335	0091/044336
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400-415-440	400-415-440	400-415-440	400-415-440	400-415-440	400-415-440
	Primary taps (VAC)	380 – 400 –415 – 440 –462	380 – 400 –415 – 440 –462	380 – 400 –415 – 440 –462	380 – 400 –415 – 440 –462	380 – 400 –415 – 440 –462	380 – 400 –415 – 440 –462
	Recommended Primary fuse protection	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	12A BS88 & 10x38 gG IEC 60269-1&2	20A BS88 & 10x38 gG IEC 60269-1&2	35A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>97	>97	>97	>97
	Inrush (x times rated current)	<5	<4	<4	<7	<4	<6
	% impedance	<4	<5	<5	<5	<5	<4
	X/R ratio	0.5	0.9	1.0	0.9	1.6	0.8
Output	Secondary rated voltage (V)	110	110	110	110	110	110
	Secondary taps (VAC)	0-105 –110 – 115	0-105 –110 – 115	0-105 –110 – 115	0-105 –110 – 115	0-105 –110 – 115	0-105 –110 – 115
	Rating (VA)	1000	1500	2000	3000	5000	10,000
	% Regulation	<4	<4	<3	<3	<3	<3
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		42.2	60.12	63.9	94.14	136.23	332.7
No load losses (Watts)		10.66	14.0	11.37	17.27	25.03	121.1
Weight (kg)		22	26	33	38	65	139

Data Specification

Aluminium Wound 400-415-440/110V Multi Output FSP Transformers

Model		1000VA Dual Output	1400VA Quad Output (110 - 135V)	1400VA Quad Output (110 - 140V)	2000VA Quad Output
Electrical Specification		T3388	T3392	T3396	T3400
PAD's Number		0091/044337	0091/044338	0091/044339	0091/044340
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400-415-440	400-415-440	400-415-440	400-415-440
	Primary taps (VAC)	380 – 400 – 415 – 440 – 462	380 – 400 – 415 – 440 – 462	380 – 400 – 415 – 440 – 462	380 – 400 – 415 – 440 – 462
	Recommended Primary fuse protection	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>96	>96
	Inrush (x times rated current)	<2	<2	<2	<6
	% impedance	<4	<5	<5	<5
	X/R ratio	0.4	0.6	0.6	0.6
Output	Secondary rated voltage (V)	110 110	110 110 110 110	110 110 110 110	110 110 110 110
	Secondary taps (VAC)	0-105-110-115 0-105-110-115	0-105-110-115-135 0-105-110-115-135 0-105-110-115-135 0-105-110-115-135	0-105-110-115-140 0-105-110-115-140 0-105-110-115-140 0-105-110-115-140	0-105-110-115 0-105-110-115 0-105-110-115 0-105-110-115
	Rating (VA)	1000	1400	1400	2000
	% Regulation	<4	<4	<4	<4
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		47.1	64.99	64.99	82.13
No load losses (Watts)		13.91	15.01	15.01	13.13
Weight (kg)		24	30	30	32

Data Specification

Aluminium Wound 650/230V Single Output FSP Transformers

Model		1000VA	1500VA	2000VA	3000VA	5000VA	10,000VA
Electrical Specification		T3361	T3365	T3369	T3373	T3381	T3385
PAD's Number		0091/044341	0091/044342	0091/044343	0091/044344	0091/044345	0091/044346
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650
	Primary taps (VAC)	617– 650 –682	617 – 650 –682	617– 650 –682	617– 650 –682	617– 650 –682	617– 650 –682
	Recommended Primary fuse protection	4A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2	25 A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>96	>96	>96	>96
	Inrush (x times rated current)	<5	<4	<4	<7	<4	<6
	% impedance	<4	<5	<5	<5	<5	<4
	X/R ratio	0.5	0.9	1.0	0.9	1.6	0.8
Output	Secondary rated voltage (V)	230	230	230	230	230	230
	Secondary taps (VAC)	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241
	Rating (VA)	1000	1500	2000	3000	5000	10,000
	% Regulation	<4	<4	<3	<3	<3	<3
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		42.2	60.12	63.9	94.14	136.23	332.7
No load losses (Watts)		10.66	14.0	11.37	17.27	25.03	121.1
Weight (kg)		22	26	33	38	65	139

Data Specification

Aluminium Wound 650/230V Multi Output FSP Transformers

Model		1000VA Dual Output	1400VA Quad Output (110 - 135V)	1400VA Quad Output (110 - 140V)	2000VA Quad Ouput
Electrical Specification		T3389	T3393	T3397	T3401
PAD's Number		0091/044347	0091/044348	0091/044349	0091/044350
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650
	Primary taps (VAC)	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682
	Recommended Primary fuse protection	4A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>96	>96
	Inrush (x times rated current)	<2	<2	<2	<6
	% impedance	<4	<5	<5	<4
	X/R ratio	0.4	0.6	0.6	0.6
Output	Secondary rated voltage (V)	230 230	230 230 230 230	230 230 230 230	230 230 230 230
	Secondary taps (VAC)	0-218- 230 -241 0-218- 230 -241	0-135-218- 230 -241 0-135-218- 230 -241 0-135-218- 230 -241 0-135-218- 230 -241	0-140-218- 230 -241 0-140-218- 230 -241 0-140-218- 230 -241 0-140-218- 230 -241	0-218- 230 -241 0-218- 230 -241 0-218- 230 -241 0-218- 230 -241
	Rating (VA)	1000	1400	1400	2000
	% Regulation	<4	<4	<4	<4
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		47.1	64.99	64.99	82.13
No load losses (Watts)		13.91	15.01	15.01	13.13
Weight (kg)		24	30	30	32

Data Specification

Aluminium Wound 230/230V Single Output FSP Transformers

Model		1000VA	1500VA	2000VA	3000VA	5000VA	10,000VA
Electrical Specification		T3362	T3366	T3370	T3374	T3382	T3386
PAD's Number		0091/044351	0091/044352	0091/044353	0091/044354	0091/044355	0091/044356
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230	230
	Primary taps (VAC)	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241
	Recommended Primary fuse protection	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2	20A BS88 & 10x38 gG IEC 60269-1&2	32A BS88 & 10x38 gG IEC 60269-1&2	63A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>97	>97	>97	>97
	Inrush (x times rated current)	<5	<4	<4	<7	<4	<6
	% impedance	<4	<5	<5	<5	<5	<4
	X/R ratio	0.5	0.9	1.0	0.9	1.6	0.8
Output	Secondary rated voltage (V)	230	230	230	230	230	230
	Secondary taps (VAC)	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241
	Rating (VA)	1000	1500	2000	3000	5000	10,000
	% Regulation	<4	<4	<3	<3	<3	<3
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		42.2	60.12	63.9	94.14	136.23	332.7
No load losses (Watts)		10.66	14.0	11.37	17.27	25.03	121.1
Weight (kg)		22	26	33	38	65	139

Data Specification

Aluminium Wound 230/230V Multi Output FSP Transformers

Model		1000VA Dual Output	1400VA Quad Output (110 - 135V)	1400VA Quad Output (110 - 140V)	2000VA Quad Ouput
Electrical Specification		T3390	T3394	T3398	T3402
PAD's Number		0091/044357	0091/044358	0091/044359	0091/044360
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230
	Primary taps (VAC)	0-218- 230 -241	0-218- 230 -241	0-218- 230 -241	0-218- 230 -241
	Recommended Primary fuse protection	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>96	>96
	Inrush (x times rated current)	<2	<2	<2	<6
	% impedance	<4	<5	<5	<4
	X/R ratio	0.4	0.6	0.6	0.6
Output	Secondary rated voltage (V)	230 230	230 230 230 230	230 230 230 230	230 230 230 230
	Secondary taps (VAC)	0-218-230 -241 0-218-230 -241	0-135 -218- 230 -241 0-135 -218- 230 -241 0-135 -218- 230 -241 0-135 -218- 230 -241	0-140-218- 230 -241 0-140-218- 230 -241 0-140-218- 230 -241 0-140-218- 230 -241	0-218- 230 -241 0-218- 230 -241 0-218- 230 -241 0-218- 230 -241
	Rating (VA)	1000	1400	1400	2000
	% Regulation	<4	<4	<4	<4
	Insulation Resitance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		47.1	64.99	64.99	82.13
No load losses (Watts)		13.91	15.01	15.01	13.13
Weight (kg)		24	30	30	32

Data Specification

Copper Wound 650/110V Single Output FSP Transformers

Model		250VA	500VA	1000VA	1500VA	2000VA	3000VA	4000VA
Electrical Specification		T3067	T3068	T2834	T2902	T2925	T2903	T2930
PAD's Number		091/049116	091/049117	054/214900	054/214893	054/214894	054/214895	054/214896
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Copper	Copper	Copper	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	650	650	650	650	650	650	650
	Primary taps (VAC)	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682
	Recommended Primary fuse protection	1A BS88 & 10x38 gG IEC 60269-1&2	2A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>95	>95	>97	>97	>96	>97	>97
	Inrush (x times rated current)	<6	<4	<9	<5	<5	<6	<3
	% impedance	<4	<5	<4	<3	<4	<4	<3
	X/R ratio	0.2	0.3	0.7	0.5	0.7	0.9	1.2
Output	Secondary rated voltage (V)	110	110	110	110	110	110	110
	Secondary taps (VAC)	0–105–110–115	0–105–110–115	0–105–110–115	0–105–110–115	0–105–110–115	0–105–110–115	0–105–110–115
	Rating (VA)	250	500	1000	1500	2000	3000	4000
	% Regulation	<3	<4	<3	<3	<4	<3	<2
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		11.64	24.16	33.00	43.40	67.06	81.40	109.00
No load losses (Watts)		3.75	4.77	8.30	9.659	10.80	15.42	33.16
Weight (kg)		12	17	29	38	39	54	69

Data Specification

Copper Wound 230/110V & 400-415-440/110V Single Output FSP Transformers

Model		250VA	500VA	250VA	500VA
Electrical Specification		T3351	T3355	T3352	T3356
PAD's Number		0054/213920	0054/213921	0054/213927	0054/213928
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding Conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	230	230	400-415-440	400-415-440
	Primary taps (VAC)	218- 230 -241	218- 230 -241	380 - 400 - 415 - 440 -462	380 - 400 - 415 - 440 -462
	Recommended Primary fuse protection	2A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	2A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>95	>95	>95	>95
	Inrush (x times rated current)	<6	<4	<6	<4
	% impedance	<4	<5	<4	<5
	X/R ratio	0.2	0.3	0.2	0.3
Output	Secondary rated voltage (V)	110	110	110	110
	Secondary taps (VAC)	0-105- 110 -115	0-105- 110 -115	0-105- 110 -115	0-105- 110 -115
	Rating (VA)	250	500	250	500
	% Regulation	<3	<4	<3	<4
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		11.64	24.16	11.64	24.16
No load losses (Watts)		3.75	4.77	3.75	4.77
Weight (kg)		12	17	12	17

Data Specification

Copper Wound 650/230 & 230/230 Single Output FSP Transformers

Model		250VA	500VA	250VA	500VA
Electrical Specification		T3353	T3357	T3354	T3358
PAD's Number		0054/213934	0054/213935	0054/213941	0054/213942
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding Conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	650	650	230	230
	Primary taps (VAC)	617 – 650 – 682	617 – 650 – 682	218– 230 –241	218– 230 –241
	Recommended Primary fuse protection	1A BS88 & 10x38 gG IEC 60269-1&2	2A BS88 & 10x38 gG IEC 60269-1&2	2A BS88 & 10x38 gG IEC 60269-1&2	4A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>95	>95	>95	>95
	Inrush (x times rated current)	<6	<4	<6	<4
	% impedance	<4	<5	<4	<5
	X/R ratio	0.2	0.3	0.2	0.3
Output	Secondary rated voltage (V)	230	230	230	230
	Secondary taps (VAC)	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241
	Rating (VA)	250	500	250	500
	% Regulation	<3	<4	<3	<4
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Full load losses (Watts)		11.64	24.16	11.64	24.16
No load losses (Watts)		3.75	4.77	3.75	4.77
Weight (kg)		12	17	12	17

Data Specification

Copper Wound 650/120VDC FSP Transformer Rectifiers for Point Drive Systems

Model		650VAC/120V @ 2.5A	650VAC/120V @ 5A	650VAC/ 2 X 120V@5A	650VAC/120VDC @10A
Electrical Specification		T3040	T3024	T3055	T3007
PAD's Number		054/035055	054/035056	054/035058	054/035057
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding Conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	650	650	650	650
	Primary taps (VAC)	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682
	Recommended Primary fuse protection	4A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>95	>96	>97	>97
	Inrush (x times rated current)	<4	<9	<8	<10
	% impedance	<4	<4	<4	<3
	X/R ratio	0.4	0.4	1.0	0.6
Output	Secondary rated voltage (VDC)	120	120	120	120
	Secondary taps (VAC)	0-131-136-140	0-131-136-140	0-131-136-140 0-131-136-140	0- 131-136-140
	Rating (A)	2.5	5	10	10
	% Regulation	<4	<3	<3	<3
	Insulation Resistance (Ω)	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms	Insulation Resistance (500V d.c) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms
Full load losses (Watts)		15.400	27.340	43.300	40.935
No load losses (Watts)		5.130	6.750	12.200	12.145
Weight (kg)		20	25	39	40

Data Specification

Copper Wound 230/120VDC FSP Transformer Rectifiers for Point Drive Systems

Model		230VAC/120V @ 2.5A	230VAC/120V @ 5A	230VAC/120VDC @10A	230VAC/ 2 X 120V @5A
Electrical Specification		T3403	T3405	T3407	T3409
PAD's Number		0054/035060	0054/035061	0054/035062	0054/035063
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding Conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	230	230	230	230
	Primary taps (VAC)	218– 230 –241	218– 230 –241	218– 230 –241	218– 230 –241
	Recommended Primary fuse protection	8A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2	32A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>97	>97
	Inrush (x times rated current)	<4	<9	<10	<8
	% impedance	<4	<4	<3	<3
	X/R ratio	0.4	0.4	0.6	0.6
Output	Secondary rated voltage (VDC)	120	120	120	120
	Secondary taps (VAC)	0-131–136–140	0-131–136–140	0-131–136–140	0-131–136–140 0-131–136–140
	Rating (A)	2.5	5	10	10
	% Regulation	<4	<3	<3	<3
	Insulation Resistance (Ω)	<i>Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms</i>	<i>Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms</i>	<i>Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms</i>	<i>Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms</i>
Full load losses (Watts)		15.400	27.340	43.300	40.935
No load losses (Watts)		5.130	6.750	12.200	12.145
Weight (kg)		20	25	40	39

Data Specification

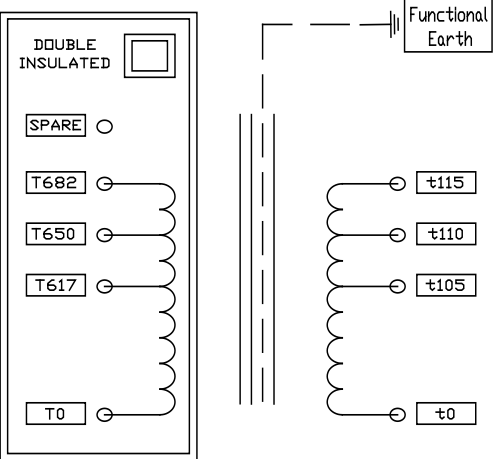
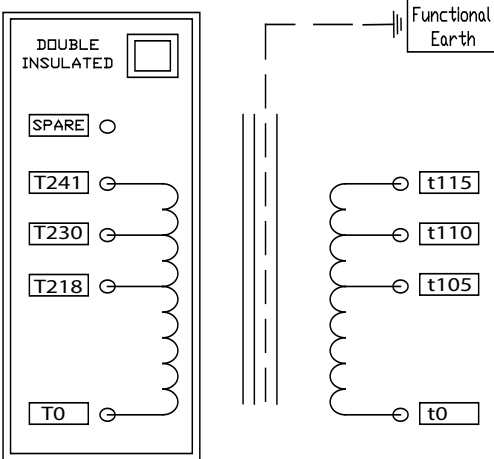
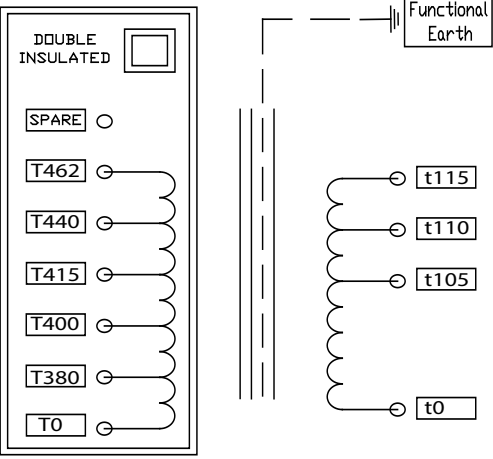
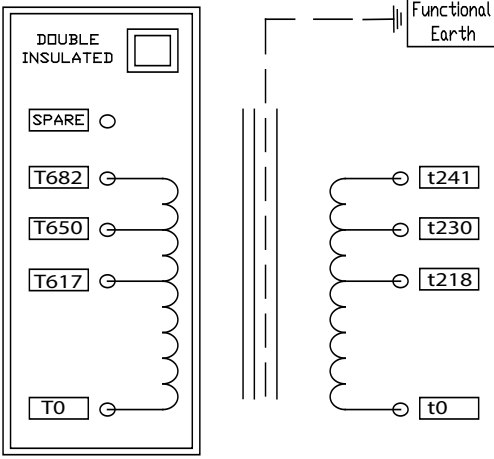
Copper Wound 400-415-440/120VDC FSP Transformer Rectifiers for Point Drive Systems

Model		400VAC/ 2 X 120V@5A	400-415-440VAC / 120V @ 2.5A	400-415-440VAC / 120V @ 5A	400-415-440VAC / 120V @10A	400-415-440VAC/ 120V 2 X 120V @ 5A
Electrical Specification		T3092	T3404	T3406	T3408	T3410
PAD's Number		054/035059	0054/035064	0054/035065	0054/035066	0054/035067
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Copper	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	650	400-415-440	400-415-440	400-415-440	400-415-440
	Primary taps (VAC)	380 – 400 – 420	380 – 400 – 415 – 440 – 462	380 – 400 – 415 – 440 – 462	380 – 400 – 415 – 440 – 462	380 – 400 – 415 – 440 – 462
	Recommended Primary fuse protection	10A BS88 & 10x38 gG IEC 60269-1&2	6A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	20A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>97	>96	>96	>97	>97
	Inrush (x times rated current)	<7	<4	<9	<10	<8
	% impedance	<4	<4	<4	<3	<3
	X/R ratio	1.2	0.4	0.4	0.6	0.6
Output	Secondary rated voltage (VDC)	120	120	120	120	120
	Secondary taps (VAC)	0-131-136-140 0-131-136-140	0-131-136-140	0-131-136-140	0-131-136-140	0-131-136-140 0-131-136-140
	Rating (A)	10	2.5	5	10	10
	% Regulation	<3	<4	<3	<3	<3
	Insulation Resistance (Ω)	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms	Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms
	Full load losses (Watts)	40.100	15.400	27.340	43.300	40.935
No load losses (Watts)		12.200	5.130	6.750	12.200	12.145
Weight (kg)		39	20	25	40	39

Wiring Diagrams

250VA-10KVA

Aluminium & Copper Single Output

650-110V Signalling Transformers	230-110V Signalling Transformers
Aluminium: T2966 T3065 T2967 T2968 T2969 T3149 Copper: T3067 T3068 T2834 T2902 T2925 T2903 T2930	Aluminium: T3351 T3355 T3359 T3363 T3367 T3371 T3375 T3379 T3383 Copper: T3351 T3355
	
400-415-440/110V Signalling Transformers	650-230V Signalling Transformers
Aluminium: T3360 T3364 T3368 T3372 T3380 T3384 Copper: T3352 T3356	Aluminium: T3361 T3365 T3369 T3373 T3381 T3385 Copper: T3353 T3357
	

Wiring Diagrams

250VA-10KVA

Aluminium & Copper Single/Multi Output

230-230V Signalling Transformers	650-110V Signalling Transformers Dual Output WTS
Aluminium: T3362 T3366 T3370 T3374 T3382 T3386 Copper: T3354 T3358	Aluminium: T3073
230-110V Signalling Transformers Dual Output WTS	400-415-440/110V Signalling Transformers Dual Output WTS
Aluminium: T3387	Aluminium: T3388

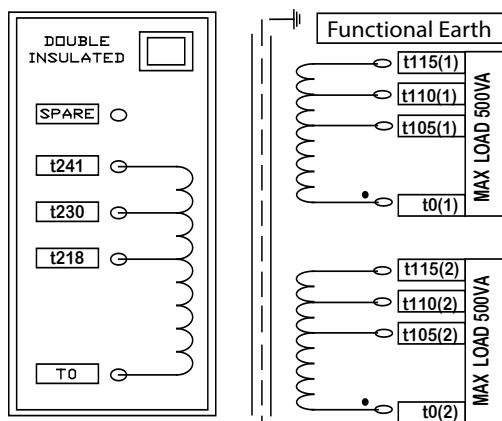
Wiring Diagrams

250VA-10KVA

Aluminium & Copper Multi Output

650-230V Signalling Transformers Dual Output WTS

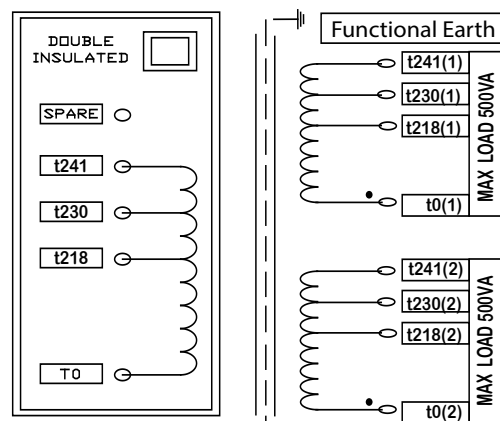
Aluminium:
T3389



T3387

230-230V Signalling Transformers Dual Output WTS

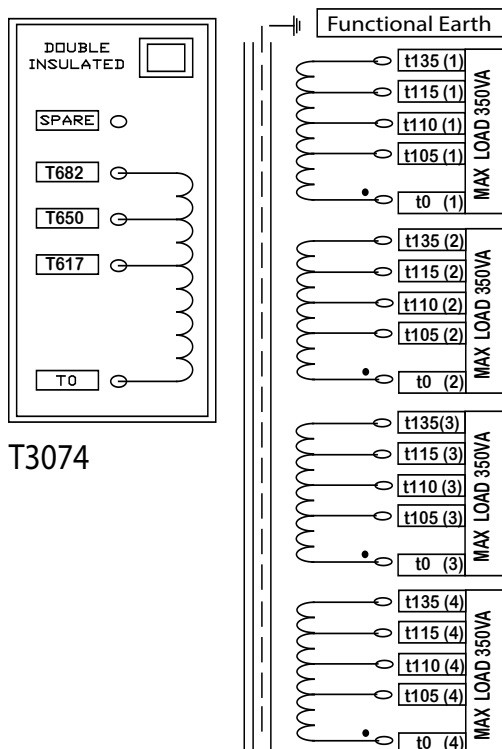
Aluminium:
T3390



T3390

650/110V Signalling Transformers Quad Output SSI (110 - 135V)

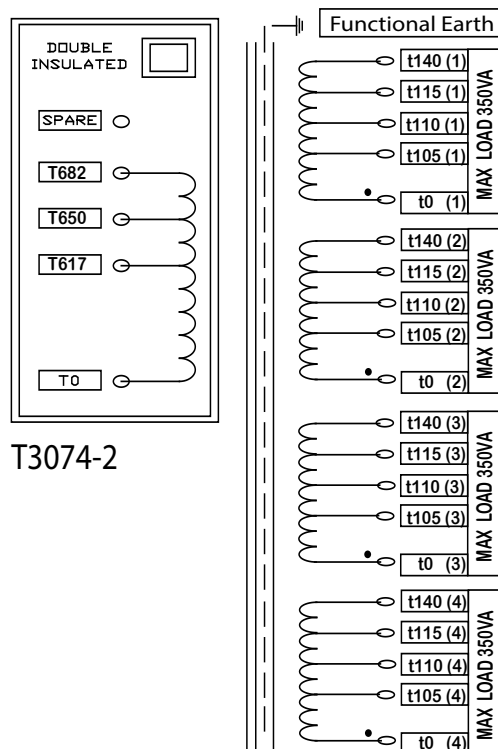
Aluminium:
T3074



T3074

650/110V Signalling Transformers Quad Output SSI (110 - 140V)

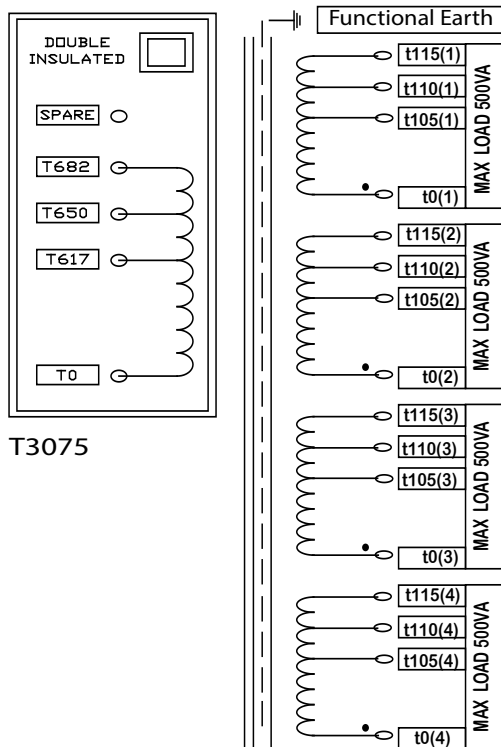
Aluminium:
T3074-2



T3074-2

650/110V Signalling Transformers Quad Output WTS (110 - 115V)

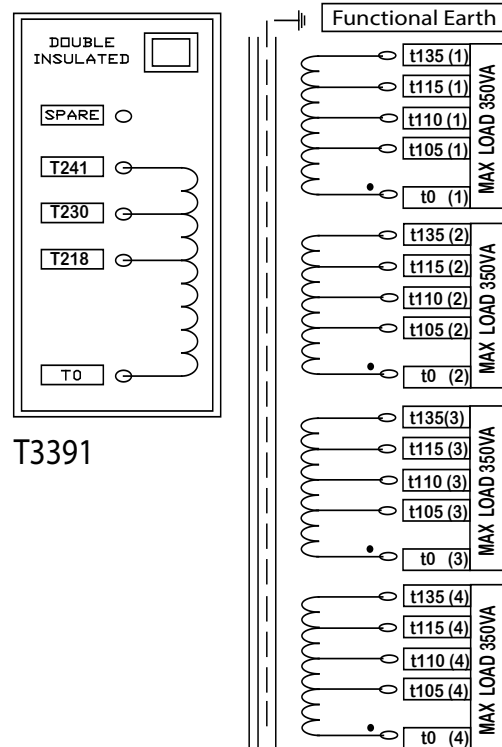
Aluminium:
T3075



T3075

230-110V Signalling Transformers Quad Output SSI (110 - 135V)

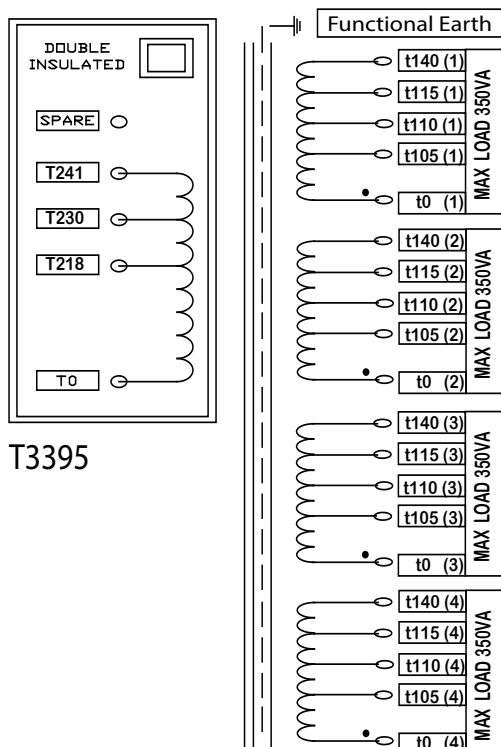
Aluminium:
T3391



T3391

230-110V Signalling Transformers Quad Output SSI (110 - 140V)

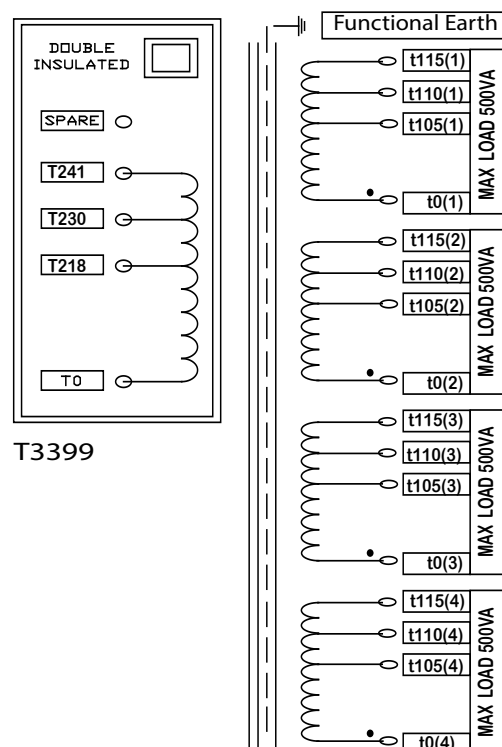
Aluminium:
T3395



T3395

230-110V Signalling Transformers Quad Output WTS (110 - 115V)

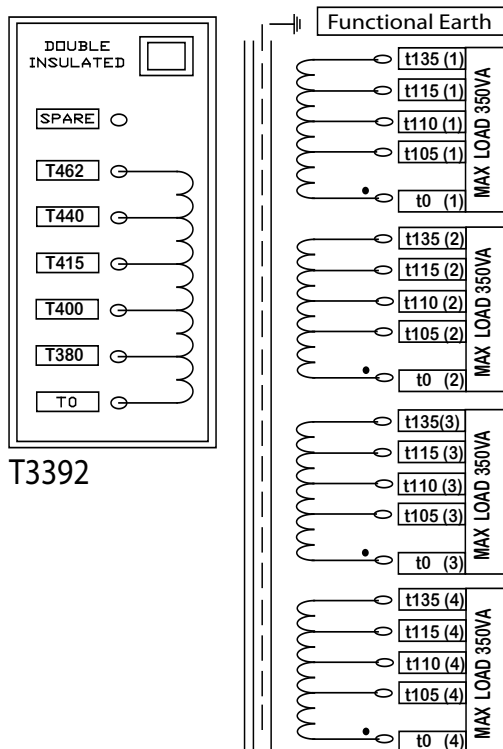
Aluminium:
T3399



T3399

400-415-440/110V
Signalling Transformers
Quad Output SSI (110 - 135V)

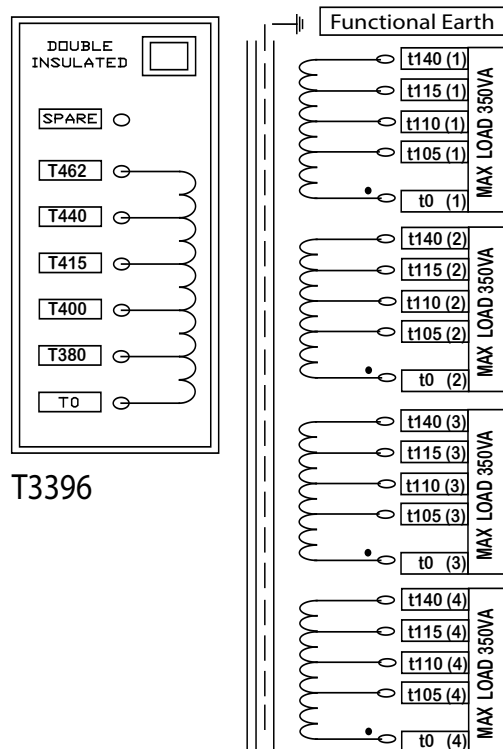
Aluminium:
T3392



T3392

400-415-440/110V
Signalling Transformers
Quad Output SSI (110 - 140V)

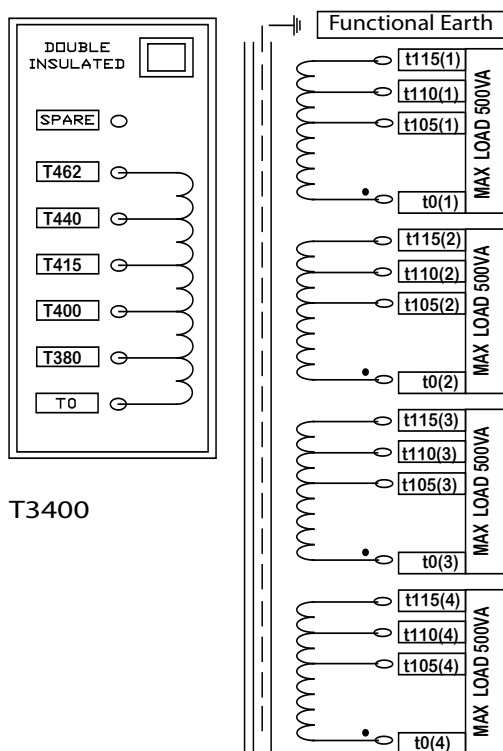
Aluminium:
T3396



T3396

400-415-440/110V
Signalling Transformers
Quad Output WTS (110 - 115V)

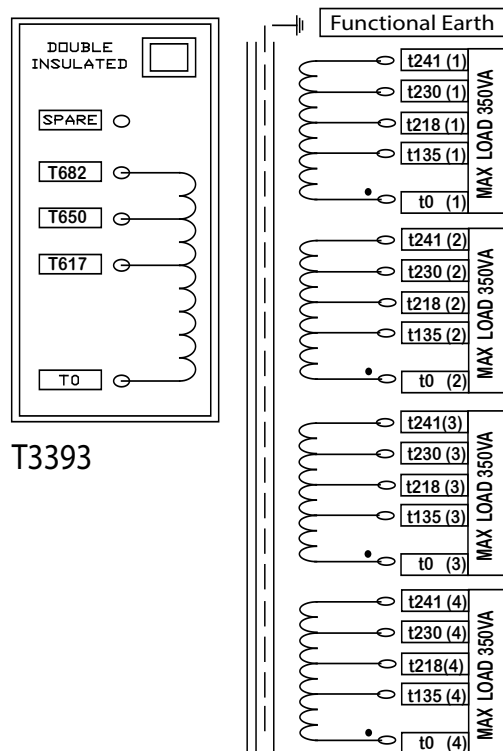
Aluminium:
T3400



T3400

650-230V Signalling Transformers
Quad Output SSI (135 - 230V)

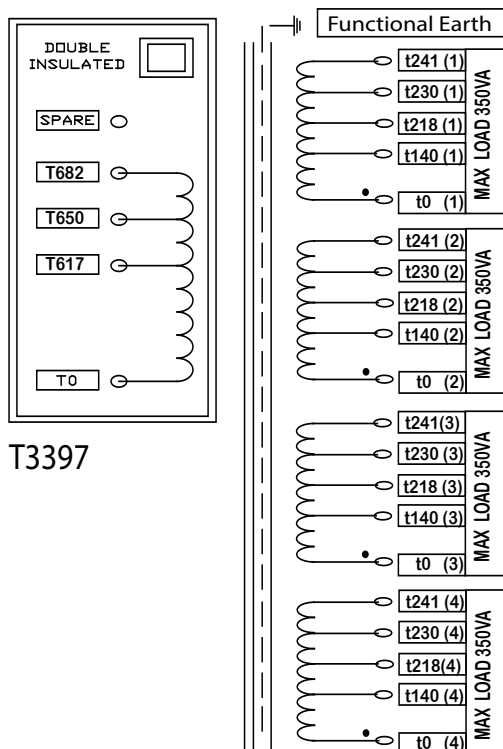
Aluminium:
T3393



T3393

650-230V Signalling Transformers Quad Output SSI (140- 230V)

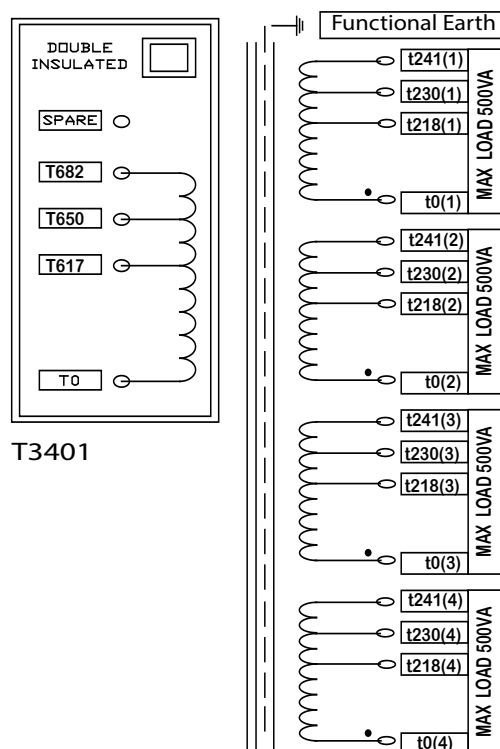
Aluminium:
T3397



T3397

650-230V Signalling Transformers Quad Output WTS (230 - 241V)

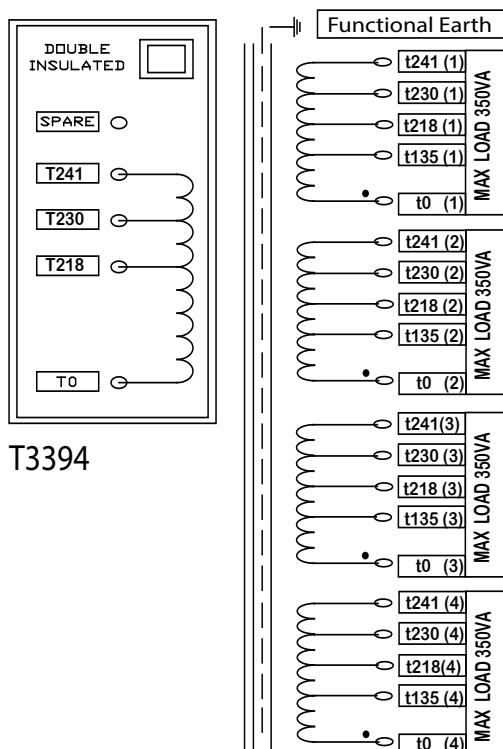
Aluminium:
T3401



T3401

230-230V Signalling Transformers Quad Output SSI (135 - 230V)

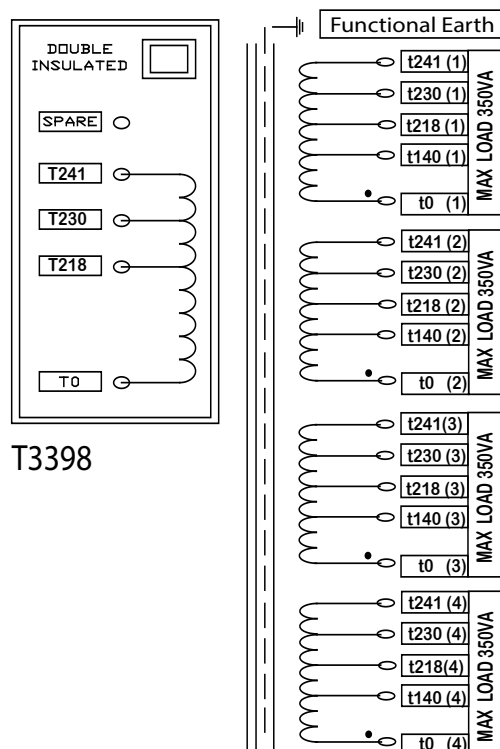
Aluminium:
T3394



T3394

230-230V Signalling Transformers Quad Output SSI (140 - 230V)

Aluminium:
T3398

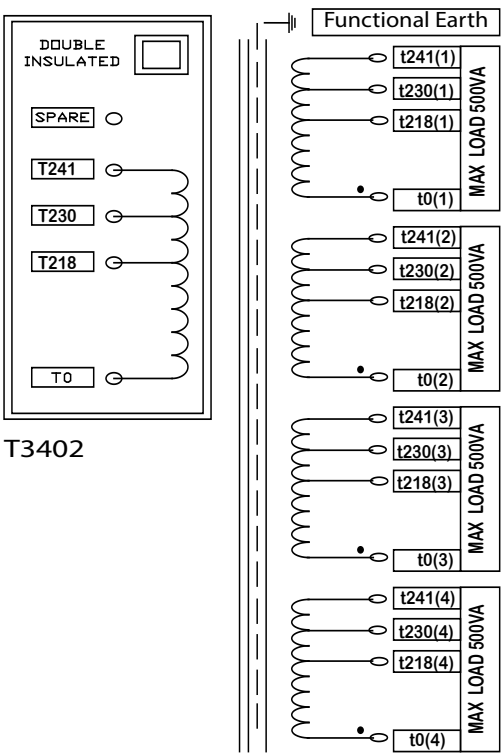
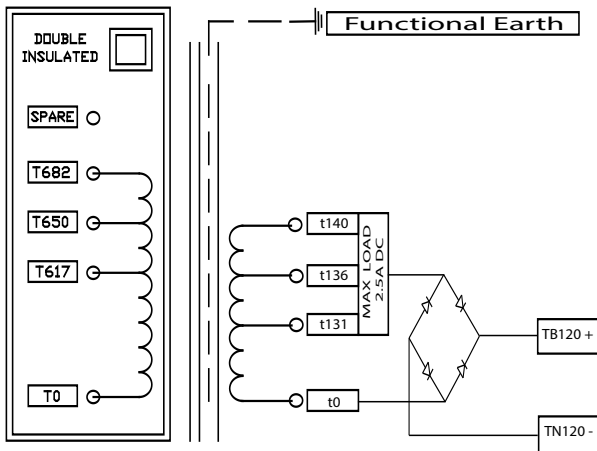
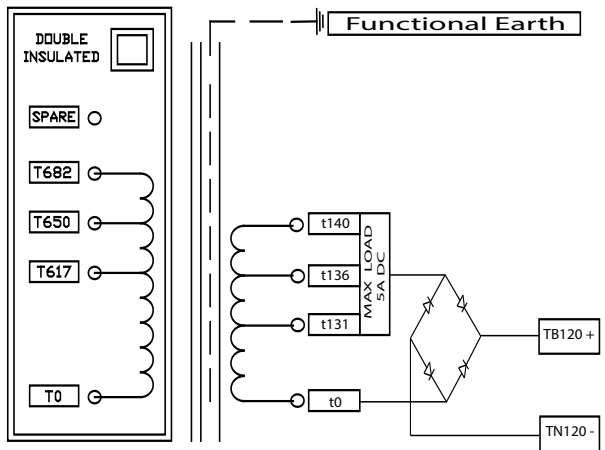
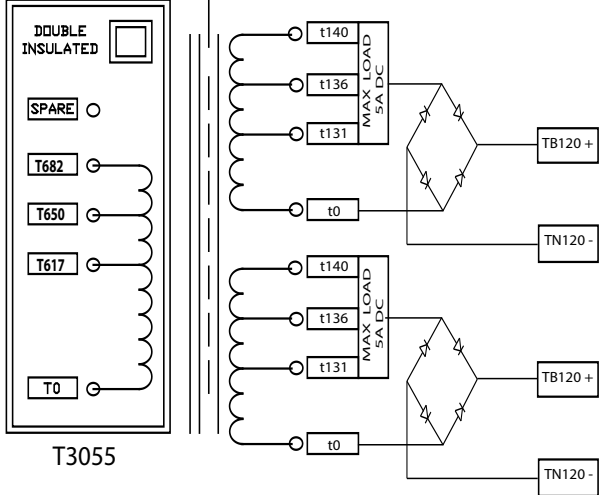


T3398

Wiring Diagrams

250VA-10KVA / 2.5A-10A

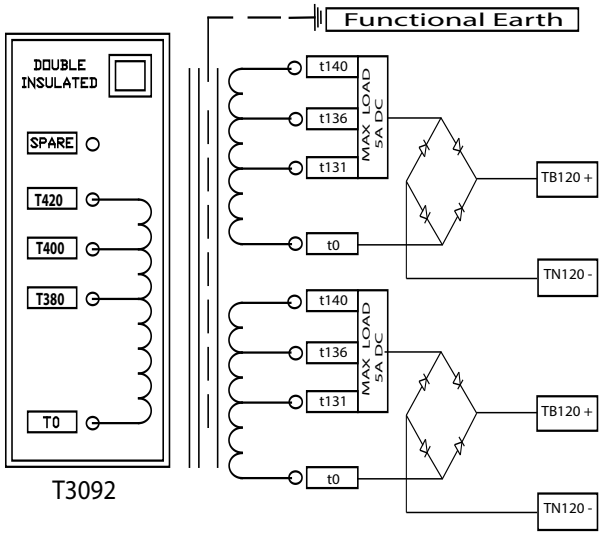
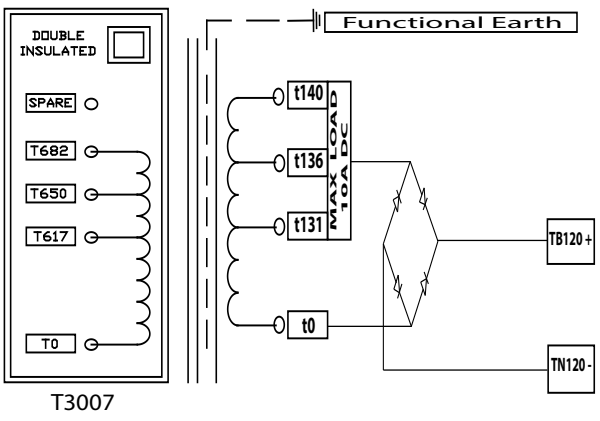
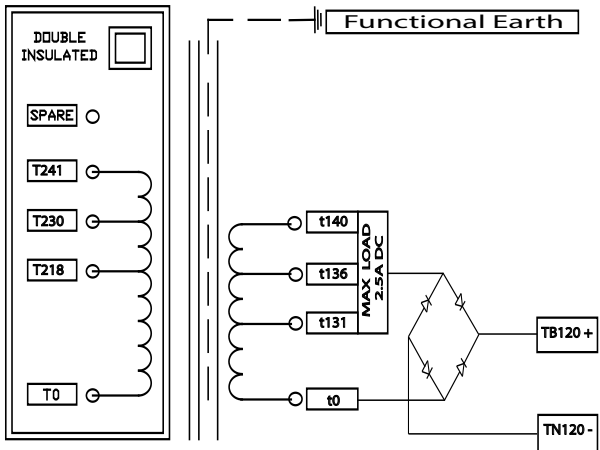
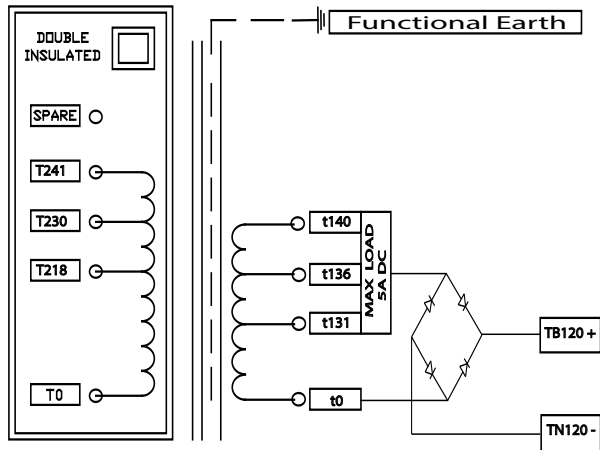
Aluminium & Copper Multi Output/Point Drive Rectifiers

230-230V Signalling Transformers Quad Output WTS (230 - 241V)	650/120VDC Point Drive Rectifier 650VAC/120V @ 2.5A
Aluminium: T3402	Copper: T3040
 T3402	 T3040
650/120VDC Point Drive Rectifier 650VAC/120V @ 5A	650/120VDC Point Drive Rectifier 650VAC/ 2 X 120V@5A
Copper: T3024	Copper: T3055
 T3024	 T3055

Wiring Diagrams

2.5A-10A

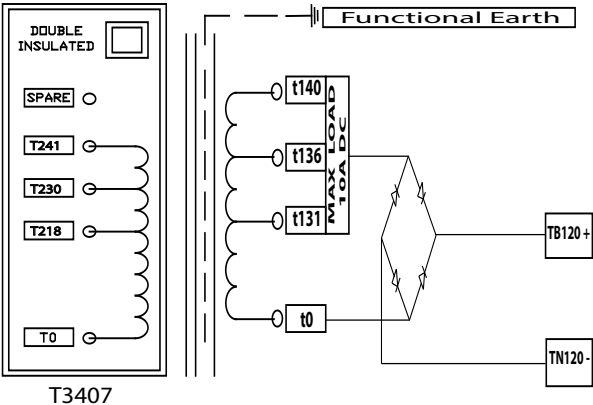
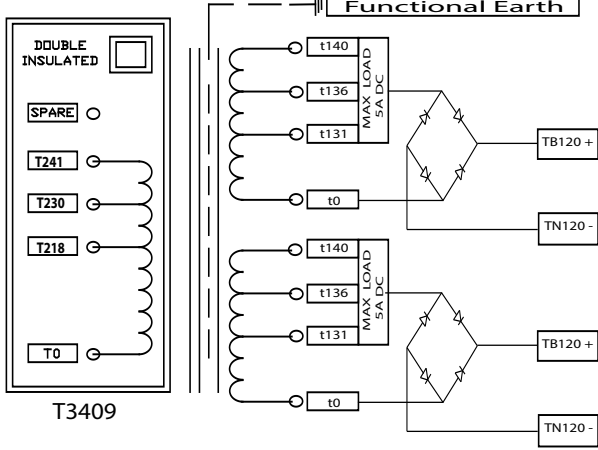
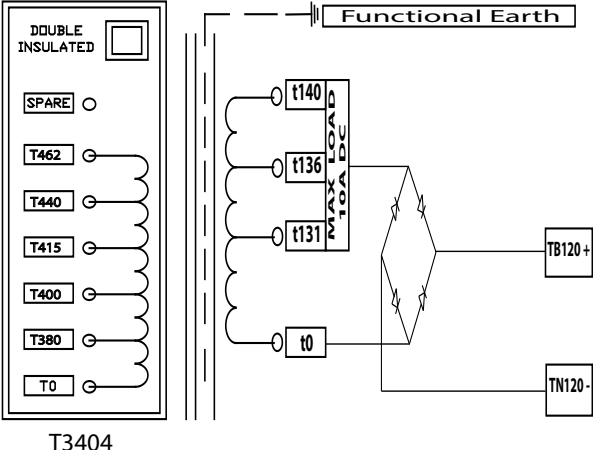
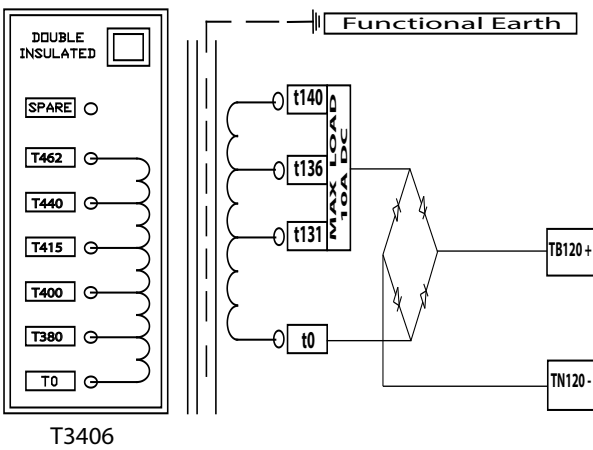
Copper Point Drive Rectifiers

400/120VDC Point Drive Rectifier 400VAC/ 2 X 120V@5A	650/120VDC Point Drive Rectifier 650VAC/120VDC @10A
Copper: T3092	Copper: T3007
 T3092	 T3007
230/120VDC Point Drive Rectifier 230VAC/120V @ 2.5A	230/120VDC Point Drive Rectifier 230VAC/120V @ 5A
Copper: T3403	Copper: T3405
 T3403	 T3405

Wiring Diagrams

2.5A-10A

Copper Point Drive Rectifiers

230/120VDC Point Drive Rectifier 650VAC/120V @ 10A	230/120VDC Point Drive Rectifier 650VAC/120V @ 5A x 2
Copper: T3407	Copper: T3409
 T3407	 T3409
400-415-440/120VDC Point Drive Rectifier 400-415-440VAC/120V @ 2.5A	400-415-440/120VDC Point Drive Rectifier 400-415-440VAC/120V @ 5A
Copper: T3404	Copper: T3406
 T3404	 T3406

Wiring Diagrams

2.5A-10A

Copper Point Drive Rectifiers

400-415-440/120VDC Point Drive Rectifier 400-415-440VAC/120V @ 10A	400-415-440/120VDC Point Drive Rectifier 400-415-440VAC/120V @ 5A x 2
Copper: T3408	Copper: T3410
T3408	T3410

Additional Items

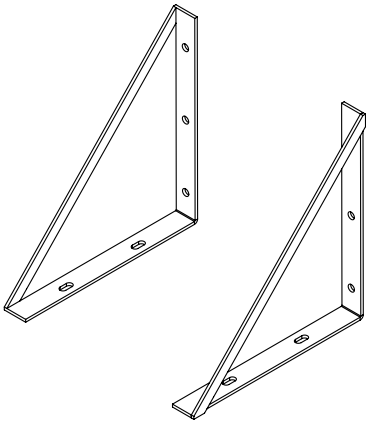
Legacy Brackets

Included on:



**Aluminium FSP
Signalling Transformers**
Network Rail Accepted Product:
PA05/07022

**Copper FSP
Signalling Transformers**
Network Rail Accepted Product:
PA05/0576



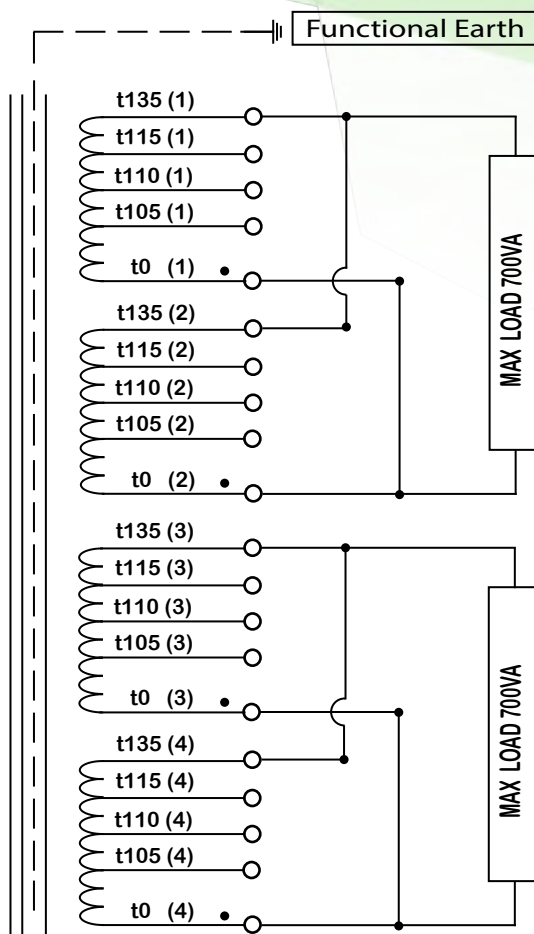
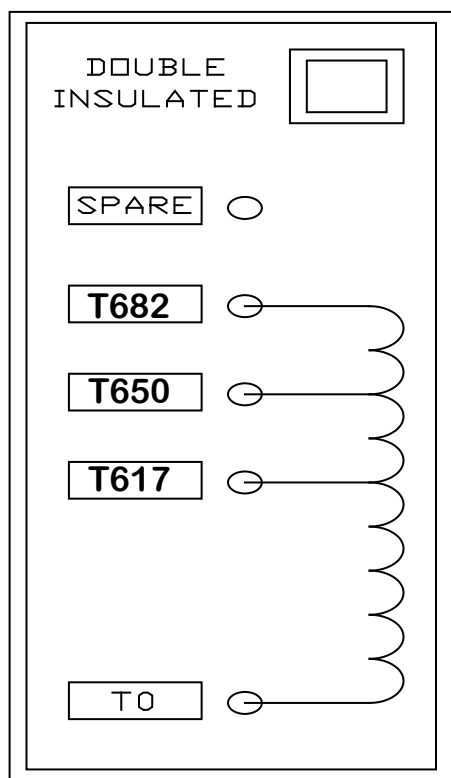
Part No.	Description	Catalogue No.
D1496-1	LEGACY BRACKETS FOR 250-500VA TRANSFORMERS & 2.5A TJ's	054/214897
D1496-2	LEGACY BRACKETS FOR 1KVA - 1.5KVA TRANSFORMERS INC 1KVA DUAL OUTPUT & 5A TJ's.	054/214898
D1496-3	LEGACY BRACKETS FOR 2KVA - 4KVA TRANSFORMERS INC QUAD OUTPUTS, 10A TJ's AND DUAL 5A TJ's.	054/214899

Data Specification

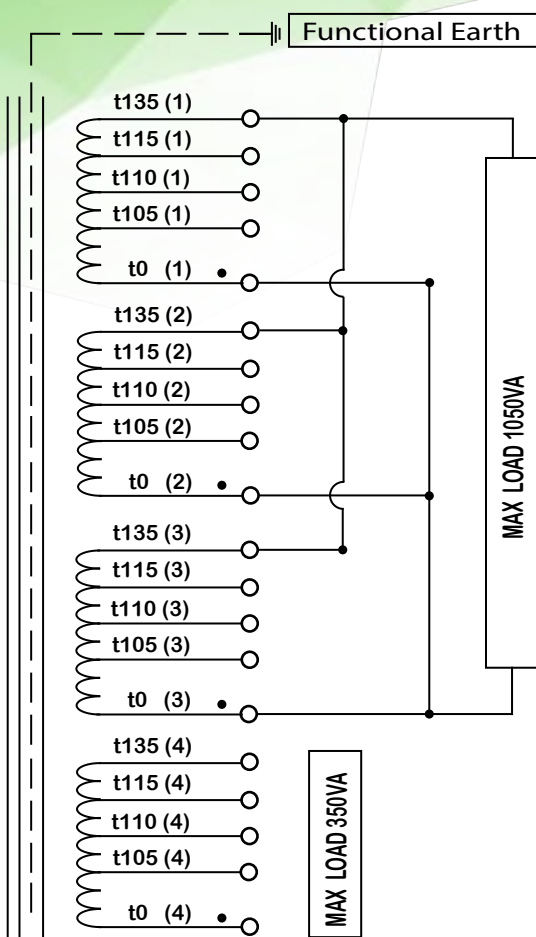
Multi Output Configurations For Quad Output Transformers

Example used T3704

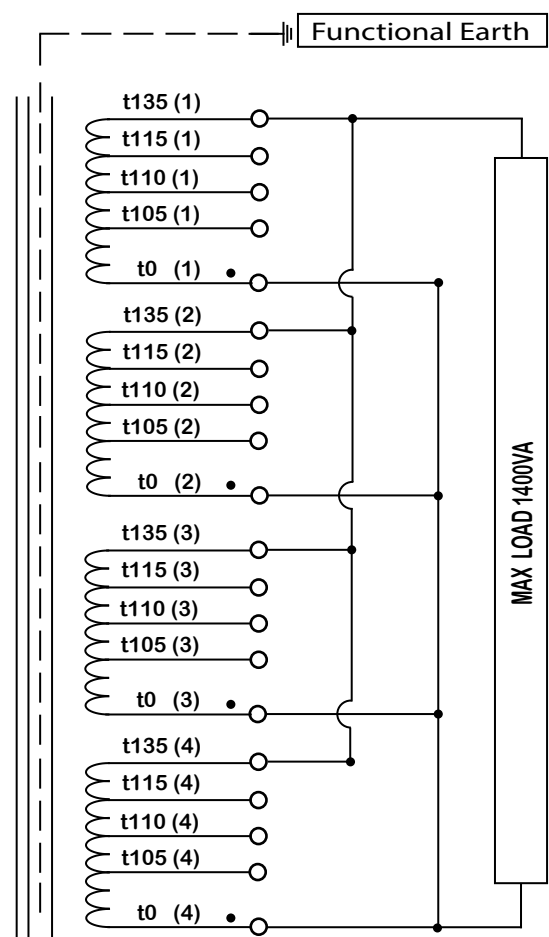
Dual Parallel



3 Parallel + Single



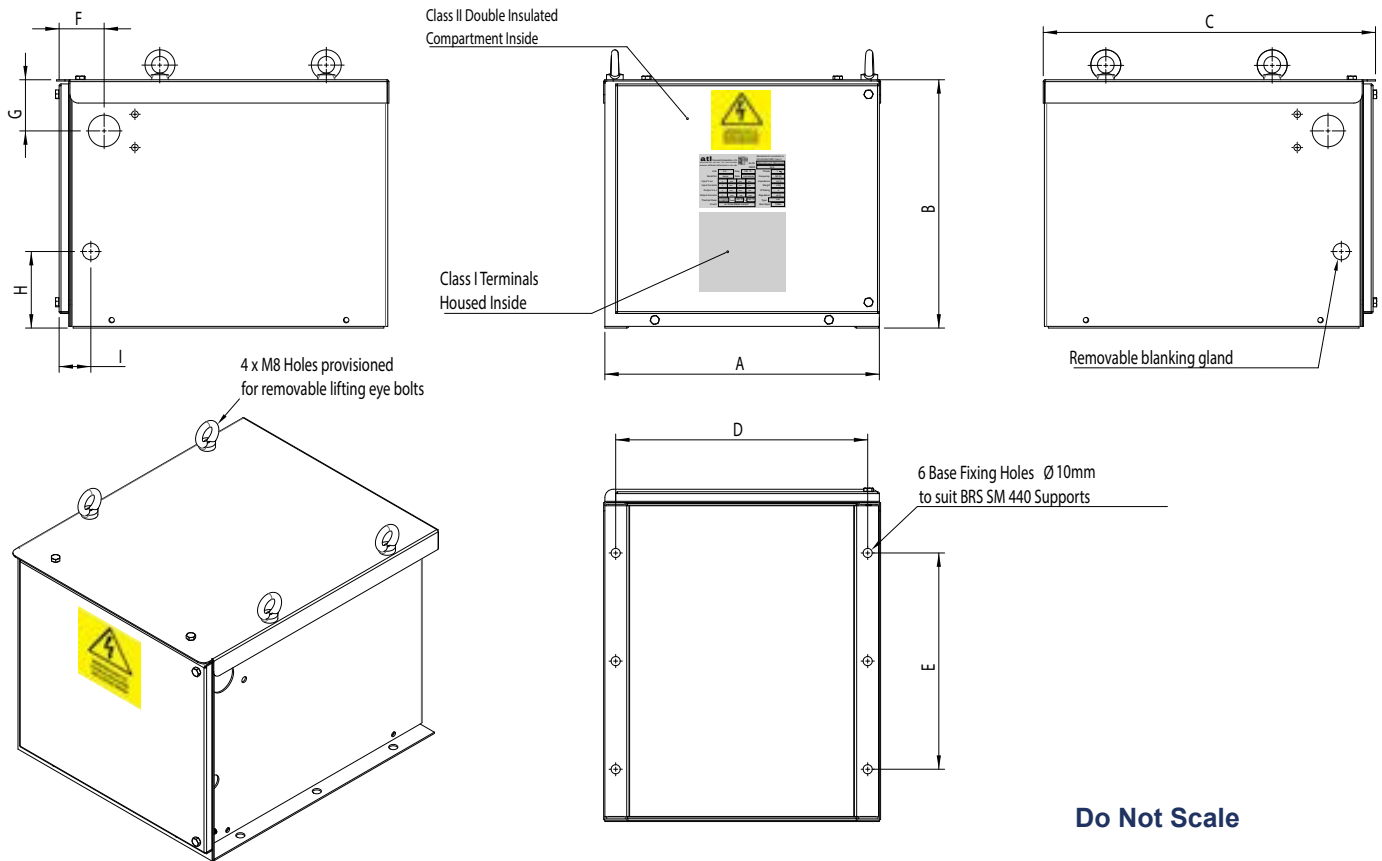
4 Parallel



General Arrangements

250VA-10KVA

Aluminium & Copper Wound
FSP Transformer Specifications

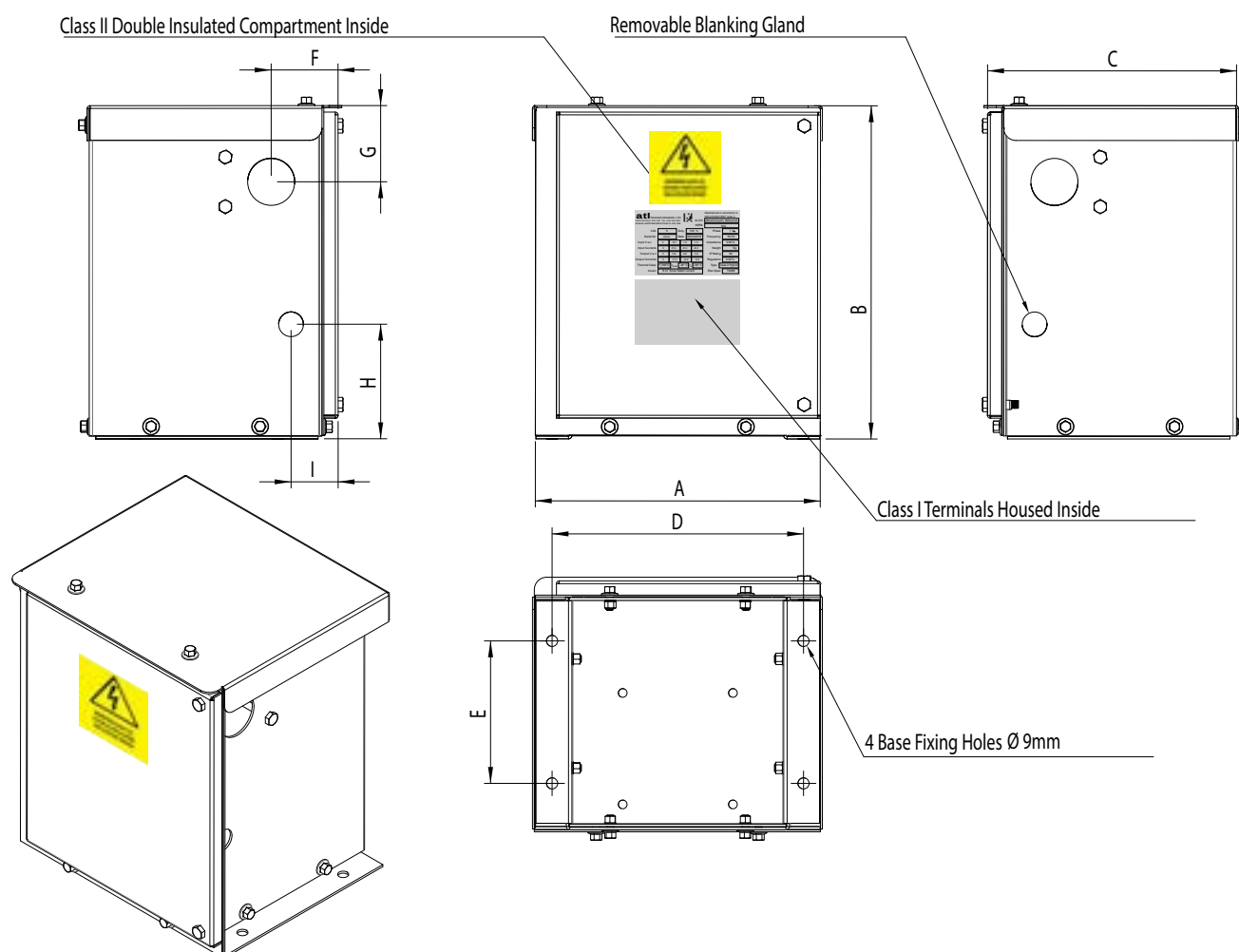


Aluminium Wound FSP Transformers									
Model (VA)	Dimension (mm)								
	A	B	C	D	E	F	G	H	I
1000VA	289	299	245	260	115	54	62	93	43
1500VA	289	299	277	260	115	54	62	93	43
2000VA	289	299	320	260	115	54	62	93	43
3000VA	289	299	320	260	115	54	62	93	43
5000VA	333	325	402	307	260	54	62	93	48
10,000VA	See Page 36								
1000VA Dual Output	289	299	277	260	115	54	62	93	43
1400VA Quad Output	289	299	320	260	115	54	62	93	43
2000VA Quad Output	289	299	320	260	115	54	62	93	43
Copper Wound FSP Transformers									
Model (VA)	Dimension (mm)								
	A	B	C	D	E	F	G	H	I
250VA	222	268	205	203	115	54	62	93	38
500VA	222	268	205	203	115	54	62	93	38
1000VA	289	299	245	260	115	54	62	93	43
1500VA	289	299	277	260	115	54	62	93	43
2-4000VA	289	299	320	260	115	54	62	93	43

General Arrangements

2.5A-10A

Single & Multi Output
Transformer Rectifiers for Point Drive Systems



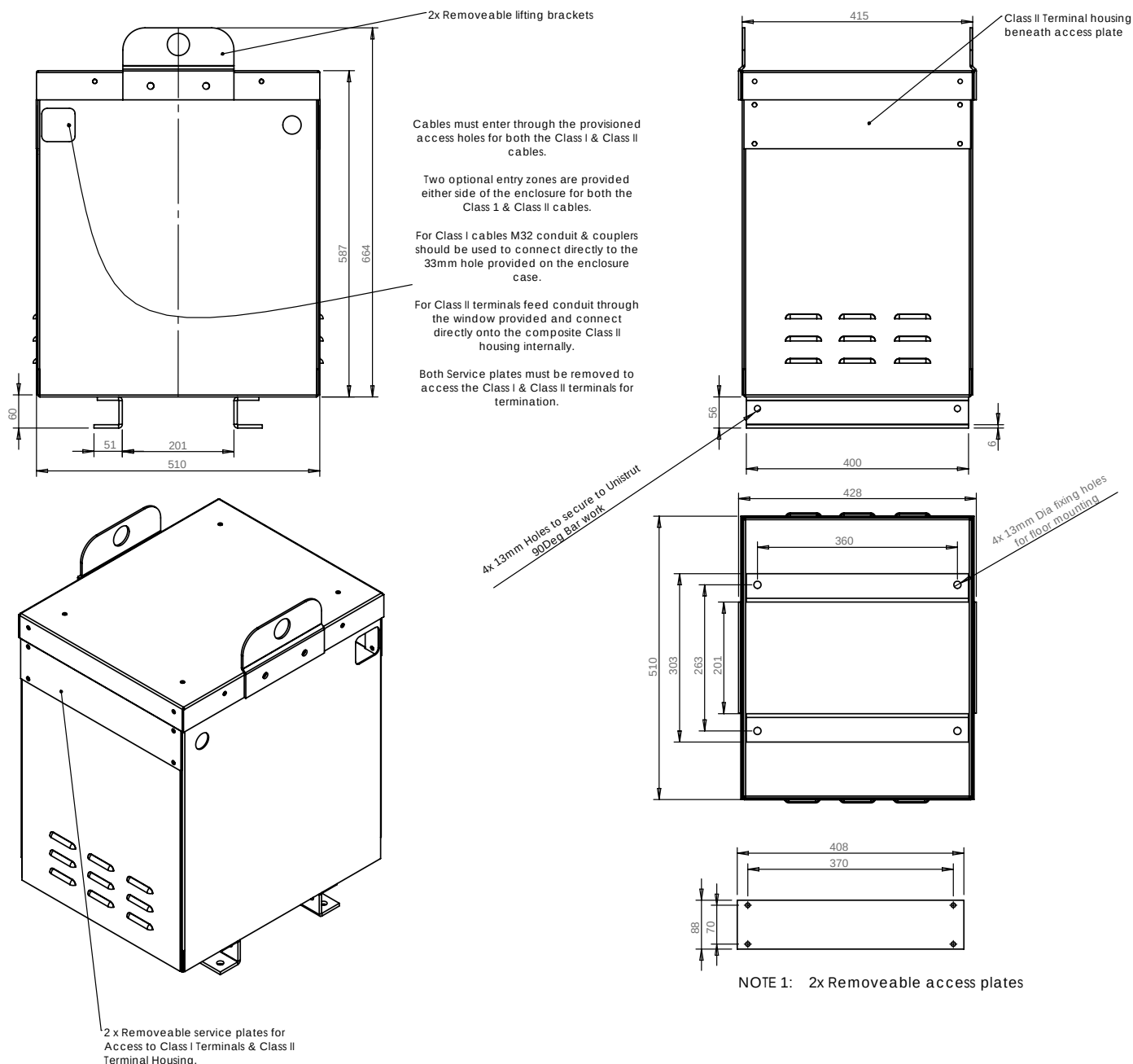
Do Not Scale

Copper TJ Rectifiers									
Model (VA)	Dimension (mm)								
	A	B	C	D	E	F	G	H	I
2.5A	230	269	210	203	115	54	62	93	38
5A	286	299	249	259	115	54	62	93	43
2x5A	286	299	329	259	115	54	62	93	43
2x5A	286	299	329	259	115	54	62	93	43
10A	286	299	329	259	115	54	62	93	43

General Arrangements

10KVA

Aluminium FSP Transformer Specifications



Certificate of Acceptance

PA05/06391

Manufacturer:

ATL Transformers Ltd.

Issue : 5**Valid From :** 15/05/2020**Review Date:** 14/05/2025

Aluminium Wound Class II Hybrid FSP Isolating Transformers

Product Description

Range of Aluminium wound Class II Hybrid Isolating transformers in accordance with NR/L2/SIGELP/30007 – Product Specification for Power Transformers for Signalling Systems.

For use in Signalling Power Distribution Systems.

Transformer range comprises:

Aluminium wound transformers 1000VA, 1500VA, 2000VA, 3000VA, 5000VA and 10000VA with one secondary winding;

Aluminium wound transformer 1000VA with two secondary windings;

Aluminium wound transformers 1400VA and 2000VA with four secondary windings.

Product Image**Scope of Acceptance****Full Acceptance**

For use in new and updated Signalling Power Distribution Systems.

Suitable for replacement of 924A transformers in accordance with NR/L2/SIGELP/27410 Issue 2 – Specification for Class II based Signalling Power Distribution Systems.

Refer to Manufacturers and Users Conditions for further information and constraints of use.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager.

Reviewed by:

Authorised by:

Samantha Flint
Product Acceptance Coordinator

Jerry Morling
Head of Signalling

Felix Langley
Professional Head of Power Distribution HV/LV

Certificate of Acceptance

OFFICIAL
PA05/05761

Manufacturer:
ATL Transformers LTD

Issue : 4
Valid From : 20/05/2022

Copper Wound Class II Hybrid FSP Isolating Transformers

Product Description

A range of Copper Wound Class II Hybrid FSP Isolating Transformers for Signalling Power Supplies.

Product Image



Scope of Acceptance

Full Acceptance

The eco-rail Class II Hybrid Transformers meets the requirements of NR/L2/SIG/30007 - Product Specification for Power Transformers for Signalling Systems.

When utilised in Class II applications these transformers shall be used, installed and tested in accordance with NR/L2/ELP/27410 - Specification for Class II Based Signalling Power Distribution Systems.

Suitable for replacement of 924A transformers in accordance with NR/L2/SIGELP/27410 Issue 2 – Specification for Class II based Signalling Power Distribution Systems.

Refer to Manufacturers and Users conditions for further information and constraints.

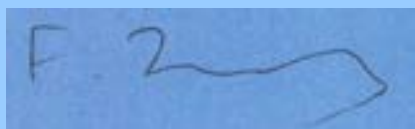
Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.

Reviewed by:



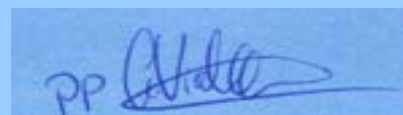
Steven Rennolds
Product Acceptance Specialist

Authorised by:



Felix Langley
Network Technical Head Power Distribution
HV/LV

Authorised by:



Jerry Morling BEng MSc CEng MIET, MIRSE
Network Technical Head Signalling

Please contact technologyintroduction@networkrail.co.uk

Network Rail Infrastructure Ltd Registered Office 1 Eversholt Street, Euston, London Registered in England and Wales No. 2904587 www.networkrail.co.uk
Version 6.1 February 2013

Certificate of Acceptance

PA05/06329

Manufacturer:
ATL Transformers Ltd

Issue : 2
Valid From : 06-03-20

Class II Hybrid Transformer-rectifiers

Product Description

A range of Class II Hybrid low inrush transformer-rectifier units. These units are suitable for powering Signalling loads and point machines

Product Image



Scope of Acceptance

Full Acceptance

Can be used where the Signalling Power Distribution is Class I or Class II subject to the Specific Conditions defined in this certificate.

They shall not be used in sub-surface environments in accordance with section 12 stations and locations.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.

Reviewed by:

Authorised by:



Samantha Flint
Product Acceptance Coordinator



Felix Langley
Professional Head of Power Distribution HV/LV



Jerry Morling BEng MSc CEng MIET, MIRSE
Professional Head of Signalling

Please contact technologyintroduction@networkrail.co.uk

Network Rail Infrastructure Ltd Registered Office 1 Eversholt Street London NW12EE Registered in England and Wales No. 2904587 www.networkrail.co.uk
Version 7.0 April 2015.



Network Rail Accepted
Product: PA05/07022

DATASHEET BROCHURE

ASP/PSP Transformers

- IP32 & IP56 Principle (PSP) and Auxiliary (ASP) supply point Transformers



“ A New Generation of IP32 & IP56 Transformers that are Lighter, Compact and aesthetically pleasing. PSP & ASP Transformers with enhanced performance characteristics for a modern railway network.



Aluminium PSP/ASP Transformers

IP32

ATL's PSP/ASP range of transformers has been designed to meet the requirements of previous British rail standards BR924A but enhanced for a modern railway with elements of up to date standards IEC600076 & NR/L2/SIGELP/30007. During development ATL sought advice from maintainers and installers to engineer tangible benefits to not only the system but the operators of this equipment. Principle supply point transformers supply power to the downstream feeders and functional supply point circuits. Typically of Class I designation these units serve a critical power delivery function to the IT systems. Available in three phase, single phase & three to single phase with a stable of multiple power variations. ATL offer an array of voltage configurations to suit multi regional distribution networks and system topologies.



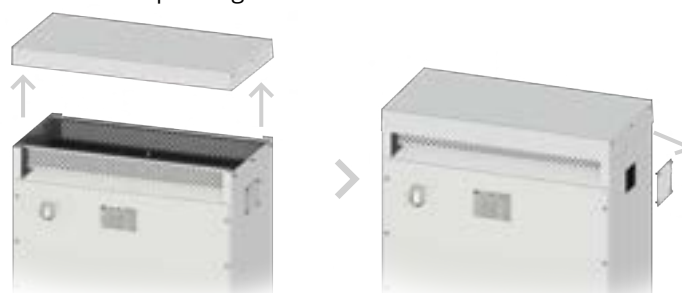
KEY FEATURES

- ATL's Lightweight aluminium windings are the lightest and most compact specifications available.
- Delivering < 10x Inrush Current.
- Reduced footprint to free up valuable floor space within a PSP/ASP structure.
- Suitable for installation in line with switchboard panels.
- Simple installation by way of removable cable gland plates for both Primary & Secondary cables.
- Impedance values < 5%
- On-Load Tap changer with lockable handles to facilitate voltage Buck and Boost while the system is energised.
- The ability to reset or boost system voltages on long feeders.
- ATL's innovative custom enclosure design drives cooling through convection and offers enhanced asset life and environmental resilience.
- Available in both IP32 (Indoor) and IP56 (Outdoor) variations.



On-Load Tap Changer

An on-load tap selector allows simple switching between the transformer's tap voltages.



Ease of Access

Removal of lid and gland plates make light work of cable entry and termination for the installer and maintainer.

Get In Line

RECLAIM FLOOR SPACE WITHIN YOUR PSP

A Transformer should look as good as and be in keeping with the equipment it is installed into. ATL's In-Line range not only outperform others but are aesthetically better looking and with our novel design facilitate in-line installation with switchboard panels. No further need to have large Grey box's in the corner of your PSP. Free up your premium floorspace with our extensive stable of high performing PSP/ASP



Light Weight Aluminium



Powered By ATL Transformers Ltd

As with our New generation of Signalling transformers our eco-rail aluminium technology is available across the full PSP/ASP range. Lighter is in this case better and we offer this feature also within a smaller package to conventional copper wound transformers. We are able to achieve this due to our high efficiency and novel mechanical design.

Aluminium is the future of electrical conductors and while our competitors are still figuring it out ATL have been delivering the benefits of aluminium wound transformers to our customers for over 20 years. Going with the conventional is easy but we like to challenge the conventional at ATL and innovate where possible and this is certainly shown within our market leading range of PSP/ASP transformers.



Aluminium PSP/ASP Transformers

IP56

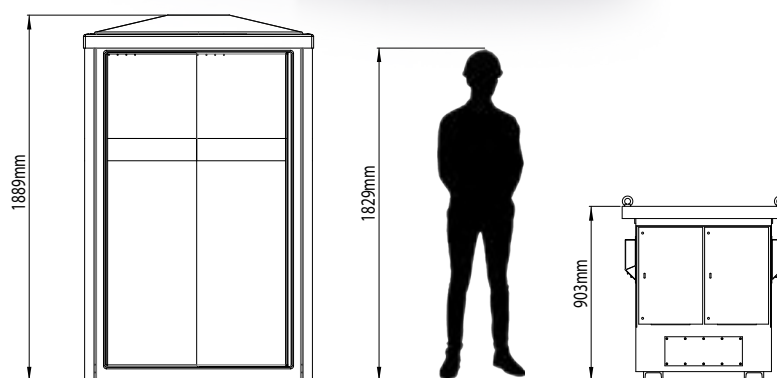
ATL's PSP/ASP range of transformers has been designed to meet the requirements of previous British rail standards BR924A but enhanced for a modern railway with elements of up to date standards IEC600076 & NR/L2/SIGELP/30007. During development ATL sought advice from maintainers and installers to engineer tangible benefits to not only the system but the operators of this equipment. Principle supply point transformers supply power to the downstream feeders and functional supply point circuits. Typically of Class I designation these units serve a critical power delivery function to the IT systems. Available in three phase, single phase & three to single phase with a stable of multiple power variations. ATL offer an array of voltage configurations to suit multi regional distribution networks and system topologies.



Weatherproof Coating

KEY FEATURES

- ATL's Lightweight aluminium windings are the lightest and most compact specifications available.
- Delivering < 10x Inrush Current.
- Suitable for installation in line with switchboard panels.
- Simple installation by way of removable cable gland plates for both Primary & Secondary cables located underneath enclosure doors.
- Impedance values < 5%
- The ability to reset or boost system voltages on long feeders.
- ATL's innovative custom enclosure design drives cooling through convection and offers enhanced asset life and environmental resilience.
- Stainless Steel IP56 enclosures with Weatherproof Coating for Outdoor Applications.



Compact and Lightweight

The ASP/PSP has just a height of 903mm which is almost half the size of 6ft human being. **40KVA+ sizes may vary. See pgs 61 & 69.*



Ease of Access

The ASP/PSP contains doors for simple access and removable gland plates underneath for fitting conduit cable through.

Compact

Compact Outdoor PSP

A Transformer should look as good as and be in keeping with the equipment it is installed into. ATL's In-Line range not only outperform others but are aesthetically better looking and with our novel design facilitate. The ATL outdoor PSP transformer range is a cost effective solution for feeder power systems. They feature external distribution housings for efficient termination of cables without accessing the main enclosure compartment.



Light Weight Aluminium



As with our New generation of Signalling transformers our eco-rail aluminium technology is available across the full PSP/ASP range. Lighter is in this case better and we offer this feature also within a smaller package to conventional copper wound transformers. We are able to achieve this due to our high efficiency and novel mechanical design.

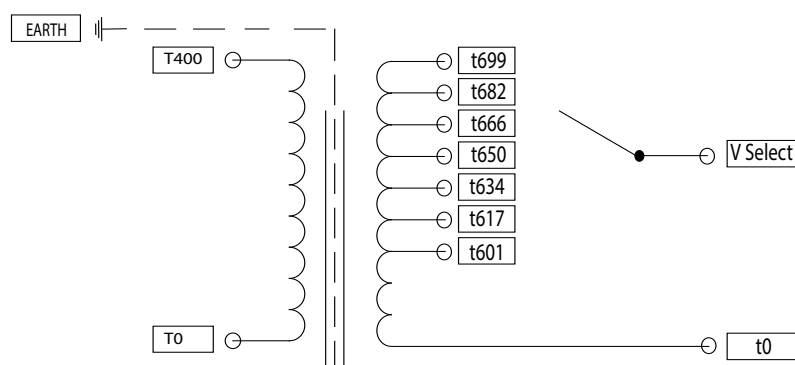
Aluminium is the future of electrical conductors and while our competitors are still figuring it out ATL have been delivering the benefits of aluminium wound transformers to our customers for over 20 years. Going with the conventional is easy but we like to challenge the conventional at ATL and innovate where possible and this is certainly shown within our market leading range of PSP/ASP transformers.



Data Specification

BI Phase 400/650V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987	T2909	T3077	T2910	T3078	T2911
IP56 Part Number		-	T2909-SPIP56	T3077-SPIP56	T2910-SPIP56	T3078-SPIP56	T2911-SPIP56
IP32 PAD's Number**		0054/215008	0054/215009	0054/215010	0054/215011	0054/215012	0054/215013
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Recommended protection	20A Type C or D	40A Type C or D	50A Type C or D	70A Type C or D	80A Type C or D	100A Type C or D
	% Efficiency @ 100% FL	>95%	>95%	>95%	>95%	>95%	>95%
	Inrush (x times rated current)	7.4 X flc	8.6 x Flc	5.5 x Flc	5.1 x Flc	5.4 x Flc	8.9 x Flc
	% Impedance	< 3%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio	0.62	0.65	0.65	1.11	2.1	1.26
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	132	440	598	920	843	1570
	Duration of prospective fault current	>4 seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465

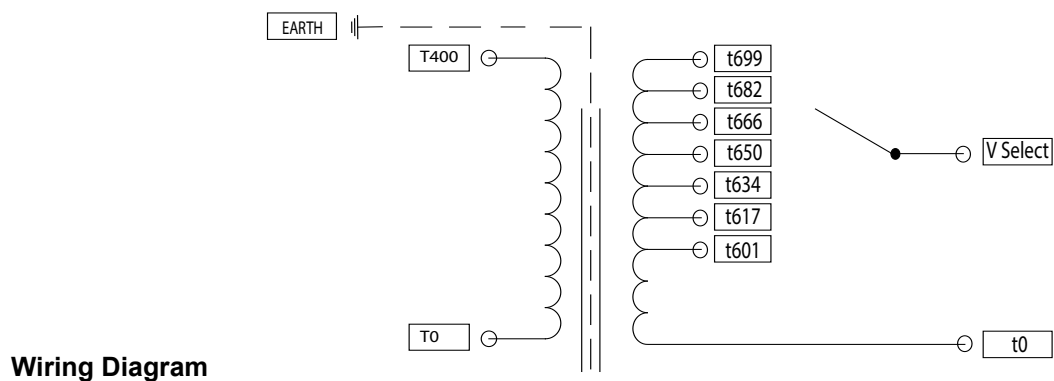


Wiring Diagram

Data Specification

BI Phase 400/650V

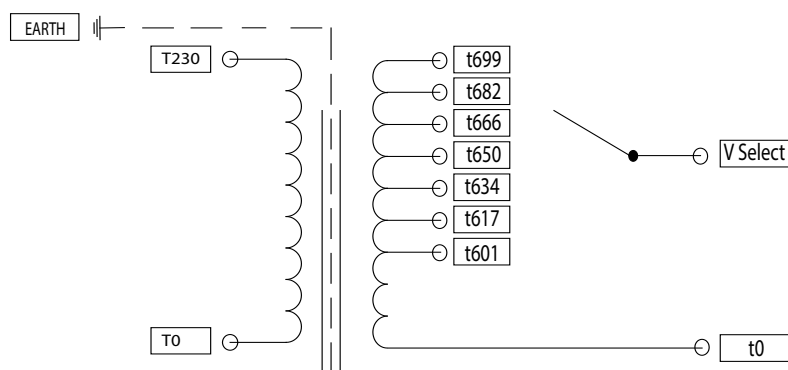
Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079	T2912	T3103	T2913	T3320
IP56 Part Number		T3079-SPIP56	T2912-SPIP56	T3103-SPIP56	T2913-SPIP56	T3320-SPIP56
IP32 PAD's Number**		0054/215014	0054/215015	0054/215016	0054/215017	0054/215018
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400
	Recommended protection	125A Type C or D	150A Type C or D	175A Type C or D	200A Type C or D	300A Type C or D
	% Efficiency @ 100% FL	>95%	>95%	>95%	>95%	>95%
	Inrush (x times rated current)	6.5 x Flc	8.5 x Flc	6.4 x Flc	7.5 x Flc	8.4 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio	1.16	1.7	2	2.12	1.85
Output	Secondary rated voltage (V)	650	650	650	650	650
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	1692	1856	2244	2582	3538
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
IP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625



Data Specification

BI Phase 230/650V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-1	T2909-1	T3077-1	T2910-1	T3078-1	T2911-1
IP56 Part Number		-	T2909-1-SPIP56	T3077-1-SPIP56	T2910-1-SPIP56	T3078-1-SPIP56	T2911-1-SPIP56
IP32 PAD's Number**		0054/215019	0054/215020	0054/215021	0054/215022	0054/215023	0054/215024
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230	230
	Recommended protection	32A Type C or D	60A Type C or D	90A Type C or D	125A Type C or D	150A Type C or D	175A Type C or D
	% Efficiency @ 100% FL	>95%	>95%	>95%	>95%	>95%	>95%
	Inrush (x times rated current)	< 10 x fIc	8.7 x FIC	5 x FIC	9 x FIC	7.9 x FIC	7.9 x FIC
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio	-	0.66	0.92	1.13	1.51	1.39
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	394	626	1188	1740	1450
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<4%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465



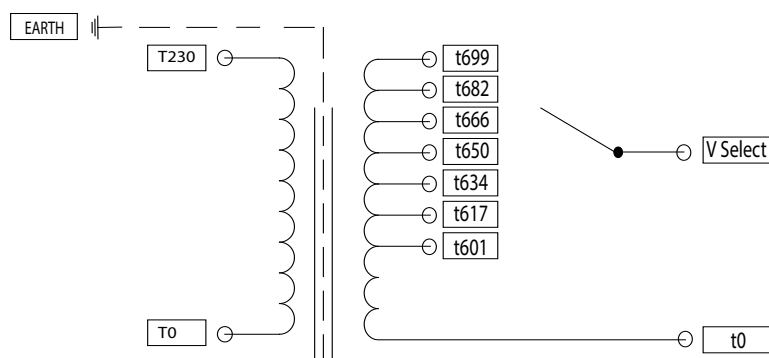
Wiring Diagram

Data Specification

BI Phase 230/650V

Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-1	T2912-1	T3103-1	T2913-1	T3320-1
IP56 Part Number		T3079-1-SPIP56	T2912-1-SPIP56	T3103-1-SPIP56	T2913-1-SPIP56	T3320-1-SPIP56
IP32 PAD's Number**		0054/215025	0054/215026	0054/215027	0054/215028	0054/215029
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230
	Recommended protection	200A Type C or D	225A Type C or D	300A Type C or D	350A Type C or D	450A Type C or D
	% Efficiency @ 100% FL	>95%	>95%	>95%	>95%	>95%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	5.8 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio	-	-	1.26	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	1582	-	1998	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
IP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625

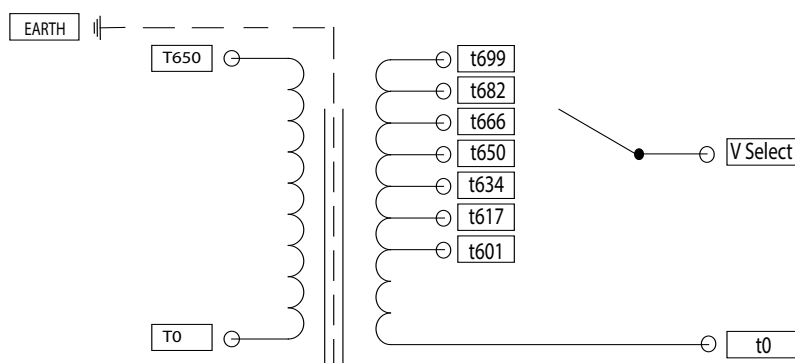
Wiring Diagram



Data Specification

BI Phase 650/650V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-2	T2909-2	T3077-2	T2910-2	T3078-2	T2911-2
IP56 Part Number		-	T2909-2-SPIP56	T3077-2-SPIP56	T2910-2-SPIP56	T3078-2-SPIP56	T2911-2-SPIP56
IP32 PAD's Number**		0054/215030	0054/215031	0054/215032	0054/215033	0054/215034	0054/215035
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650
	Recommended protection	16A Type C or D	20A Type C or D	35A Type C or D	40A Type C or D	50A Type C or D	60A Type C or D
	% Efficiency @ 100% FL	>95%	>95%	>95%	>95%	>95%	>95%
	Inrush (x times rated current)	< 10 x flc	8.7 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio		0.66	-	-	-	--
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	392	-	-	-	-
	Duration of prospective fault current	-	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	-	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465



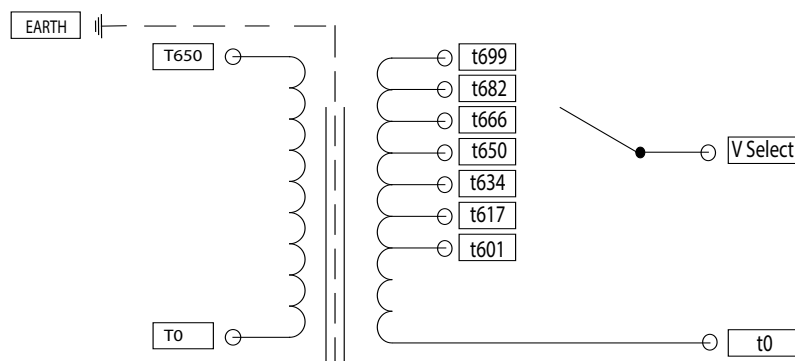
Wiring Diagram

Data Specification

BI Phase 650/650V

Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-2	T2912-2	T3103-2	T2913-2	T3320-2
IP56 Part Number		T3079-2-SPIP56	T2912-2-SPIP56	T3103-2-SPIP56	T2913-2-SPIP56	T3320-2-SPIP56
IP32 PAD's Number**		0054/215036	0054/215037	0054/215038	0054/215039	0054/215040
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650
	Recommended protection	70A Type C or D	80A Type C or D	100A Type C or D	125A Type C or D	175A Type C or D
	% Efficiency @ 100% FL	>95%	>95%	>95%	>95%	>95%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
IP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625

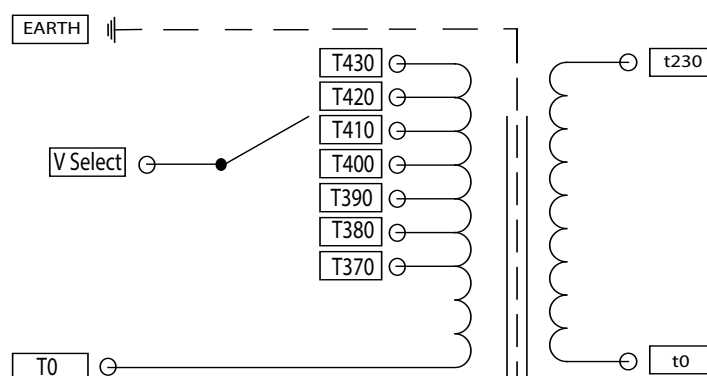
Wiring Diagram



Data Specification

BI Phase 400/230V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-3	T2909-3	T3077-3	T2910-3	T3078-3	T2911-3
IP56 Part Number		-	T2909-3-SPIP56	T3077-3-SPIP56	T2910-3-SPIP56	T3078-3-SPIP56	T2911-3-SPIP56
IP32 PAD's Number**		0054/215041	0054/215042	0054/215043	0054/215044	0054/215045	0054/215046
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	20A Type C or D	35A Type C or D	50A Type C or D	70A Type C or D	80A Type C or D	100A Type C or D
	% Efficiency @ 100% FL	>95%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	7.2 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	230	230	230	230	230	230
	X/R Ratio	-	-	-	-	1.04	-
	Prospective fault current (A)	-	-	-	-	5430	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465

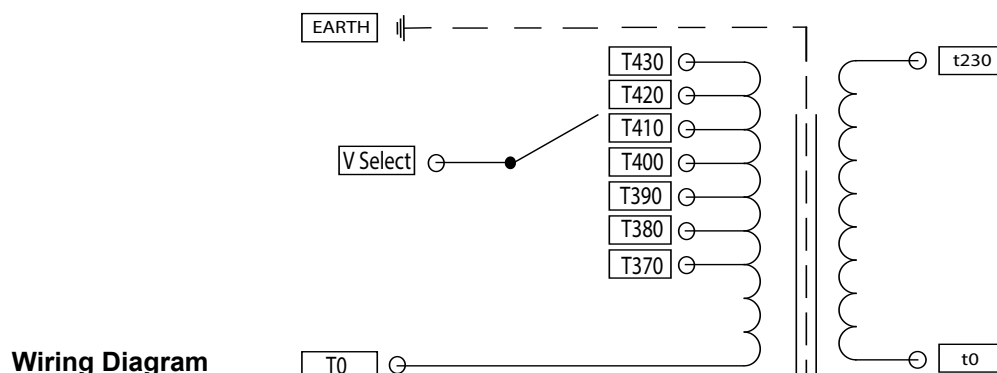


Wiring Diagram

Data Specification

BI Phase 400/230V

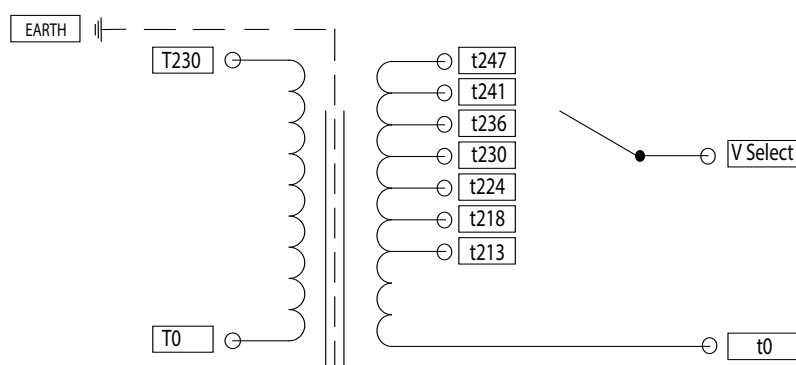
Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-3	T2912-3	T3103-3	T2913-3	T3320-3
IP56 Part Number		T3079-3-SPIP56	T2912-3-SPIP56	T3103-3-SPIP56	T2913-3-SPIP56	T3320-3-SPIP56
IP32 PAD's Number**		0054/215047	0054/215048	0054/215049	0054/215050	0054/215051
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	125A Type C or D	150A Type C or D	175A Type C or D	200A Type C or D	300A Type C or D
	% Efficiency @ 100% FL	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	8 x Flc	<10 x Flc	TBA	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	230	230	230	230	230
	X/R Ratio	0.87	-	-	-	-
	Prospective fault current (A)	9376	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
IP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625



Data Specification

BI Phase 230/230V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-4	T2909-4	T3077-4	T2910-4	T3078-4	T2911-4
IP56 Part Number		-	T2909-4-SPIP56	T3077-4-SPIP56	T2910-4-SPIP56	T3078-4-SPIP56	T2911-4-SPIP56
IP32 PAD's Number**		0054/215052	0054/215053	0054/215054	0054/21505	0054/215056	0054/215057
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230	230
	Recommended protection	32A Type C or D	60A Type C or D	90A Type C or D	125A Type C or D	150A Type C or D	175A Type C or D
	% Efficiency @ 100% FL	>95%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	8.29 x Flc	9 x Flc	<10 x Flc	7.13 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio	-	0.77	0.79	-	1.02	-
Output	Secondary rated voltage (V)	230	230	230	230	230	230
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	1076	1960	-	5392	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465



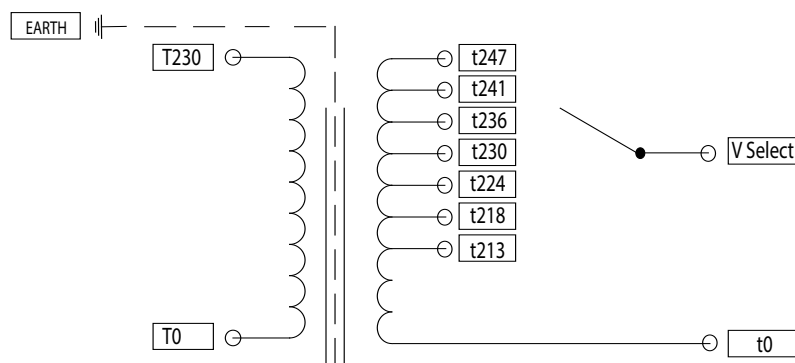
Wiring Diagram

Data Specification

BI Phase 230/230V

Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-4	T2912-4	T3103-4	T2913-4	T3320-4
IP56 Part Number		T3079-4-SPIP56	T2912-4-SPIP56	T3103-4-SPIP56	T2913-4-SPIP56	T3320-4-SPIP56
IP32 PAD's Number**		0054/215058	0054/215059	0054/215060	0054/215061	0054/215062
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230
	Recommended protection	200A Type C or D	225A Type C or D	300A Type C or D	350A Type C or D	450A Type C or D
	% Efficiency @ 100% FL	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	TBA	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R Ratio					
Output	Secondary rated voltage (V)	230	230	230	230	230
	Secondary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
iP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625

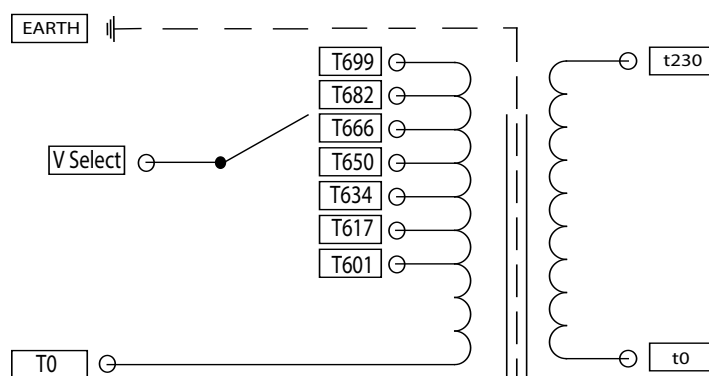
Wiring Diagram



Data Specification

BI Phase 650/230V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-5	T2909-5	T3077-5	T2910-5	T3078-5	T2911-5
IP56 Part Number		-	T2909-5-SPIP56	T3077-5-SPIP56	T2910-5-SPIP56	T3078-5-SPIP56	T2911-5-SPIP56
IP32 PAD's Number		0054/215063	0054/215064	0054/215065	0054/215066	0054/215067	0054/215068
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	16A Type C or D	20A Type C or D	35A Type C or D	40A Type C or D	50A Type C or D	60A Type C or D
	% Efficiency @ 100% FL	>95%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	8.8 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	230	230	230	230	230	230
	X/R Ratio	-	-	-	-	-	0.99
	Prospective fault current (A)	-	-	-	-	-	2044
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core>100M Ω Primary to Secondary>100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465

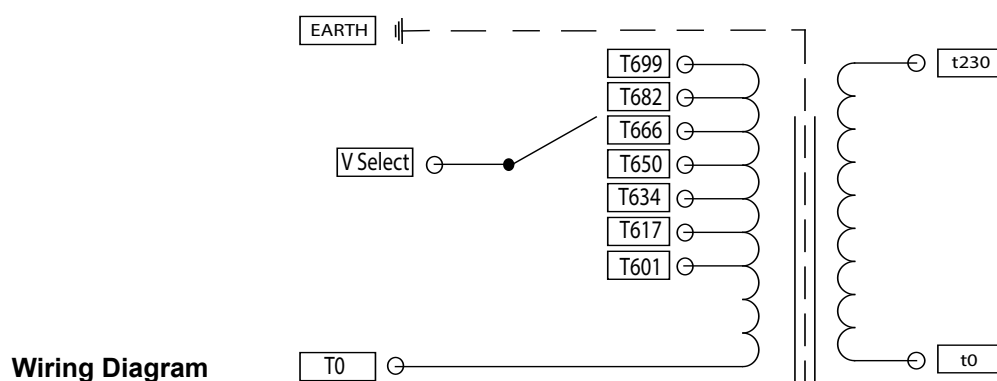


Wiring Diagram

Data Specification

BI Phase 650/230V

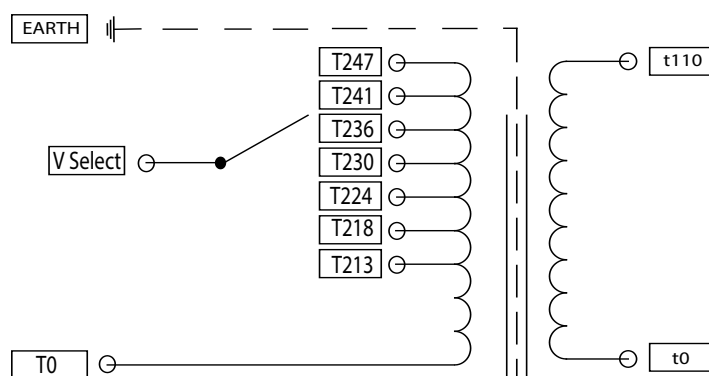
Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-5	T2912-5	T3103-5	T2913-5	T3320-5
IP56 Part Number		T3079-5-SPIP56	T2912-5-SPIP56	T3103-5-SPIP56	T2913-5-SPIP56	T3320-5-SPIP56
IP32 PAD's Number		0054/215069	0054/215070	0054/215071	0054/215072	0054/215073
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	70A Type C or D	80A Type C or D	100A Type C or D	125A Type C or D	175A Type C or D
	% Efficiency @ 100% FL	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	6.9 x Flc	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	230	230	230	230	230
	X/R Ratio	-	-	1.76	-	-
	Prospective fault current (A)	-	-	6430	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	%Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
iP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625



Data Specification

BI Phase 230/110V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-6	T2909-6	T3077-6	T2910-6	T3078-6	T2911-6
IP56 Part Number		-	T2909-6-SPIP56	T3077-6-SPIP56	T2910-6-SPIP56	T3078-6-SPIP56	T2911-6-SPIP56
IP32 PAD's Number		0054/215164	0054/215165	0054/215166	0054/215167	0054/215168	0054/215169
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230	230
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	32A Type C or D	63A Type C or D	100A Type C or D	150A Type C or D	160A Type C or D	200A Type C or D
	% Efficiency @ 100% FL	>95%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	110	110	110	110	110	110
	X/R Ratio	-	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core>100M Ω Primary to Secondary>100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465

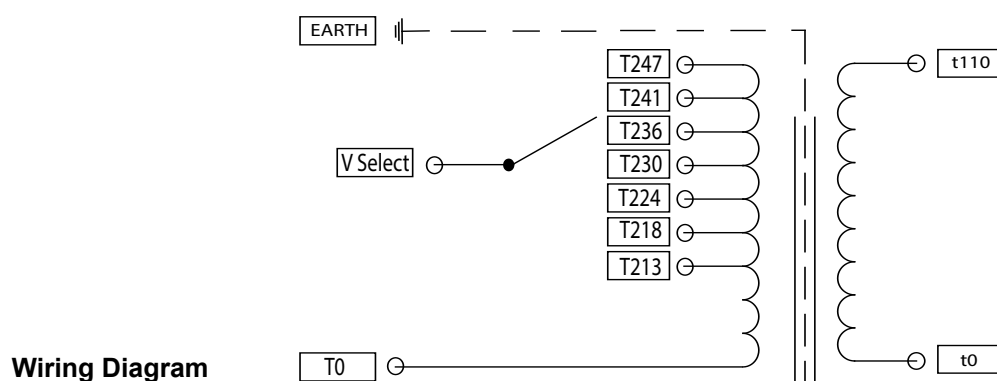


Wiring Diagram

Data Specification

BI Phase 230/110V

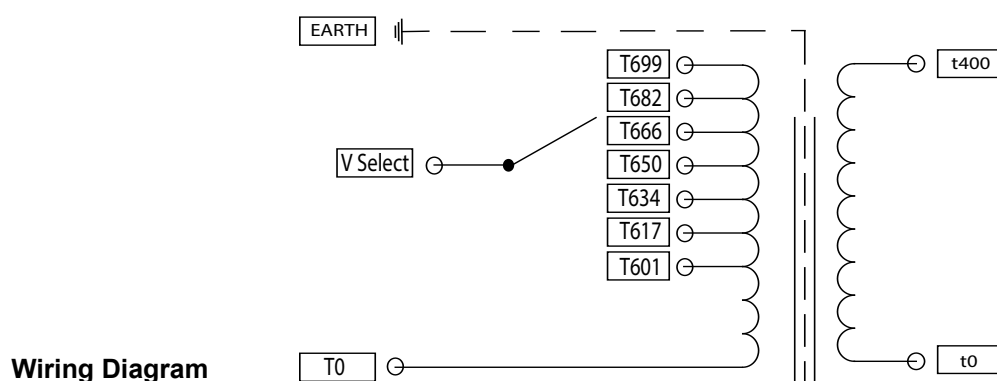
Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-6	T2912-6	T3103-6	T2913-6	T3320-6
IP56 Part Number		T3079-6-SPIP56	T2912-6-SPIP56	T3103-6-SPIP56	T2913-6-SPIP56	T3320-6-SPIP56
IP32 PAD's Number		0054/215170	0054/215171	0054/215172	0054/215173	0054/215174
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230	230	230	230	230
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	225A Type C or D	300A Type C or D	350A Type C or D	400A Type C or D	560A Type C or D
	% Efficiency @ 100% FL	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	110	110	110	110	110
	X/R Ratio	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	%Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
iP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625



Data Specification

BI Phase 650/400V

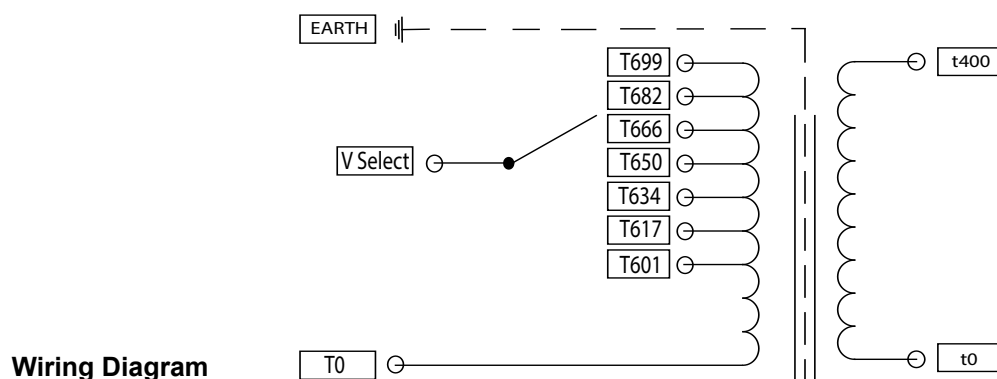
Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-8	T2909-8	T3077-8	T2910-8	T3078-8	T2911-8
IP56 Part Number		-	T2909-8-SPIP56	T3077-8-SPIP56	T2910-8-SPIP56	T3078-8-SPIP56	T2911-8-SPIP56
IP32 PAD's Number		0054/215175	0054/215176	0054/215177	0054/215178	0054/215179	0054/215180
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	16A Type C or D	25A Type C or D	35A Type C or D	50A Type C or D	63A Type C or D	70A Type C or D
	% Efficiency @ 100% FL	>95%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	400	400	400	400	400	400
	X/R Ratio	-	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core>100M Ω Primary to Secondary>100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465



Data Specification

BI Phase 650/400V

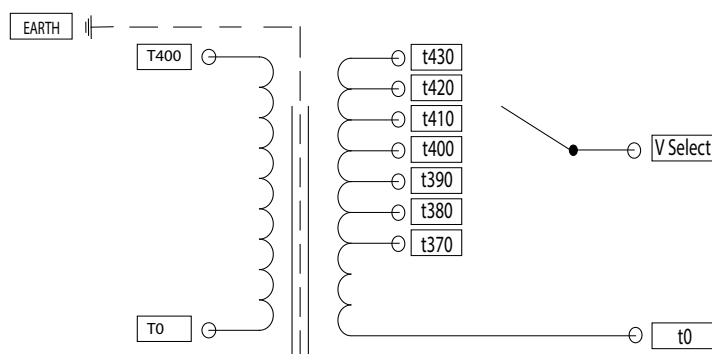
Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-8	T2912-8	T3103-8	T2913-8	T3320-8
IP56 Part Number		T3079-8-SPIP56	T2912-8-SPIP56	T3103-8-SPIP56	T2913-8-SPIP56	T3320-8-SPIP56
IP32 PAD's Number		0054/215181	0054/215182	0054/215183	0054/215184	0054/215185
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	80A Type C or D	90A Type C or D	125A Type C or D	150A Type C or D	200A Type C or D
	% Efficiency @ 100% FL	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	400	400	400	400	400
	X/R Ratio	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	%Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
iP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625



Data Specification

BI Phase 400/400V

Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-9	T2909-9	T3077-9	T2910-9	T3078-9	T2911-9
IP56 Part Number		-	T2909-9-SPIP56	T3077-9-SPIP56	T2910-9-SPIP56	T3078-9-SPIP56	T2911-9-SPIP56
IP32 PAD's Number		0054/215186	0054/215187	0054/215188	0054/215189	0054/215190	0054/215191
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Recommended protection	20A Type C or D	35A Type C or D	50A Type C or D	70A Type C or D	90A Type C or D	125A Type C or D
	% Efficiency @ 100% FL	>95%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	400	400	400	400	400	400
	Secondary Taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	X/R Ratio	-	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core>100M Ω Primary to Secondary>100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465



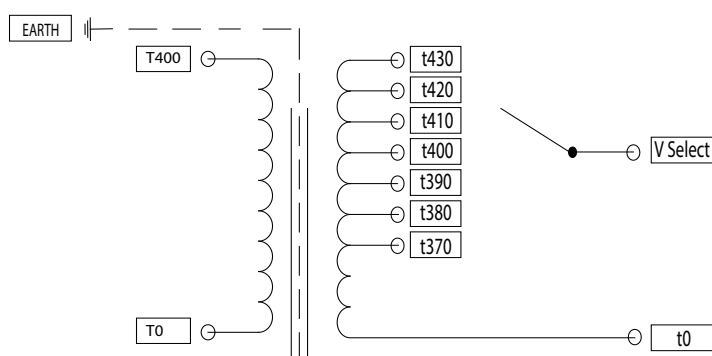
Wiring Diagram

Data Specification

BI Phase 400/400V

Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-9	T2912-9	T3103-9	T2913-9	T3320-9
IP56 Part Number		T3079-9-SPIP56	T2912-9-SPIP56	T3103-9-SPIP56	T2913-9-SPIP56	T3320-9-SPIP56
IP32 PAD's Number		0054/215192	0054/215193	0054/215194	0054/215195	0054/215196
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400
	Recommended protection	125A Type C or D	150A Type C or D	175A Type C or D	225A Type C or D	300A Type C or D
	% Efficiency @ 100% FL	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	400	400	400	400	400
	Secondary Taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	X/R Ratio	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	%Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
iP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625

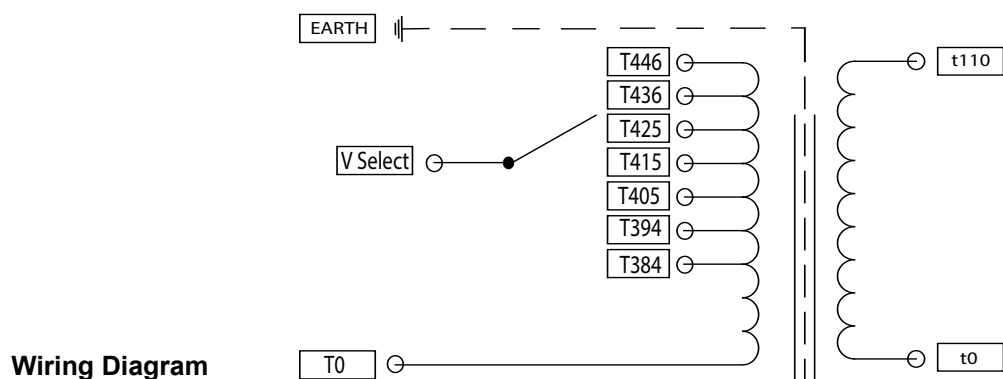
Wiring Diagram



Data Specification

BI Phase 415/110V

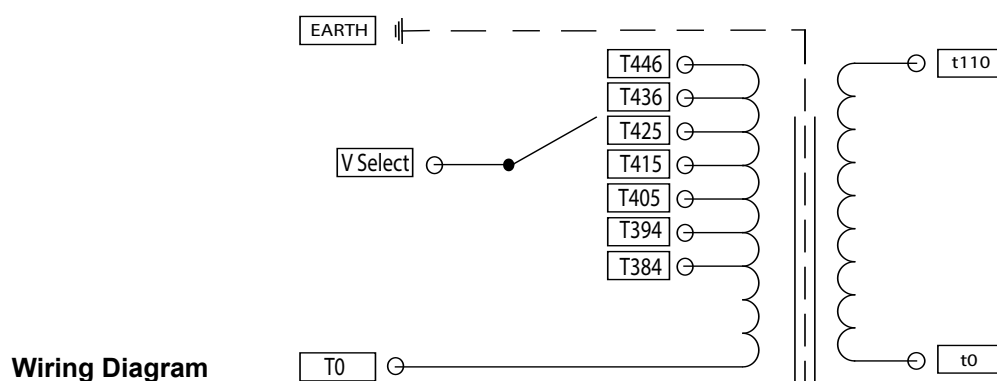
Rating		5KVA	10KVA	15KVA	20KVA	25KVA	30KVA
IP32 Part Number		T2987-10	T2909-10	T3077-10	T2910-10	T3078-10	T2911-10
IP56 Part Number		-	T2909-10-SPIP56	T3077-10-SPIP56	T2910-10-SPIP56	T3078-10-SPIP56	T2911-10-SPIP56
IP32 PAD's Number		0054/215197	0054/215198	0054/215199	0054/215200	0054/215201	0054/215202
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	415	415	415	415	415	415
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	20A Type C or D	40A Type C or D	63A Type C or D	70A Type C or D	90A Type C or D	125A Type C or D
	% Efficiency @ 100% FL	>95%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	110	110	650	110	110	110
	X/R Ratio	-	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core>100M Ω Primary to Secondary>100M Ω					
IP32 Weight (kg)		87	150	190	215	240	310
IP56 Weight (kg)		-	260	310	370	400	465



Data Specification

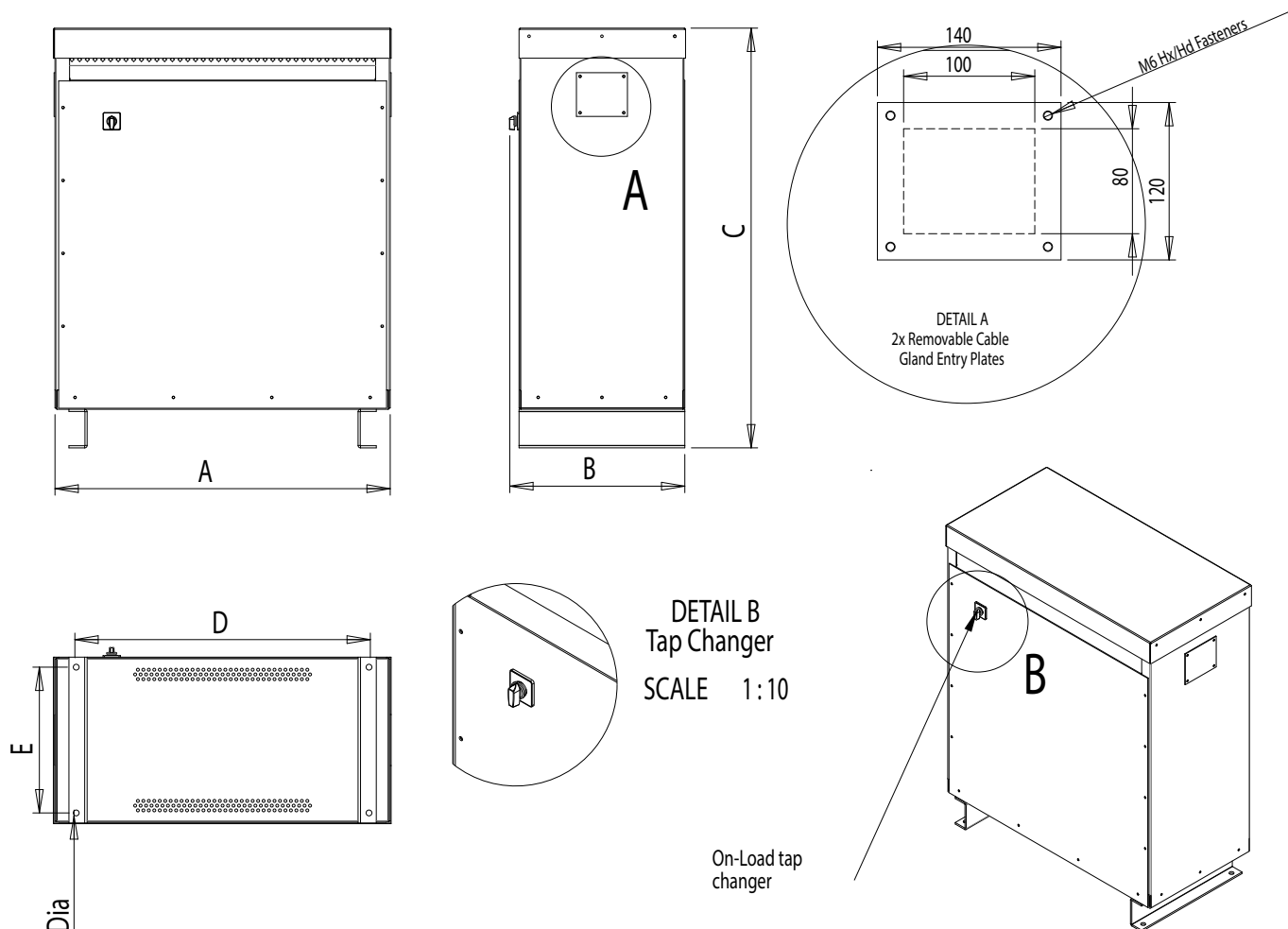
BI Phase 415/110V

Rating		35KVA	40KVA	50KVA	60KVA	80KVA
IP32 Part Number		T3079-10	T2912-10	T3103-10	T2913-10	T3320-10
IP56 Part Number		T3079-10-SPIP56	T2912-10-SPIP56	T3103-10-SPIP56	T2913-10-SPIP56	T3320-10-SPIP56
IP32 PAD's Number		0054/215203	0054/215204	0054/215205	0054/215206	0054/215207
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	415	415	415	415	415
	Primary taps	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Recommended protection	125A Type C or D	150A Type C or D	175A Type C or D	225A Type C or D	300A Type C or D
	% Efficiency @ 100% FL	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%
Output	Secondary rated voltage (V)	110	110	110	110	110
	X/R Ratio	-	-	-	-	-
	Prospective fault current (A)	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	%Regulation	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω				
iP32 Weight (kg)		310	390	450	500	555
IP56 Weight (kg)		490	500	525	545	625



General Arrangements

IP32 BI Phase



Single Phase						
Model	Dimension (mm)					
	A	B	C	D	E	Dia
5KVA	600	550	815	300	500	13**
10KVA	600	550	815	300	500	13**
15KVA	600	550	815	300	500	13**
20KVA	600	550	815	300	500	13**
25KVA	620	500	1100	450	400	16
30KVA	620	500	1100	450	400	16
35KVA	620	500	1100	450	400	16
40KVA	620	500	1100	450	400	16
50KVA	760	500	1100	530	400	16
60KVA	760	500	1100	530	400	16
80KVA	800	600	1200	600	500	16

*** Termination by way of DIN Screw Clamp or Stud terminals.**

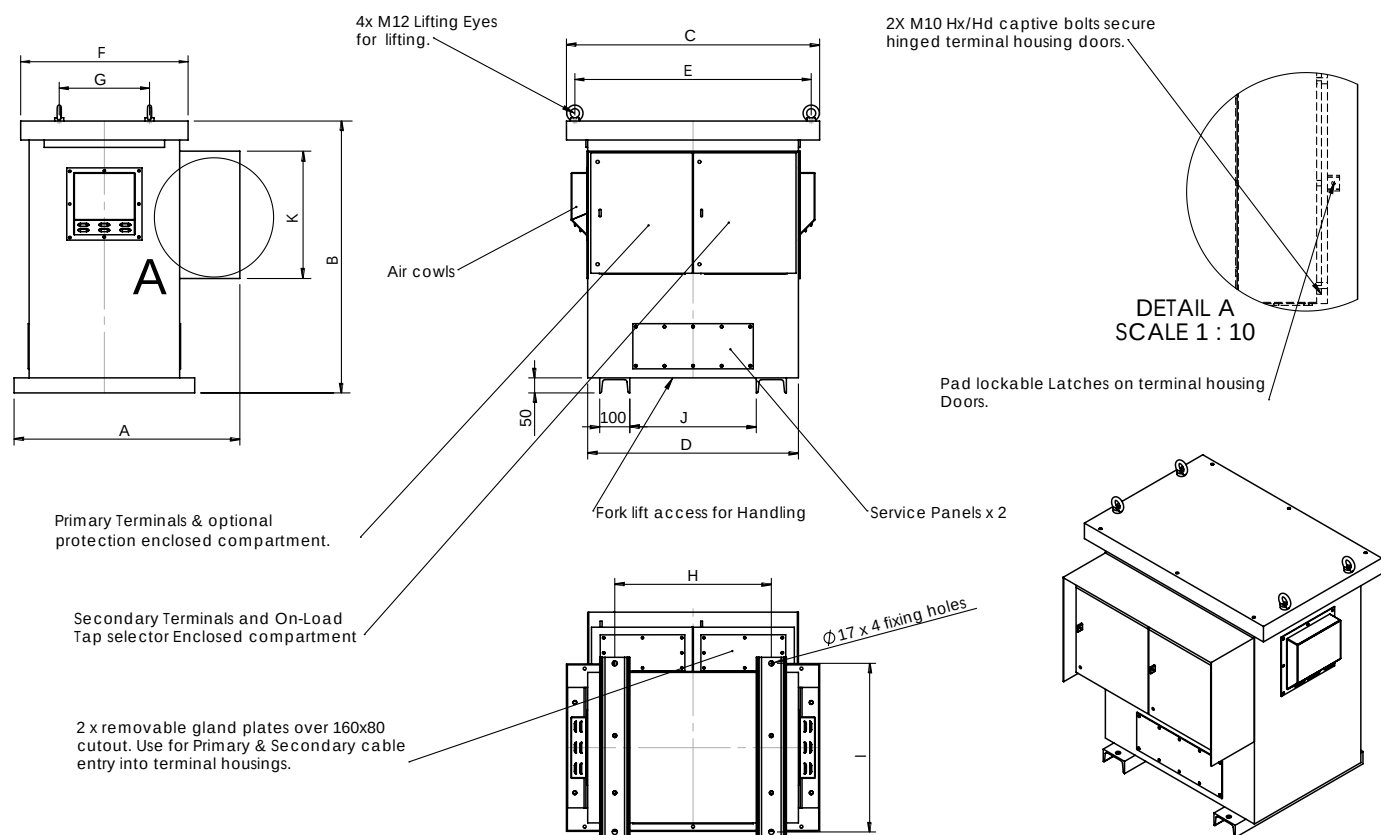
All terminals located above the transformer, accessible by removal of enclosure lid.

****Holes sizes** can be requested to be a different size on request, please ask before making Order.

Ensure that all screws are replaced when securing the transformer lid and that all terminations have been made correctly. Cables should enter via the removable gland plates either side of the enclosure body. Gland plates should be drilled away from the transformer aligned to the required incoming cable conduit.

General Arrangements

IP56 Bi Phase



Note: GA applies to all Voltage Variants on Primary and Secondary
Note: Minimum Size for Bi Phase IP56 is 10KVA

Single Phase (Bi Phase)											
Model	Dimension (mm)										
	A	B	C	D	E	F	G	H	I	J	K
10KVA	750	903	841	700	785	556	300	300	560	200	500
15KVA	750	903	841	700	785	556	300	300	560	200	500
20KVA	750	903	841	700	785	556	300	300	560	200	500
20KVA	750	903	841	700	785	556	300	300	560	200	500
30KVA	860	903	841	700	785	666	300	430	670	330	500
35KVA	860	903	841	700	785	666	300	430	670	330	500
40KVA	860	903	841	700	785	666	300	430	670	330	500
50KVA	860	1105	1041	900	985	666	500	510	670	410	500
60KVA	860	1105	1041	900	985	666	500	510	670	410	500
80KVA	1000	1205	1191	1050	1135	810	600	590	810	380	600

Note: Specifying ATL Transformers in a project? 3D Models and 2D drawings available on request ready to be placed in to your drawing or 3D assembly.

*** Termination by way of DIN Screw Clamp or Stud terminals.**
All terminals located above the transformer, accessible by removal of enclosure lid.

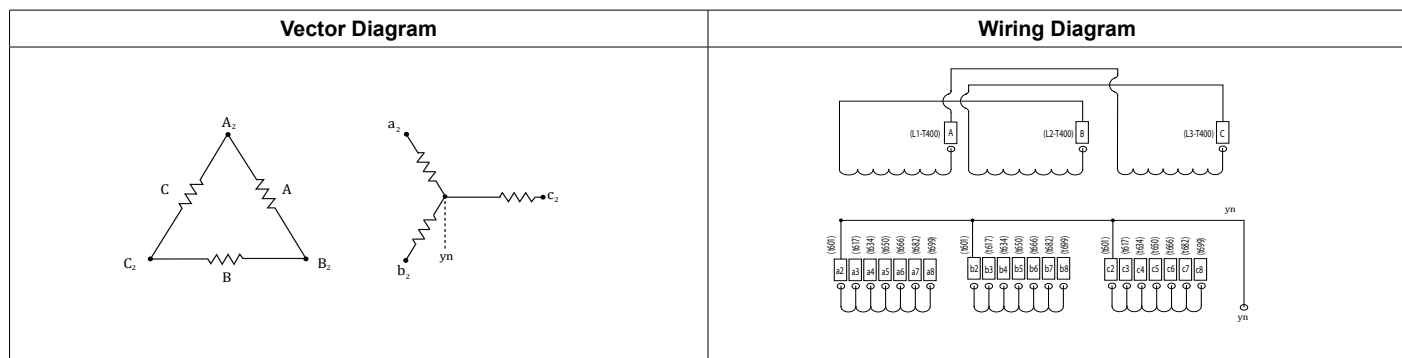
Ensure that all screws are replaced when securing the transformer lid and that all terminations have been made correctly. Cables should enter via the removable gland plates either side of the enclosure body. Gland plates should be drilled away from the transformer aligned to the required incoming cable conduit.

Data Specification

Three Phase 400/650V

Delta/Star Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T2914	T2961	T3116	T2915	T3334	T2962
IP56 Part Number		-	T2961-SPIP56	T3116-SPIP56	T2915-SPIP56	T3334-SPIP56	T2962-SPIP56
IP32 PAD's Number		0054/215074	0054/215075	0054/215076	0054/215077	0054/215078	0054/215079
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	40A Type C or D	50A Type C or D	63A Type C or D	75A Type C or D	80A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	8.3 x Flc	5.2 x Flc	5 x Flc	8.8 x Flc	4.73 x Flc	9 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	0.5	1.15	1.33	1.38	1.39	1.36
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	435	611	537	1299	1141	789
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP54 Weight (kg)		-	370	400	440	440	537

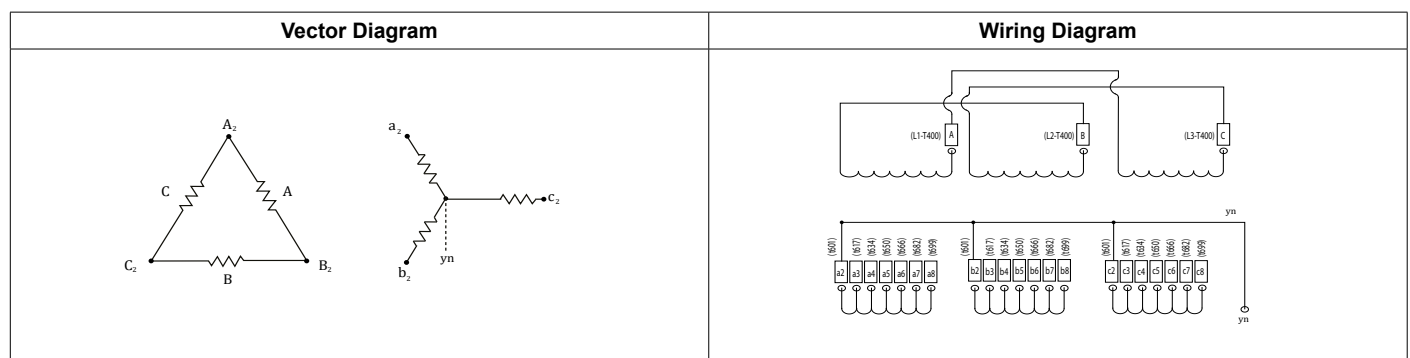


Data Specification

Three Phase 400/650V

Delta/Star Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3058	T2963	T3027	T3801	T3758	T3802	T3143
IP56 Part Number		T3058-SPIP56	T2963-SPIP56	T3027-SPIP56	T3801-SPIP56	T3758-SPIP56	T3802-SPIP56	T3143-SPIP56
IP32 PAD's Number		0054/215080	0054/215081	0054/215082	0054/215208	0054/215108	0054/215209	0054/215083
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	100A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	250A Type C or D	250A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	8.8 x Flc	9 x Flc	8 x Flc	9 x Flc	9 x Flc	9 x Flc	<8.8 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	1.13	1.48	2.25	-	-	-	3
Output	Secondary rated voltage (V)	650	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	1699	1325	1792	-	1638	-	5230
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%		<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

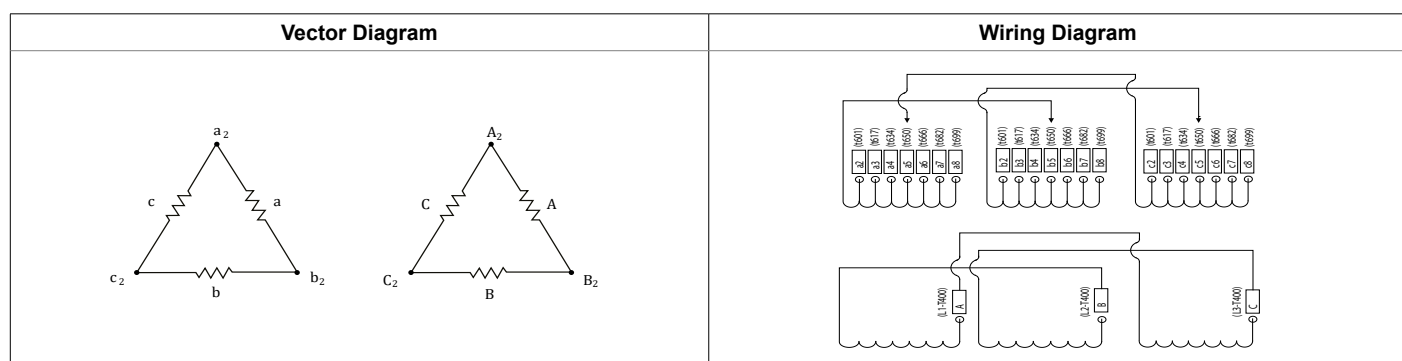


Data Specification

Three Phase 400/650V

Delta/Delta Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3699	T3700	T3701	T3702	T3719	T3703
IP56 Part Number		-	T3700-SPIP56	T3701-SPIP56	T3702-SPIP56	T3719-SPIP56	T3703-SPIP56
IP32 PAD's Number		0054/215084	0054/215085	0054/215086	0054/215087	0054/215088	0054/215089
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	40A Type C or D	50A Type C or D	63A Type C or D	75A Type C or D	80A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	5 x Flc	5x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP54 Weight (kg)		-	370	400	440	440	537

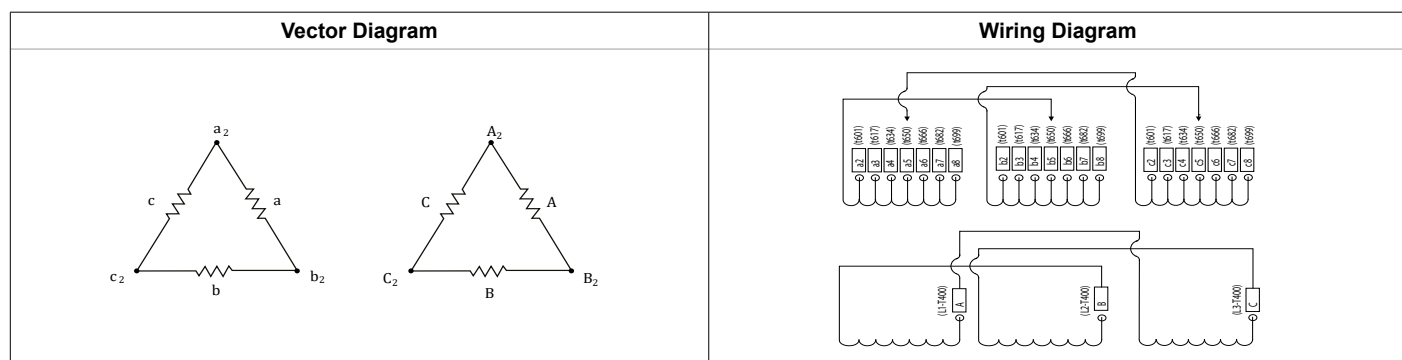


Data Specification

Three Phase 400/650V

Delta/Delta Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3704	T3705	T3706	T3803	T3722	T3804	T3707
IP56 Part Number		T3704-SPIP56	T3705-SPIP56	T3706-SPIP56	T3803-SPIP56	T3722-SPIP56	T3804-SPIP56	T3707-SPIP56
IP32 PAD's Number		0054/215090	0054/215091	0054/215092	0054/215210	0054/215109	0054/215211	0054/215093
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	100A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	250A Type C or D	250A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	9 x Flc	8.8 x Flc	9 x Flc	8 x Flc	9 x Flc	8.8 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	X/R ratio	-	-	-	-	-	-	-
	Secondary rated voltage (V)	650	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-	3378
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
Insulation Resistance (Ω)		Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

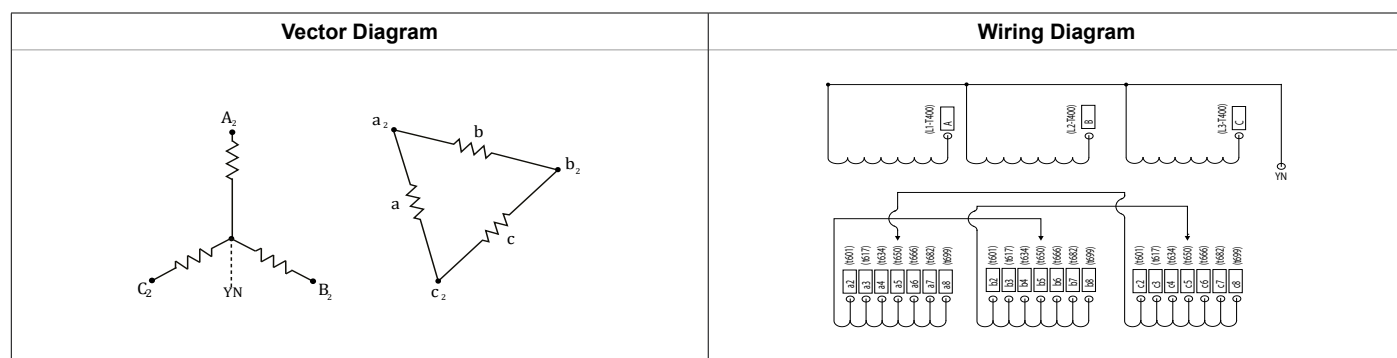


Data Specification

Three Phase 400/650V

Star/Delta Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3709	T3710	T3711	T3712	T3720	T3713
IP56 Part Number		-	T3710-SPIP56	T3711-SPIP56	T3712-SPIP56	T3720-SPIP56	T3713-SPIP56
IP32 PAD's Number		0054/215094	0054/215095	0054/215096	0054/215097	0054/215098	0054/215099
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	40A Type C or D	50A Type C or D	60A Type C or D	75A Type C or D	80A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP56 Weight (kg)		-	370	400	440	440	537

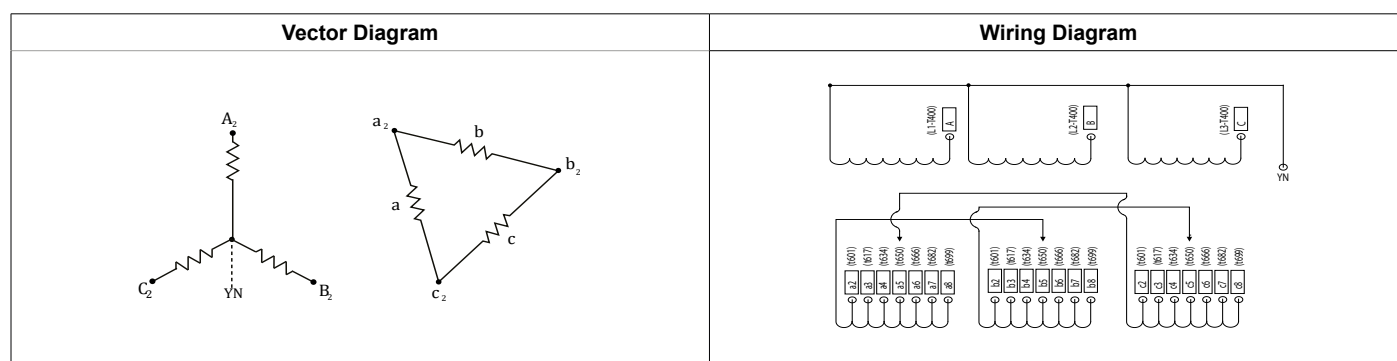


Data Specification

Three Phase 400/650V

Star/Delta Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3714	T3715	T3716	T3805	T3650	T3806	T3717
IP56 Part Number		T3714-SPIP56	T3715-SPIP56	T3716-SPIP56	T3805-SPIP56	T3650-SPIP56	T3806-SPIP56	T3717-SPIP56
IP32 PAD's Number		0054/215100	0054/215101	0054/215102	0054/215212	0054/215110	0054/215213	0054/215103
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	100A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	250A Type C or D	250A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	9 x Flc	8 x Flc	9 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	1324	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

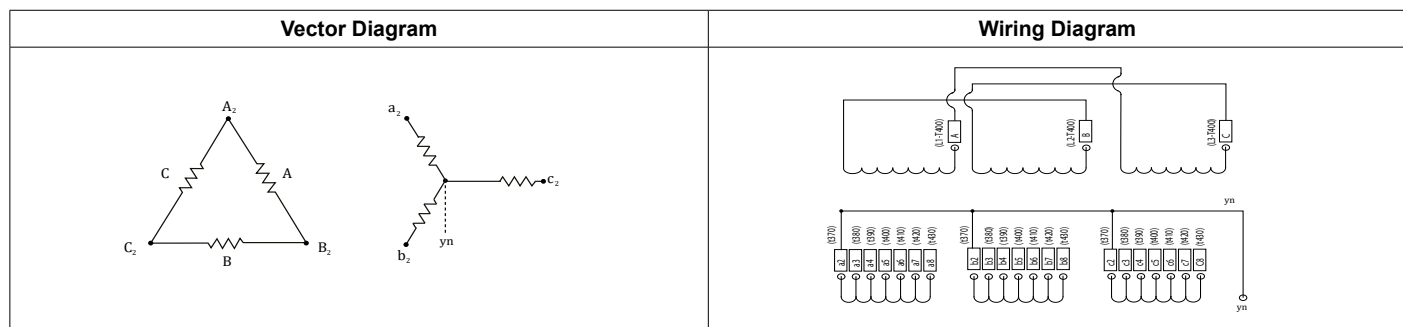


Data Specification

Three Phase 400/400V

Delta/Star Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3821	T3822	T3823	T3824	T3825	T3826
IP56 Part Number		-	T3822-SPIP56	T3823-SPIP56	T3824-SPIP56	T3825-SPIP56	T3826-SPIP56
IP32 PAD's Number		0054/215214	0054/215215	0054/215216	0054/215217	0054/215218	0054/215219
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	40A Type C or D	50A Type C or D	63A Type C or D	75A Type C or D	80A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	400	400	400	400	400	400
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5, 5, 7.5%	+/- 2.5, 5, 7.5%	+/- 2.5, 5, 7.5%	+/- 2.5, 5, 7.5%	+/- 2.5, 5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP54 Weight (kg)		-	370	400	440	440	537

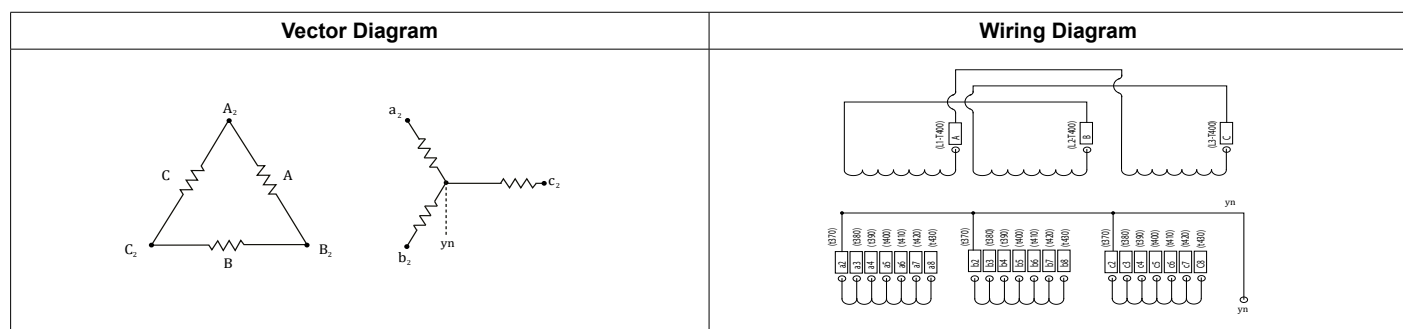


Data Specification

Three Phase 400/400V

Delta/Star Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3827	T3828	T3829	T3830	T3831	T3832	T3833
IP56 Part Number		T3827-SPIP56	T3828-SPIP56	T3829-SPIP56	T3830-SPIP56	T3831-SPIP56	T3832-SPIP56	T3833-SPIP56
IP32 PAD's Number		0054/215220	0054/215221	0054/215222	0054/215223	0054/215224	0054/215225	0054/215226
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	100A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	250A Type C or D	250A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	--	-	-	-	-	3
Output	Secondary rated voltage (V)	400	400	400	400	400	400	400
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

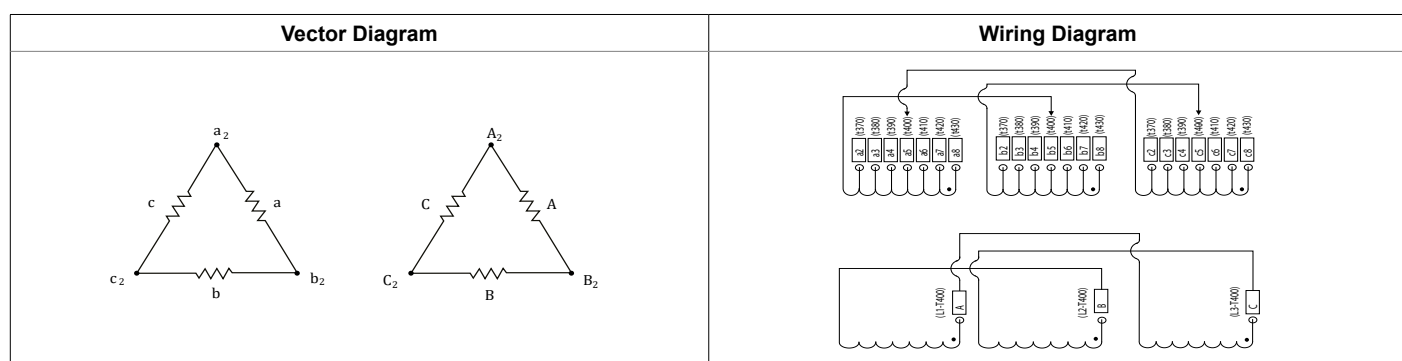


Data Specification

Three Phase 400/400V

Delta/Delta Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3834	T3835	T3836	T3837	T3838	T3839
IP56 Part Number		-	T3835-SPIP56	T3836-SPIP56	T3837-SPIP56	T3838-SPIP56	T3839-SPIP56
IP32 PAD's Number		0054/215227	0054/215228	0054/215229	0054/215230	0054/215231	0054/215232
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	40A Type C or D	50A Type C or D	63A Type C or D	75A Type C or D	80A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	400	400	400	400	400	400
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP54 Weight (kg)		-	370	400	440	440	537

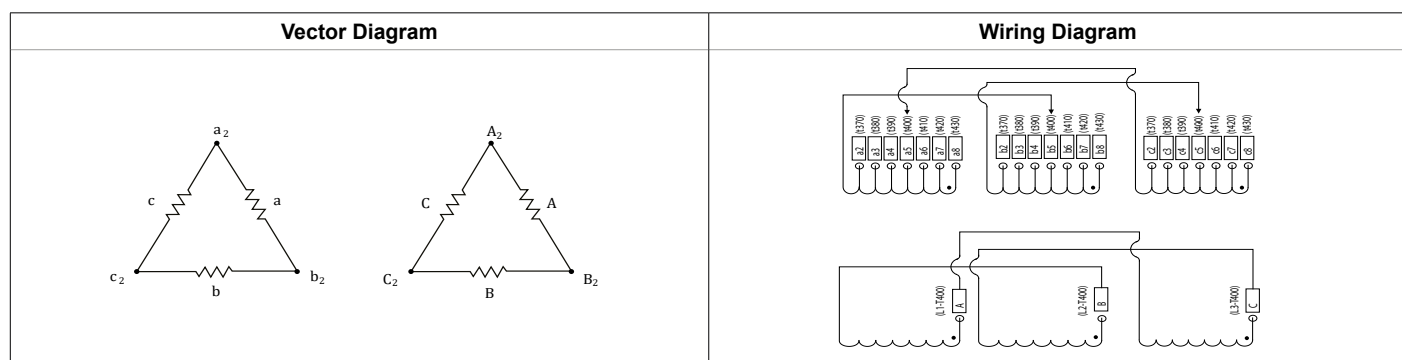


Data Specification

Three Phase 400/400V

Delta/Delta Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3840	T3841	T3842	T3843	T3844	T3845	T3846
IP56 Part Number		T3840-SPIP56	T3841-SPIP56	T3842-SPIP56	T3843-SPIP56	T3844-SPIP56	T3845-SPIP56	T3846-SPIP56
IP32 PAD's Number		0054/215233	0054/215234	0054/215235	0054/215236	0054/215237	0054/215238	0054/215239
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	100A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	250A Type C or D	250A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	9 x Flc	8.8 x Flc	9 x Flc	8 x Flc	9 x Flc	8.8 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	X/R ratio	-	-	-	-	-	-	-
	Secondary rated voltage (V)	400	400	400	400	400	400	400
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
Insulation Resistance (Ω)		Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

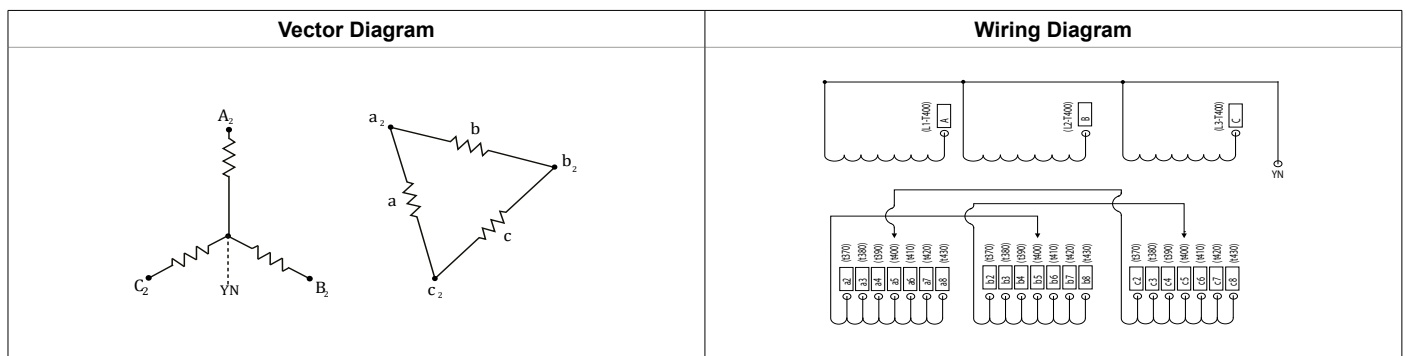


Data Specification

Three Phase 400/400V

Star/Delta Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3847	T3848	T3849	T3850	T3851	T3852
IP56 Part Number		-	T3848-SPIP56	T3849-SPIP56	T3850-SPIP56	T3851-SPIP56	T3852-SPIP56
IP32 PAD's Number		0054/215240	0054/215241	0054/215242	0054/215243	0054/215244	0054/215245
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	40A Type C or D	50A Type C or D	60A Type C or D	75A Type C or D	80A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	400	400	400	400	400	400
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP56 Weight (kg)		-	370	400	440	440	537

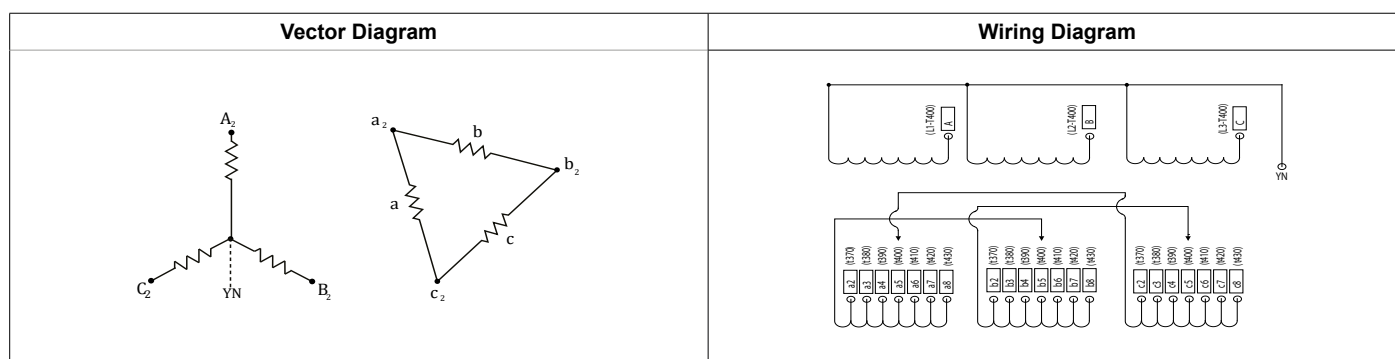


Data Specification

Three Phase 400/400V

Star/Delta Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3853	T3854	T3855	T3856	T3857	T3858	T3859
IP56 Part Number		T3853-SPIP56	T3854-SPIP56	T3855-SPIP56	T3856-SPIP56	T3857-SPIP56	T3858-SPIP56	T3859-SPIP56
IP32 PAD's Number		0054/215246	0054/215247	0054/215248	0054/215249	0054/215250	0054/215251	0054/215252
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400	400	400	400	400	400	400
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	100A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	250A Type C or D	250A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	9 x Flc	8 x Flc	9 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-	-
Output	Secondary rated voltage (V)	400	400	400	400	400	400	400
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

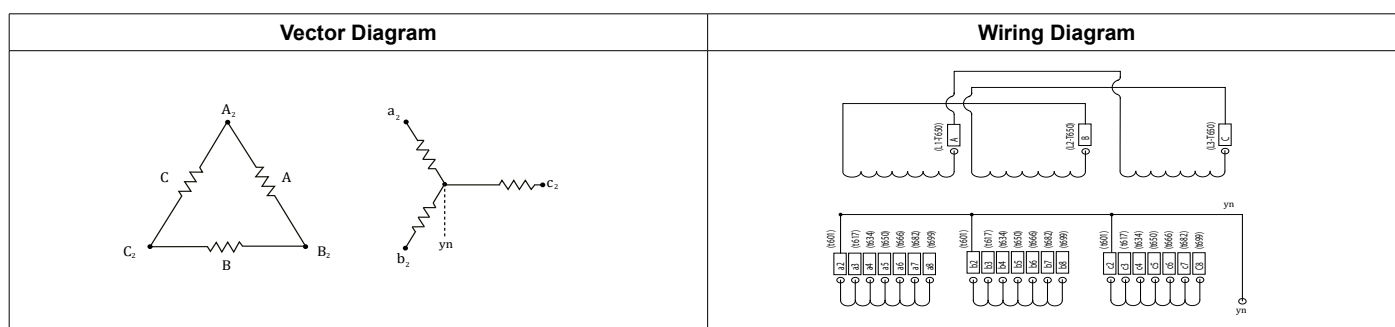


Data Specification

Three Phase 650/650V

Delta/Star Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3860	T3861	T3862	T3863	T3864	T3865
IP56 Part Number		-	T3861-SPIP56	T3862-SPIP56	T3863-SPIP56	T3864-SPIP56	T3865-SPIP56
IP32 PAD's Number		0054/215253	0054/215254	0054/215255	0054/215256	0054/215257	0054/215258
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400V	400V	400V	400V	400V	400V
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	25A Type C or D	35A Type C or D	40A Type C or D	50A Type C or D	50A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP54 Weight (kg)		-	370	400	440	440	537

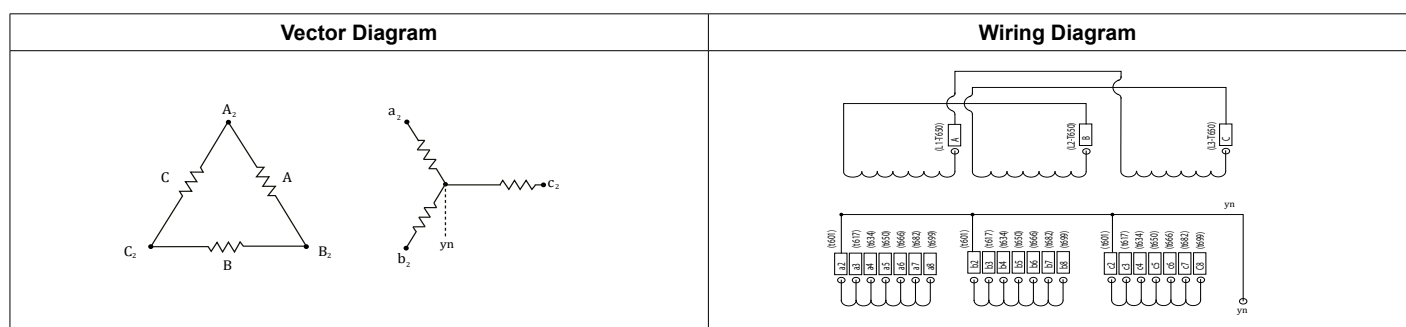


Data Specification

Three Phase 650/650V

Delta/Star Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3866	T3867	T3868	T3869	T3870	T3871	T3873
IP56 Part Number		T3866-SPIP56	T3867-SPIP56	T3868-SPIP56	T3869-SPIP56	T3870-SPIP56	T3871-SPIP56	T3873-SPIP56
IP32 PAD's Number		0054/215259	0054/215260	0054/215261	0054/215262	0054/215263	0054/215264	0054/215265
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400V	400V	400V	400V	400V	400V	400V
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	100A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	250A Type C or D	250A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	--	-	-	-	-	3
Output	Secondary rated voltage (V)	650	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

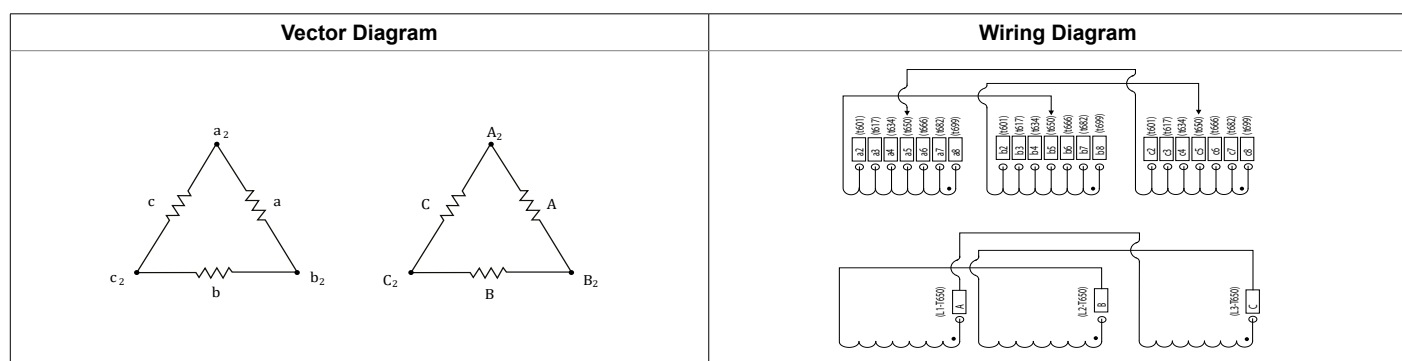


Data Specification

Three Phase 650/650V

Delta/Delta Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3874	T3875	T3876	T3877	T3878	T3879
IP56 Part Number		-	T3875-SPIP56	T3876-SPIP56	T3877-SPIP56	T3878-SPIP56	T3879-SPIP56
IP32 PAD's Number		0054/215266	0054/215267	0054/215268	0054/215269	0054/215270	0054/215271
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	25A Type C or D	35A Type C or D	40A Type C or D	50A Type C or D	50A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP54 Weight (kg)		-	370	400	440	440	537

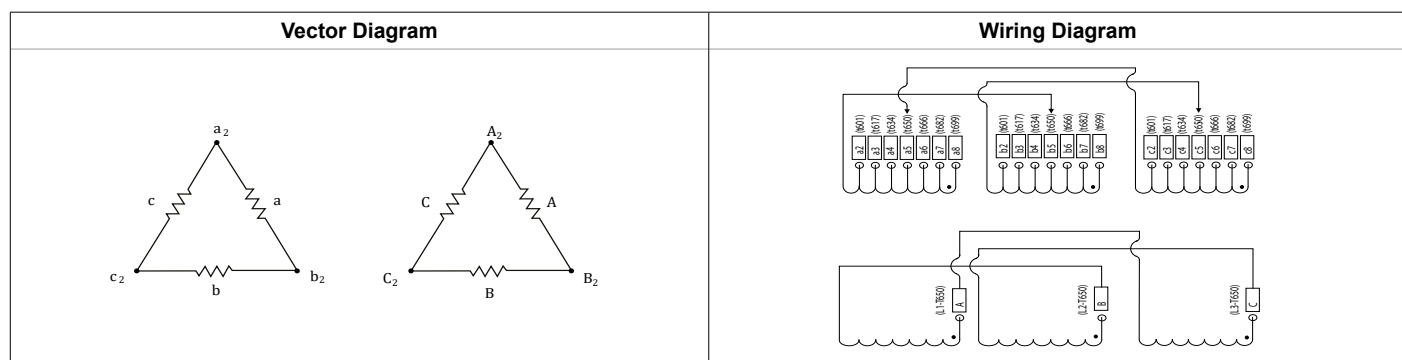


Data Specification

Three Phase 650/650V

Delta/Delta Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3880	T3881	T3882	T3883	T3884	T3885	T3886
IP56 Part Number		T3880-SPIP56	T3881-SPIP56	T3882-SPIP56	T3883-SPIP56	T3884-SPIP56	T3885-SPIP56	T3886-SPIP56
IP32 PAD's Number		0054/215272	0054/215273	0054/215274	0054/215275	0054/215276	0054/215277	0054/215278
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650	650
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	63A Type C or D	75A Type C or D	100A Type C or D	125A Type C or D	125A Type C or D	150A Type C or D	150A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
Output	X/R ratio	-	-	-	-	-	-	3.0
	Secondary rated voltage (V)	650	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
Insulation Resistance (Ω)		Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980

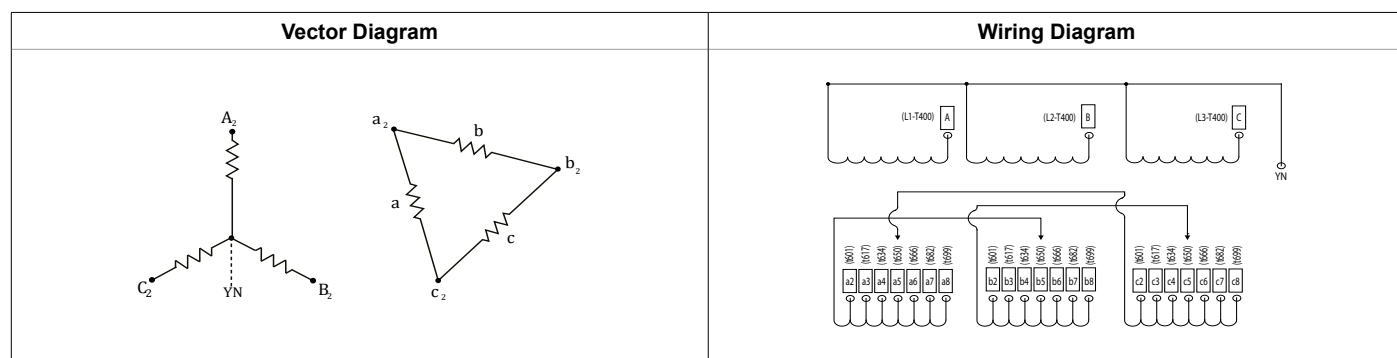


Data Specification

Three Phase 650/650V

Star/Delta Vector Group

Rating		10KVA	20KVA	25KVA	30KVA	35KVA	40KVA
IP32 Part Number		T3887	T3888	T3889	T3890	T3891	T3892
IP56 Part Number		-	T3888-SPIP56	T3889-SPIP56	T3890-SPIP56	T3891-SPIP56	T3892-SPIP56
IP32 PAD's Number		0054/215279	0054/215280	0054/215281	0054/215282	0054/215283	0054/215284
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650
	Primary taps	-	-	-	-	-	-
	Recommended protection	20A Type C or D	25A Type C or D	35A Type C or D	40A Type C or D	50A Type C or D	50A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650	650
	Secondary taps	+/- 2.5, 5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω					
IP32 Weight (kg)		180	280	295	310	330	340
IP56 Weight (kg)		-	370	400	440	440	537

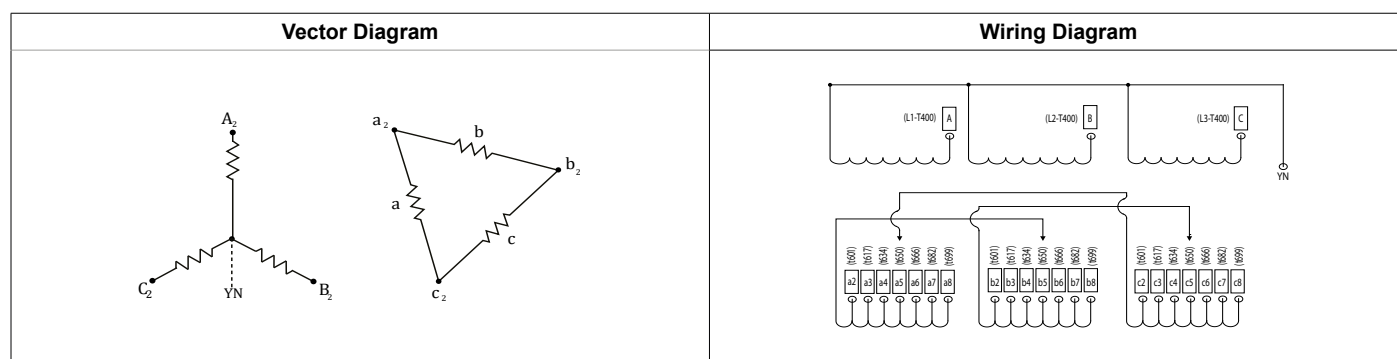


Data Specification

Three Phase 650/650V

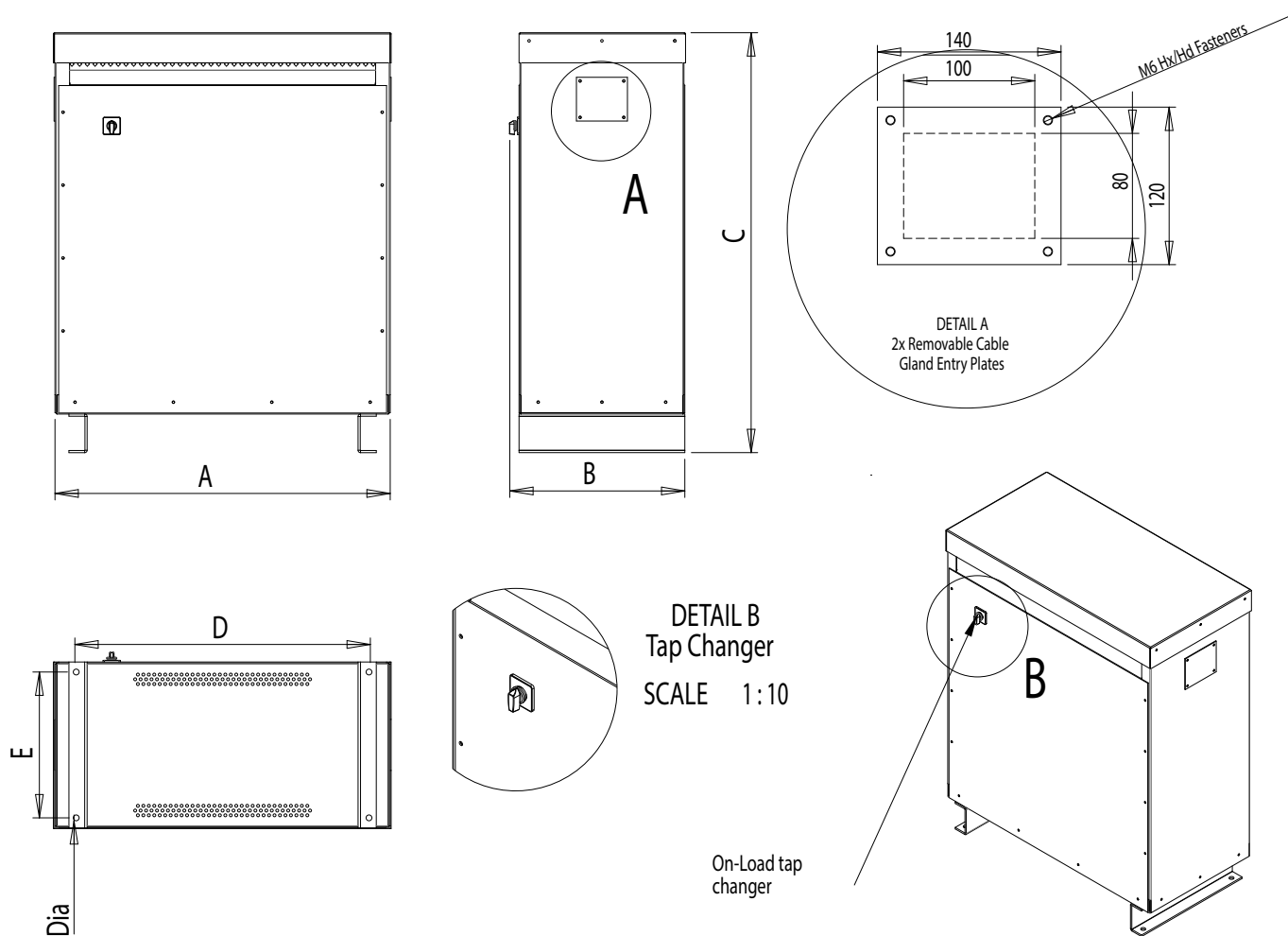
Star/Delta Vector Group

Rating		50KVA	60KVA	80KVA	90KVA	100KVA	110KVA	120KVA
IP32 Part Number		T3893	T3894	T3895	T3896	T3897	T3898	T3899
IP56 Part Number		T3893-SPIP56	T3894-SPIP56	T3895-SPIP56	T3896-SPIP56	T3897-SPIP56	T3898-SPIP56	T3899-SPIP56
IP32 PAD's Number		0054/215285	0054/215286	0054/215287	0054/215288	0054/215289	0054/215290	0054/215291
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650	650
	Primary taps	-	-	-	-	-	-	-
	Recommended protection	63A Type C or D	75A Type C or D	100A Type C or D	125A Type C or D	125A Type C or D	150A Type C or D	150A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%
	Inrush (x times rated current)	<10 x Flc	<10 x Flc	<10 x Flc	9 x Flc	8 x Flc	9 x Flc	<10 x Flc
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650	650	650
	Secondary taps	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%	+/- 2.5,5, 7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-
	Duration of prospective fault current	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds	>4 Seconds
	% Regulation	<3%	<3%	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω						
IP32 Weight (kg)		450	500	690	725	780	820	850
IP54 Weight (kg)		617	677	757	795	889	935	980



General Arrangements

IP32 Three Phase



Three Phase						
Model	Dimension (mm)					
	A	B	C	D	E	Dia
10KVA	625	450	615	400	450	16
20KVA	760	550	1100	575	400	16
25KVA	760	550	1100	575	400	16
30KVA	760	550	1100	575	400	16
35KVA	760	550	1100	575	400	16
40KVA	920	600	1200	675	400	16
50KVA	920	600	1200	810	455	16
60KVA	920	600	1200	810	455	16
80KVA	920	600	1200	810	455	16
90KVA	920	600	1200	810	455	16
100KVA	920	600	1200	810	455	16
110KVA	920	600	1200	810	455	16
120KVA	920	600	1200	810	455	16

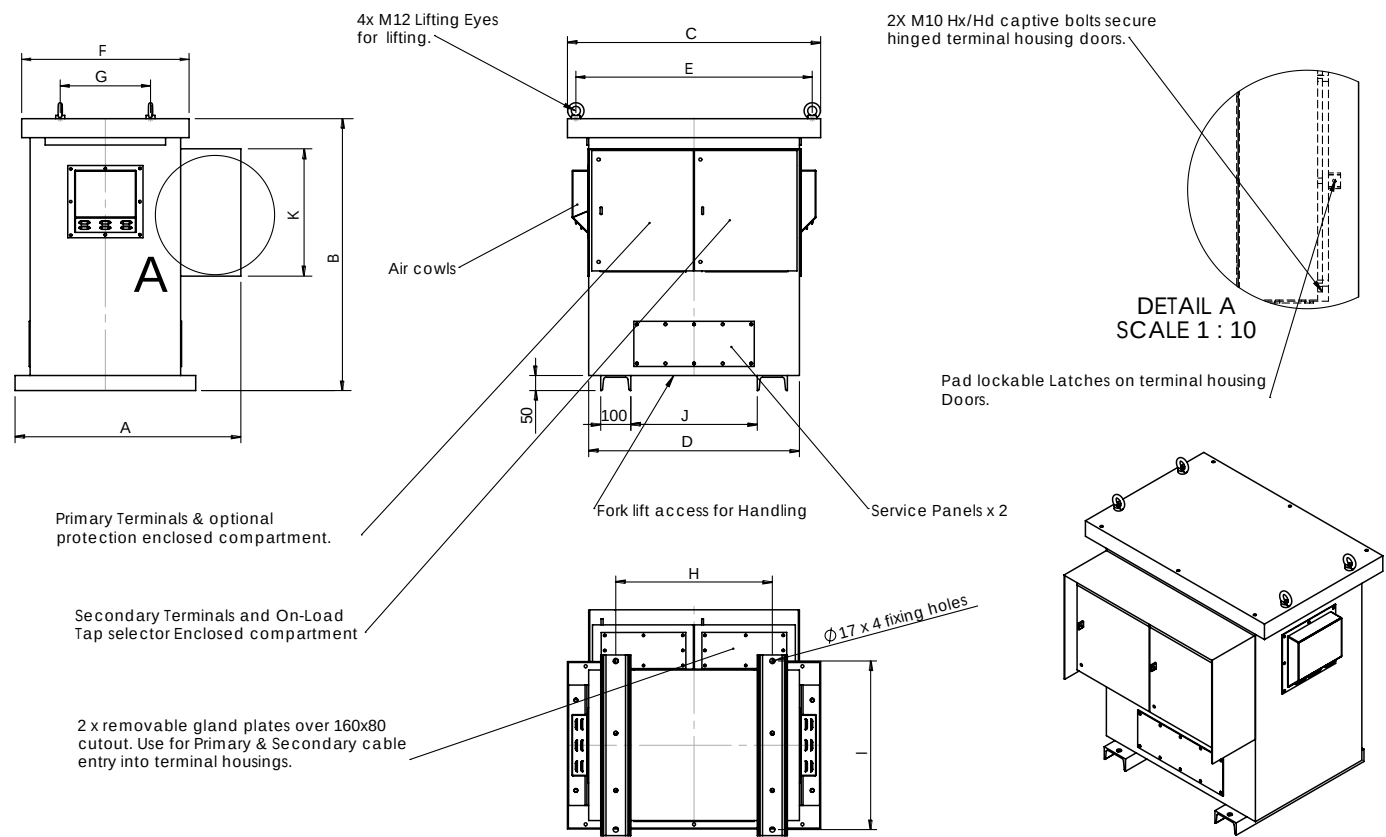
* Termination by way of DIN Screw Clamp or Stud terminals.

All terminals located above the transformer, accessible by removal of enclosure lid.

Ensure that all screws are replaced when securing the transformer lid and that all terminations have been made correctly. Cables should enter via the removable gland plates either side of the enclosure body. Gland plates should be drilled away from the transformer aligned to the required incoming cable conduit.

General Arrangements

IP56 Three Phase



Note: GA applies to all Voltage Variants on Primary and Secondary
Note: Minimum Size for 3ph IP56 is 20KVA

Three Phase											
Model	Dimension (mm)										
	A	B	C	D	E	F	G	H	I	J	K
20KVA	875	1100	997	850	940	700	350	560	740	460	600
25KVA	875	1100	997	850	940	700	350	560	740	460	600
30KVA	875	1100	997	850	940	700	350	560	740	460	600
35KVA	875	1100	997	850	940	700	350	560	740	460	600
40KVA	1075	1200	1197	1050	1136	800	450	680	890	530	650
50KVA	1075	1200	1197	1050	1136	901	450	800	890	650	650
60KVA	1105	1200	1197	1050	1136	901	450	800	890	650	650
80KVA	1105	1200	1197	1050	1136	901	450	800	890	650	650
90KVA	1105	1200	1197	1050	1136	901	450	800	890	650	650
100KVA	1255	1255	1391	1250	1335	901	450	920	890	770	670
110KVA	1255	1255	1391	1250	1335	901	450	920	890	770	670
120KVA	1255	1255	1391	1250	1335	901	450	920	890	770	670

Note: Specifying ATL Transformers in a project? 3D Models and 2D drawings available on request ready to be placed in to your drawing or 3D assembly.

*** Termination by way of DIN Screw Clamp or Stud terminals.**
All terminals located above the transformer, accessible by removal of enclosure lid.

Ensure that all screws are replaced when securing the transformer lid and that all terminations have been made correctly. Cables should enter via the removable gland plates either side of the enclosure body. Gland plates should be drilled away from the transformer aligned to the required incoming cable conduit.

Certificate of Acceptance

PA05/07022

Manufacturer:
ATL Transformers Ltd

Issue : 5
Valid From : 13/09/2023
Review Date : 30/04/2026

ATL Indoor PSP/ASP Power Transformers

Product Description

Range of high efficiency, Aluminium wound, Class I signalling power transformers.

For use in signalling power, PSP/ASP applications.

Transformer range comprises:

5 to 80kVA single phase (BI-Phase) including voltage variants:

- 400/650V AC
- 230/650V AC
- 650/650V AC
- 400/230V AC
- 650/230V AC

5 to 120kVA three phase, 400/650V AC variants with the following vector groups:

- Delta/Star
- Delta/Delta
- Star/Delta

Product Image



Scope of Acceptance

Full Acceptance

Range of Class I, IP32 indoor rated signalling power transformers. The range includes both single phase (BI-Phase) and three phase variants manufactured in accordance with IEC 60076 enhanced with relevant clauses from BR924A and NR/L2/SIGELP/30007.

Designed for operation in ambient environments -20°C to +60°C for use in buildings (indoors) only.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.

Authorised by:

Reviewed by:



Aamir Malik
Product Acceptance Coordinator



Felix Langley
Network Technical Head of Power Distribution HV/LV

Please contact prodacc@networkrail.co.uk

Network Rail Infrastructure Ltd Registered Office Waterloo General Offices, London SE1 8SW. Registered in England and Wales No. 2904587 www.networkrail.co.uk
Version 8.0 April 2023.

Certificate of Acceptance

PA05/07022

Manufacturer:
ATL Transformers Ltd

Issue : 5
Valid From : 13/09/2023
Review Date : 30/04/2026

Specific Conditions

The following Conditions are specific to the approved product/s contained within this Certificate. These conditions must be adhered to in addition to the Network Rail General Conditions contained within the "General Terms and Conditions" section.

Failure to adhere to these conditions may result in the withdrawal or suspension of Acceptance of some, or all of the items contained within the accepted configuration.

Manufacturer

1)	As per the scope of acceptance of this certificate.
2)	O&M Manuals to be provided with each installation.
3)	Manufactured in accordance with IEC 60076 and enhanced with clauses BR924A and NR/L2/SIGELP/30007.
4)	Transformer assemblies detailed on this certificate shall be tested in accordance with Factory Test Specification Doc Ref: QF51.
5)	Test records will be retained for auditing purposes.
6)	The manufacturer will retain Certificates of Conformity to EN AW-1370(AA1370 equivalent) of all aluminium winding wire used in the construction of transformer detailed within this certificate.

User

1)	As per the scope of acceptance of this certificate.
2)	The equipment shall be installed and operated in accordance with the manufacturer's documentation.
3)	No spare parts shall be offered for any product detailed within this certificate.
4)	Only for use within buildings, equipment operating environment -20°C to +60°C.

Product Configuration

System or Complete Assembly

Part No.	Description	Catalogue No.
T2987	5kVA single phase 400/650V Signalling Power Transformer	0054/215008
T2909	10kVA single phase 400/650V Signalling Power Transformer	0054/215009
T3077	15kVA single phase 400/650V Signalling Power Transformer	0054/215010
T2910	20kVA single phase 400/650V Signalling Power Transformer	0054/215011
T3078	25kVA single phase 400/650V Signalling Power Transformer	0054/215012
T2911	30kVA single phase 400/650V Signalling Power Transformer	0054/215013
T3079	35kVA single phase 400/650V Signalling Power Transformer	0054/215014
T2912	40kVA single phase 400/650V Signalling Power Transformer	0054/215015
T3103	50kVA single phase 400/650V Signalling Power Transformer	0054/215016
T2913	60kVA single phase 400/650V Signalling Power Transformer	0054/215017
T3320	80kVA single phase 400/650V Signalling Power Transformer	0054/215018
T2987-1	5kVA single phase 230/650V Signalling Power Transformer	0054/215019
T2909-1	10kVA single phase 230/650V Signalling Power Transformer	0054/215020
T3077-1	15kVA single phase 230/650V Signalling Power Transformer	0054/215021
T2910-1	20kVA single phase 230/650V Signalling Power Transformer	0054/215022
T3078-1	25kVA single phase 230/650V Signalling Power Transformer	0054/215023
T2911-1	30kVA single phase 230/650V Signalling Power Transformer	0054/215024
T3079-1	35kVA single phase 230/650V Signalling Power Transformer	0054/215025
T2912-1	40kVA single phase 230/650V Signalling Power Transformer	0054/215026
T3103-1	50kVA Single phase 230/650V Signalling Power Transformer	0054/215027

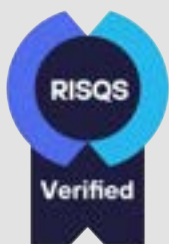


Network Rail Accepted
Product: PA05/06592

DATASHEET BROCHURE

DITA Transformers

- Class II DITA transformers with single or dual output windings up to 40kVA



The DITA (Distribution Interface Transformer Assembly) is an unprecedented New generation of full Class II power transformers. The range is available in different model sizes from 5kVA-40KVA and all are aluminium wound making the range lightweight and cost effective in comparison to those which are copper.



Class II DITA

ATL Transformers, the leading manufacturer of innovative transformer solutions on the railways have launched a Distribution Interface transformer range for the new DITA schemes. This range is an unprecedented New generation of full Class II power transformers that exceed the minimum requirements of Network Rail specifications with game changing benefits. Utilizing ATL's on board eco-rail® technology which is fast becoming the preferred solution on the railways this pioneering DITA range of transformers deliver the lightest, most compact and environmentally friendly solution available to the market today. This range have been developed with Network Rail and deployed to support DITA and other key strategic improvement schemes such as Copper Elimination, Inrush reduction and sustainability charter targets to reduce carbon emissions throughout the network.



KEY FEATURES

- ATL's DITA range offer seamless integration and tested/proven thermal rise compatibility with NWR standard apparatus housings and associated equipment.
- The ability to reset or Boost various distribution voltages.
- Galvanic Isolation and capacitance decoupling of feeder circuits.
- Facilitate Class I legacy to Class II feeder integration.
- Inrush characteristics across the whole range of less than 5 times Full load system current.
- A stable of single and dual output multi voltage configurations for multi-regional UK distribution voltages.
- ATL's Lightweight aluminium windings and connection technology eradicate the use of expensive and fast exhausting copper reserves to support sustainability.
- Unmatched efficiency delivering enhanced asset life in excess of 400,000 hrs continuous operation.
- The safest transformer solution available for Class II schemes.

Single Output

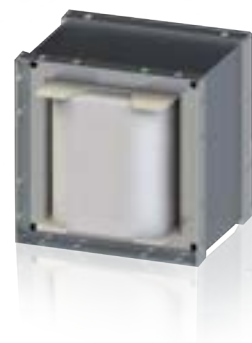


Dual Output



Fully Class II

Full Class II designation prevents the need for expensive earthing surveys and bonding where adopted.



Lightweight Aluminium

ATL's DITA range all use lightweight aluminium windings and connection technology. making it more cost effective than traditional copper windings.

DITA

Transformers

Principle System Applications



Image courtesy of ILECSYS Rail

- Segregation between Class I & Class II installation to preserve integrity of a Class II based feeder when interfaced with a Class I feeder.
- Segregation between feeders and spurs or branches to divide a signalling power system feeder into sections, particularly long feeders or those having multiple spurs or branches
- To step up or reset system voltages.
- First fault current reduction
- To minimise the flow of stray traction current between different railway traction system designs

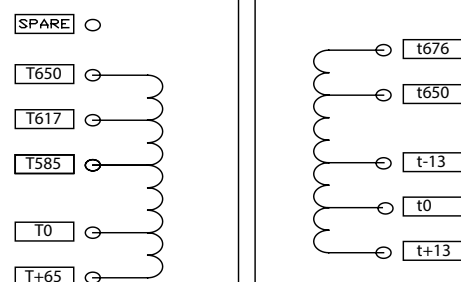


Data Specification

Single Output 650/650V

Model		5KVA	10KVA	15KVA	20KVA	30KVA	40KVA
Part Reference		T3258	T3259	T3260	T3257	T3278	T3275
PAD's Number		0086/011903	0086/011905	0086/011906	-	-	0086/011907
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (VAC)	650	650	650	650	650	650
	Primary taps (VAC)	65-0-585-617- 650	65-0-585-617- 650	65-0-585-617- 650	65-0-585-617- 650	65-0-585-617- 650	65-0-585-617- 650
	Recommended Primary protection	16A BS88 & IEC 60269-1&2	25A BS88 & IEC 60269-1&2	32A BS88 & IEC 60269-1&2	45A BS88 & IEC 60269-1&2	63A BS88 & IEC 60269-1&2	100A BS88 & IEC 60269-1&2
	% efficiency	>97	>97	>97	>97	>97	>97
	Inrush (x times rated current)	< 5	< 5	< 5	< 5	< 5	< 5
	I ² t (Transformer)	< 14.79	< 59.17	< 133	< 236	< 532	< 946
	% impedance	< 5	< 5	< 5	< 5	< 5	< 5
	X/R ratio	1.14	0.64	1.05	1.1	1.66	1.52
Output	Secondary rated voltage (VAC)	650	650	650	650	650	650
	Secondary taps (VAC)	13-0-13- 650 -676	13-0-13- 650 -676	13-0-13- 650 -676	13-0-13- 650 -676	13-0-13- 650 -676	13-0-13- 650 -676
	Rating	5KVA	10KVA	15KVA	20KVA	30KVA	40KVA
	Prospective fault current (A)	581	532	771	1141	1809	3270
	Duration of prospective fault current (secs)	> 2	> 2	> 2	> 2	> 2	> 2
	% Regulation	< 3	< 3	< 3	< 3	< 3	< 3
	Insulation Resiatance (Ω)	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Weight (kg)		93	150	195	253	308	370

DOUBLE INSULATED 



Wiring Diagram

Details for Other Voltage Variants

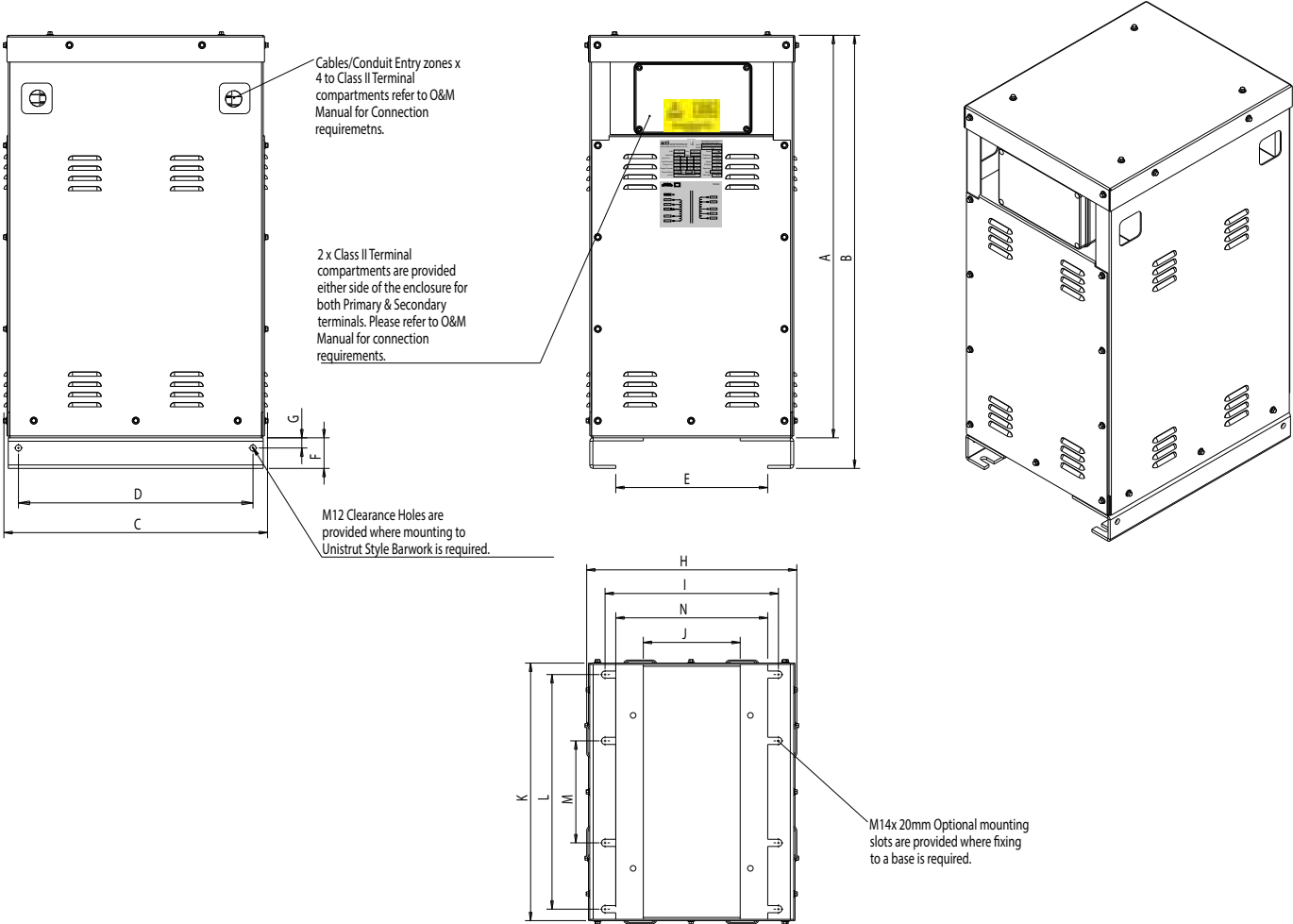
- **650V/650V Dual Output Available**
5KVA, 10KVA, 15KVA, 20KVA, 30KVA & 40KVA
- **230V/230V Single Output Available**
5KVA, 10KVA, 15KVA, 20KVA, 30KVA & 40KVA
- **230V/230V Dual Output Available**
5KVA, 10KVA, 15KVA, 20KVA, 30KVA & 40KVA
- **400V/400V Single Output Available**
5KVA, 10KVA, 15KVA, 20KVA, 30KVA & 40KVA
- **400V/400V Dual Output Available**
5KVA, 10KVA, 15KVA, 20KVA, 30KVA & 40KVA



Distribution Interface Transformer Assembly (DITA)

General Arrangements

5-40KVA DITA



M14x 20mm Optional mounting slots are provided where fixing to a base is required.

Model	Dimension (mm)													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
5KVA	479	539	519	460	298	60	20	412	354	160	505	460	200	298
10KVA	689	749	519	460	298	60	20	412	340	190	505	460	200	298
15KVA	789	849	519	460	298	60	20	412	340	190	505	460	200	298
20KVA	789	849	519	460	298	60	20	412	340	190	505	460	200	298
30KVA	994	1055	519	460	594	60	20	712	636	307	505	460	200	594
40KVA														

Certificate of Acceptance

PA05/06592

Manufacturer:
ATL Transformers Ltd

Issue : 2
Valid From : 10-05-2019

Distribution Interface Transformer

Product Description

Distribution Interface Transformer, DIT, for use with DITA for segregation of existing signalling power distribution feeder circuits. Ratings of 5kVA, 10kVA, 15kVA and 40kVA inclusive.

Product Image



Scope of Acceptance - Full Acceptance

Distribution Interface Transformer, DIT, for use with DITA for segregation of existing signalling power distribution feeder circuits.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.

Reviewed by:

Authorised by:



Sam Flint
Product Acceptance Coordinator



Felix Langley
Professional Head of Power Distribution HV/LV

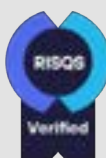


Network Rail Accepted
Product: PA05/06353

DATASHEET BROCHURE

Auxiliary Transformers

- IP67 family of non critical Full Class II isolating transformers for auxiliary circuits



IP67 family of non critical Full Class II isolating transformers for auxiliary circuits. these units are for use within Class II Switchgear Assemblies to Supply Class II Anti Condensation Heaters and lighting.



Auxiliary Circuit Transformers

The non critical auxiliary circuit transformers are a range of Full Class II isolating transformers which range from 50VA-250VA. These type of transformers are ideal for use within Class II switchgear assemblies to supply Class II Anti Condensation Heaters, Circuit Breaker Air Compressors, Load Tap Changers, lighting and receptacles. This waterproof transformer contains primary and secondary terminals located within the enclosure with segregating guards making it Fully Class II and simple to identify the primary and secondary housings. The housing comes with two glands for simple installation with Network Approved conduit cable.

Primary & Secondary

Terminals located inside the double insulated enclosure. Segregating guards are provided between primary & secondary terminations



M25 Holes

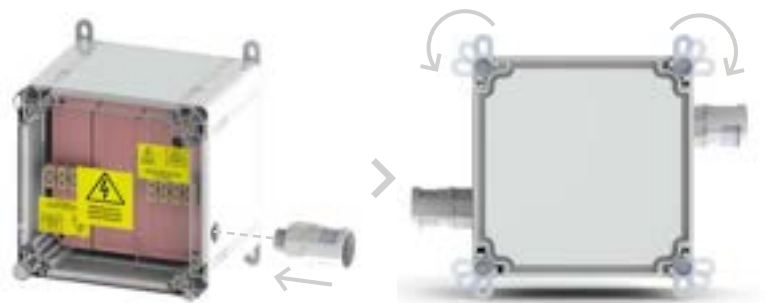
2 x M25 holes provided for suitable conduit coupling

IP66/IP67 Enclosure

Waterproof

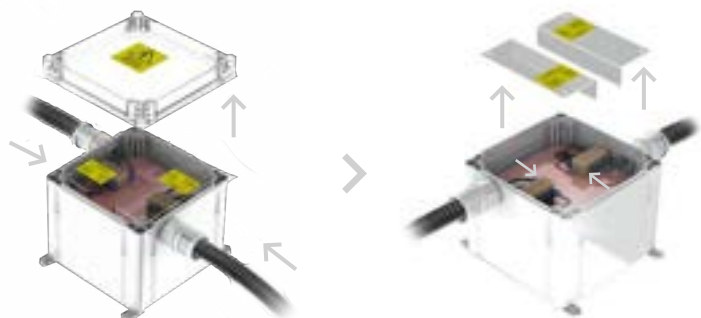
KEY FEATURES

- Efficiency rate of 89.3%-94.29%
- Ultra-Low Inrush Current
- A Waterproof IP66/IP67 Enclosure which makes it suitable for wet environments.
- IK 08 rating, taking impacts of up to 5 joules.
- Easy access to primary and secondary terminals via cable glands and removal of lid.
- Adjustable mounting feet which gives more option when installing.



Simple to Install

Adjustable mounting feet on the back of enclosure gives more clearance when fitting.



Easy input connections

Using the 2 M25 holes a conduit cable can be inputted directly in to the enclosure and customer input terminals.

Auxiliary Transformers

Full Class II

The Auxiliary Transformer is available in wide range of different VA ratings, these include:

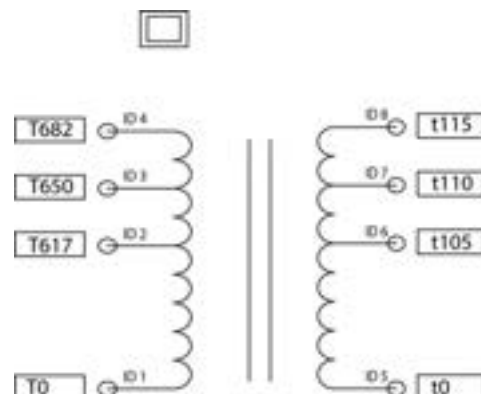
- 50VA
- 100VA
- 150VA
- 250VA



Data Specification

650/110V 50-250VA

Model		50VA	100VA	150VA	250VA
Part Reference		T3047	T3045	T3046	T3044
PAD's Number		054/044062	054/044063	054/044064	054/044065
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II
	Winding conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	650	650	650	650
	Primary taps	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682
	Recommended fuse protection	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>91%	>90%	>91%	>94%
	Inrush (x times rated current)	<7	<4	<7	<8
	I ² t	0.03	0.13	0.08	0.5
	% impedance	6.5%	9%	8%	6%
	X/R ratio	0.54	0.93	0.70	0.84
Output	Secondary rated voltage (V)	110	110	110	110
	Secondary taps	0–105– 110 –115	0–105– 110 –115	0–105– 110 –115	0–105– 110 –115
	Rating (VA)	50	100	150	250
	Prospective fault current (A)	7	10	18	37
	Duration of prospective fault current	>2 Sec	>2 Sec	>2 Sec	>2 Sec
	% Regulation	6	7	6	5
	Insulation Resistance (Ω) 500V	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Weight (kg)		5.3	6.12	6.8	8.2



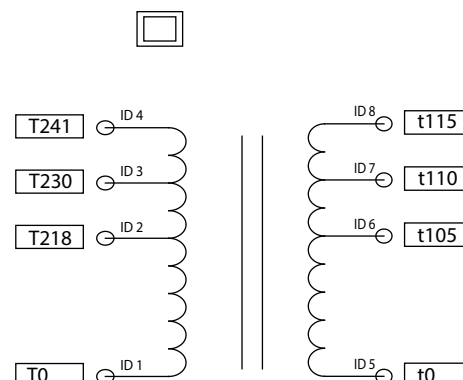
Wiring Diagram

Data Specification

230/110V 50-250VA

Model		50VA	100VA	150VA	250VA
Part Reference		T3527	T3531	T3535	T3539
PAD's Number		0054/037215	0054/037216	0054/037217	0054/037218
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II
	Winding conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	230	230	230	230
	Primary taps	218 – 230 – 241	218 – 230 – 241	218 – 230 – 241	218 – 230 – 241
	Recommended fuse protection	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	2A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>91%	>90%	>91%	>94%
	Inrush (x times rated current)	<7	<4	<7	<8
	I ² t	0.03	0.13	0.08	0.5
	% impedance	6.5%	9%	8%	6%
	X/R ratio	0.54	0.93	0.70	0.84
Output	Secondary rated voltage (V)	110	110	110	110
	Secondary taps	0–105– 110 –115	0–105– 110 –115	0–105– 110 –115	0–105– 110 –115
	Rating (VA)	50	100	150	250
	Prospective fault current (A)	7	10	18	37
	Duration of prospective fault current	>2 Sec	>2 Sec	>2 Sec	>2 Sec
	% Regulation	6	7	6	5
	Insulation Resistance (Ω) 500V	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Weight (kg)		5.3	6.12	6.8	8.2

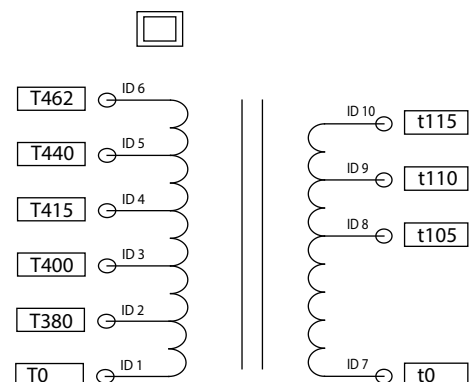
Wiring Diagram



Data Specification

400-415-440/110V 50-250VA

Model		50VA	100VA	150VA	250VA
Part Reference		T3528	T3532	T3536	T3540
PAD's Number		0054/037211	0054/037212	0054/037213	0054/037214
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II
	Winding conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	400-415-440	400-415-440	400-415-440	400-415-440
	Primary taps	380- 400 -415- 440 -462	380- 400 -415- 440 -462	380- 400 -415- 440 -462	380- 400 -415- 440 -462
	Recommended fuse protection	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>91%	>90%	>91%	>94%
	Inrush (x times rated current)	<7	<4	<7	<8
	I ² t	0.03	0.13	0.08	0.5
	% impedance	6.5%	9%	8%	6%
	X/R ratio	0.54	0.93	0.70	0.84
Output	Secondary rated voltage (V)	110	110	110	110
	Secondary taps	0-105- 110 -115	0-105- 110 -115	0-105- 110 -115	0-105- 110 -115
	Rating (VA)	50	100	150	250
	Prospective fault current (A)	7	10	18	37
	Duration of prospective fault current	>2 Sec	>2sec	>2sec	>2sec
	% Regulation	6	7	6	5
	Insulation Resistance (Ω) 500V	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100MΩ Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100MΩ Secondary to Core >100M Ω Primary to Secondary >100M Ω
Weight (kg)		5.3	6.12	6.8	8.2



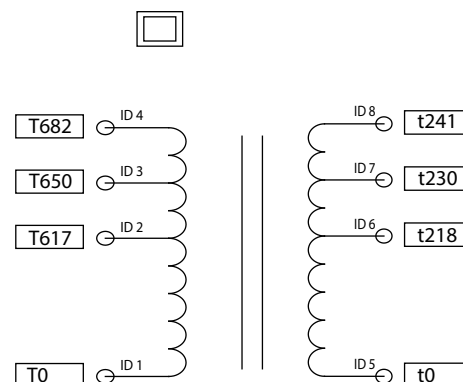
Wiring Diagram

Data Specification

650/230V 50-250VA

Model		50VA	100VA	150VA	250VA
Part Reference		T3529	T3533	T3537	T3541
PAD's Number		0054/037207	0054/037208	0054/037209	0054/037210
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II
	Winding conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	650	650	650	650
	Primary taps	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682	617 – 650 – 682
	Recommended fuse protection	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>91%	>90%	>91%	>94%
	Inrush (x times rated current)	<7	<4	<7	<8
	I ² t	0.03	0.13	0.08	0.5
	% impedance	6.5%	9%	8%	6%
	X/R ratio	0.54	0.93	0.70	0.84
Output	Secondary rated voltage (V)	230	230	230	230
	Secondary taps	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241	0–218– 230 –241
	Rating (VA)	50	100	150	250
	Prospective fault current (A)	3	5	9	18
	Duration of prospective fault current	>2 Sec	>2sec	>2sec	>2sec
	% Regulation	6	7	6	5
	Insulation Resistance (Ω) 500V	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω
Weight (kg)		5.3	6.12	6.8	8.2

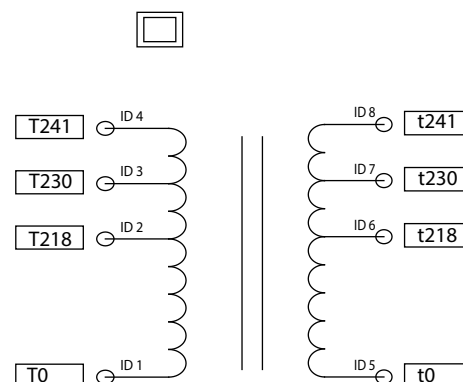
Wiring Diagram



Data Specification

230/230V 50-250VA

Model		50VA	100VA	150VA	250VA
Part Reference		T3530	T3534	T3538	T3542
PAD's Number		0054/037219	0054/037220	0054/037221	0054/037222
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II
	Winding conductor	Copper	Copper	Copper	Copper
Input	Primary rated voltage (V)	230	230	230	230
	Primary taps	218 – 230 – 241	218 – 230 – 241	218 – 230 – 241	218 – 230 – 241
	Recommended fuse protection	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	1A BS88 & 10x38 gG IEC 60269-1&2	2A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>91%	>90%	>91%	>94%
	Inrush (x times rated current)	<7	<4	<7	<8
	I ² t	0.03	0.13	0.08	0.5
	% impedance	6.5%	9%	8%	6%
	X/R ratio	0.54	0.93	0.70	0.84
Output	Secondary rated voltage (V)	230	230	230	230
	Secondary taps	218 – 230 – 241	218 – 230 – 241	218 – 230 – 241	218 – 230 – 241
	Rating (VA)	50	100	150	250
	Prospective fault current (A)	3	5	9	18
	Duration of prospective fault current	>2 Sec	>2sec	>2sec	>2sec
	% Regulation	6	7	6	5
	Insulation Resistance (Ω) 500V	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100M Ω Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100MΩ Secondary to Core >100M Ω Primary to Secondary >100M Ω	Primary to Core >100MΩ Secondary to Core >100M Ω Primary to Secondary >100M Ω
Weight (kg)		5.3	6.12	6.8	8.2

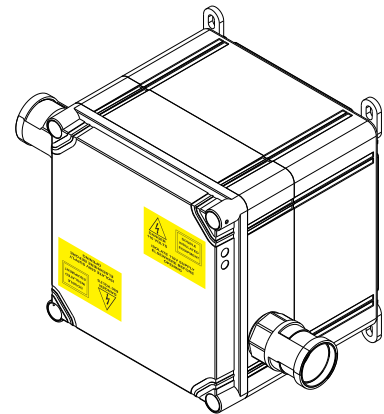
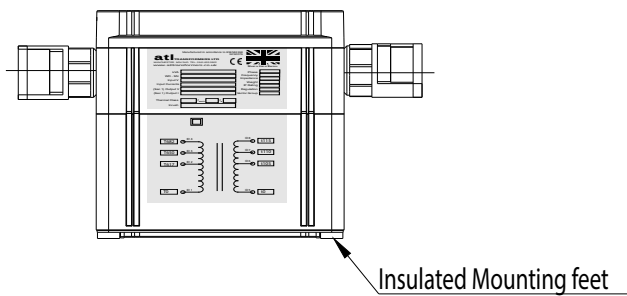
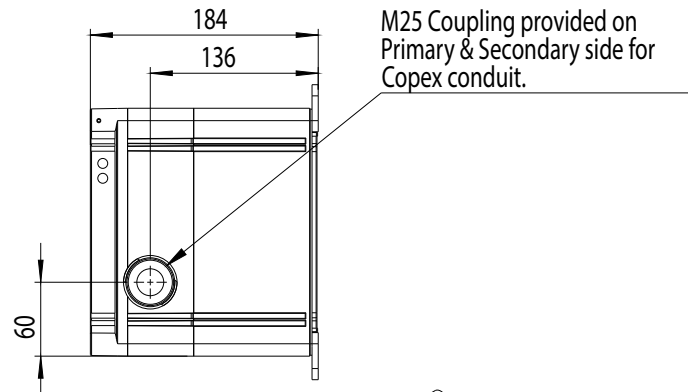
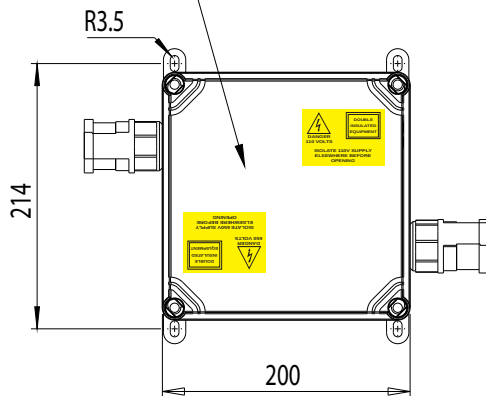


Wiring Diagram

General Arrangements

50-250VA

Transparent lid secured
with Nylon Captive screws



Certificate of Acceptance

PA05/06353

Manufacturer:

ATL Transformers Ltd

Issue : 2

Valid From : 07/05/2020

Review date: 06/05/2025

Product: Non-critical Full Class II Isolating Transformers for Auxiliary Circuits

Product Description

Non Critical Full Class II Isolating Transformer for Auxiliary Circuits for use within Class II Switchgear Assemblies to Supply Class II Anti Condensation Heaters and Lighting.

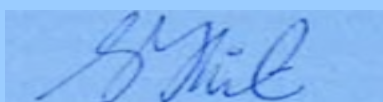
Product Image



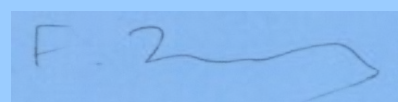
Scope of Acceptance

Full acceptance as per the User and Manufacturer's conditions detailed below.

Network Rail Acceptance Panel (NRAP) hereby authorises the product above for use and trial use on railway infrastructure for which Network Rail is the Infrastructure Manager under the ROGS regulations.
Authorised by:



Sam Flint
Product Acceptance Coordinator



Felix Langley
Head of Power Distribution HV/LV

Please contact technologyintroduction@networkrail.co.uk

Network Rail Infrastructure Limited Registered Office: Network Rail, 2nd Floor, One Eversholt Street, London, NW1 2DN Registered in England and Wales No. 2904587 www.networkrail.co.uk

Notes

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TRANSFORMERS FOR RAIL DATASHEET BROCHURE

Our Rail Transformer range consists of;

- Rail Signalling Transformers & Point Drive Rectifiers
- DITA Transformers
- PSP Transformers (IP32 & IP56)
- Auxiliary Circuit Transformers
- Legacy Renewals



ATL, the leading design & manufacturer of small to medium power transformers have been established in the sector for over 35 years. ATL Transformers occupies a modern factory close to the motorway network, employs a dedicated and skilled workforce, and deploys a wealth of experience and the latest advances in materials technology to design, manufacture and test our products in accordance with BS, IEC, Network Rail, UL and CSA Standards.



+44 (0)161 653 0902



sales@atltransformers.co.uk



Hanson Close, Middleton, Manchester, M24 2HD

www.atltransformers.co.uk