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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*** Please contact us if you would like to be notified when this product range is available**

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.

eco - rail
WARNING 650V AC
DOUBLE INSULATED
ENCLOSURE INSIDE
atl

Rail Signal Transformers

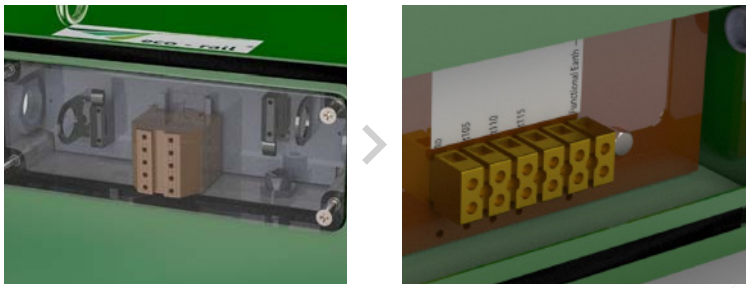
Contribution to safeguarding the environment for our future generations by way of ultra efficient transformer technology is a relatively untapped resource and we believe that we should play a significant role in reducing the wasted energy generated by our electrical power industries and distribution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

eco - rail®

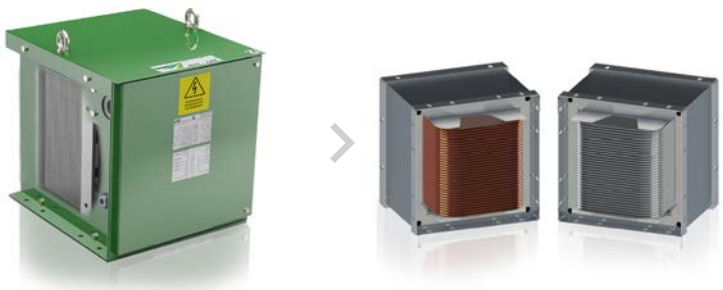
KEY FEATURES

•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 tapologies.
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 I & Class II Rated

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



Light Weight

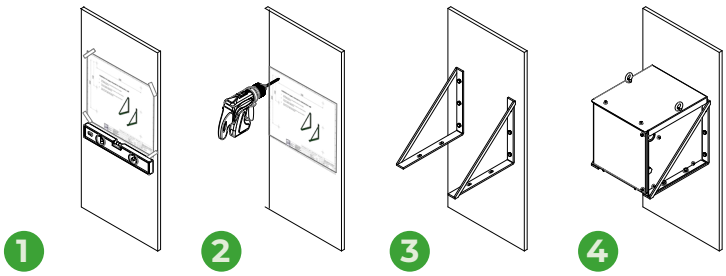
Light weight and compact the eco-rail® range is the smallest and the lightest in their class.

Legacy Brackets

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

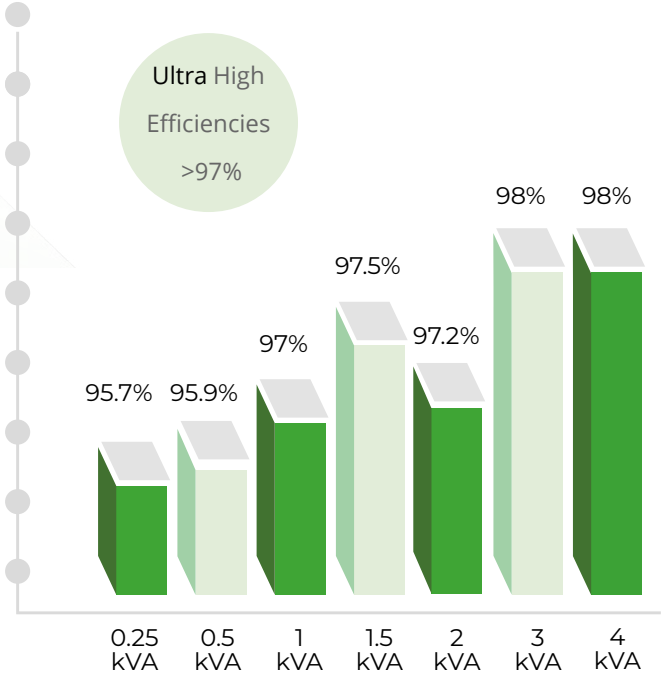
4 Simple Steps

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.

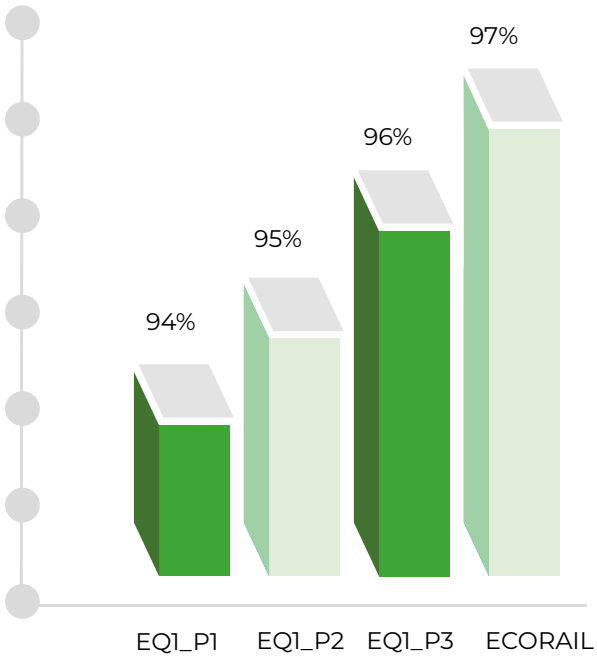


Efficiency & Economical Factors

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 effeiencies 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**
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 at no-load and full rating of the transformer	<4	<4	<3	<3	<3	<3
	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*	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)		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**
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 at no-load and full rating of the transformer	<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*
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**
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 at no-load and full rating of the transformer	<4	<4	<3	<3	<3	<3
	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*	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 Sec-ondary *>100M Ω*
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**
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 at no-load and full rating of the transformer	<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*
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**
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 at no-load and full rating of the transformer	<4	<4	<3	<3	<3	<3
	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*	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)		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 Ouput
Electrical Specification		**T3388**	**T3392**	**T3396**	**T3400**
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 at no-load and full rating of the transformer	<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*
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**
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 at no-load and full rating of the transformer	<4	<4	<3	<3	<3	<3
	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*	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)		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**
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 at no-load and full rating of the transformer	<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*
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**
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 at no-load and full rating of the transformer	<4	<4	<3	<3	<3	<3
	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*	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 Sec-ondary *>100M Ω*
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**
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 at no-load and full rating of the transformer	<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*
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
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 at no-load and full rating of the transformer	<3	<4	<3	<3	<4	<3	<2
	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*	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)		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
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	650	650
	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 at no-load and full rating of the transformer	<3	<4	<3	<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*
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	T3354	T3357	T3358
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 at no-load and full rating of the transformer	<3	<4	<3	<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*
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
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	<8	<8	<4
	% 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 at no-load and full rating of the transformer	<4	<3	<3	<3
	Insulation Resitance (Ω)	*Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms*	*IInsulation 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*
Weight (kg)		20	25	39	40

Data Specification

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

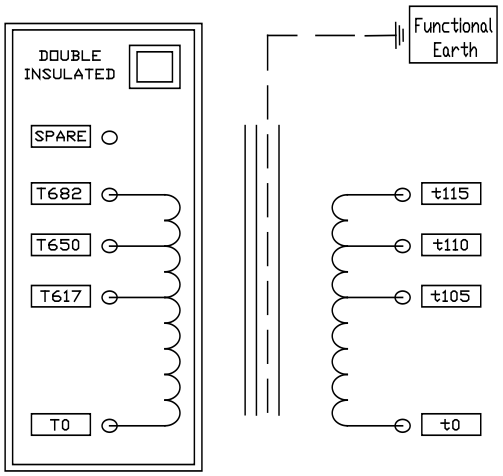
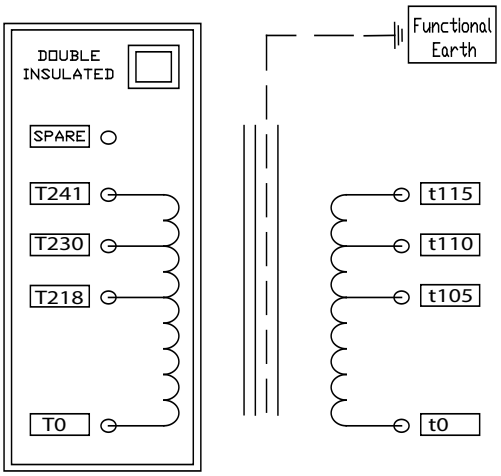
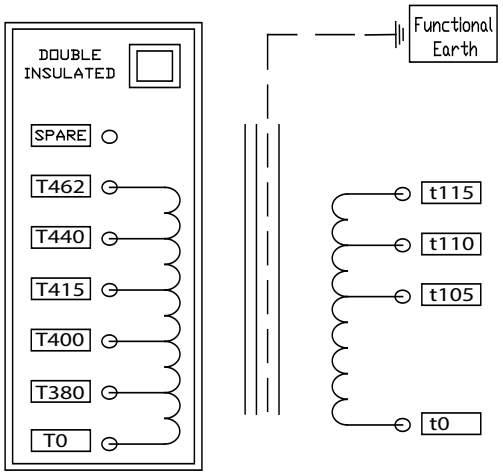
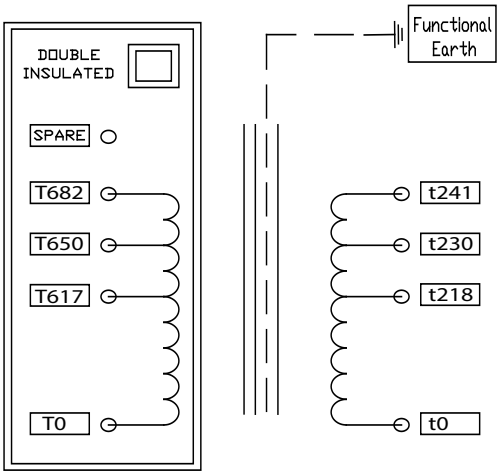
Model		230VAC/120V @ 2.5A	230VAC/120V @ 5A	230VAC/120VDC @10A	230VAC/ 2 X 120V @5A
Electrical Specification		T3403	T3405	T3407	T3409
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class I	Class I	Class I	Class I
	Winding Conductor	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	4A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2	16A BS88 & 10x38 gG IEC 60269-1&2	10A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>96	>96	>97	>97
	Inrush (x times rated current)	<4	<8	<4	<4
	% 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 at no-load and full rating of the transformer	<4	<3	<3	<3
	Insulation Resitance (Ω)	*Insulation Resistance (500V) Primary to Core >100M Ohms Secondary to Core >100M Ohms Primary to Secondary >100M Ohms*	*IInsulation 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*
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
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	6A 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	6A BS88 & 10x38 gG IEC 60269-1&2
	% efficiency	>97	>96	>96	>97	>97
	Inrush (x times rated current)	<7	<4	<8	<4	<4
	% 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 at no-load and full rating of the transformer	<3	<4	<3	<3	<3
	Insulation Resitance (Ω)	*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*	*IInsulation 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*
Weight (kg)		39	20	25	40	39

Wiring Diagrams
250VA-10KVA
Aluminium & Copper Single Output

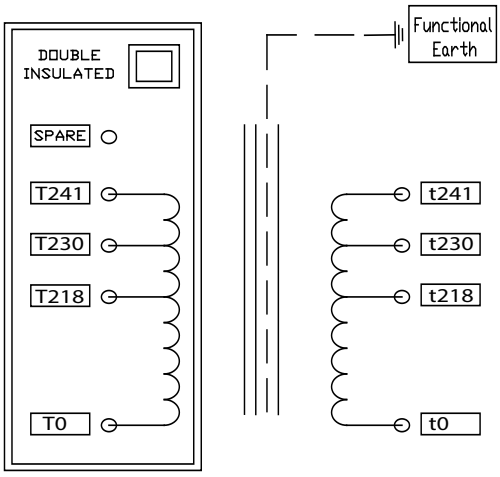
650-110V Signalling Transformers	**230-110V** Signalling Transformers
Aluminium: T2966 T3065 T2967 T2968 T2969 T3149 **Copper:** T3067 T3068 T2834 T2902 T2925 T2903 T2930	**Aluminium:** T3351 T3355 T3359 T3363 T3367 T3371 T3375 T3379 T3383 **Copper:** T3351 T3355
	
400-415-440/110V Signalling Transformers	**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

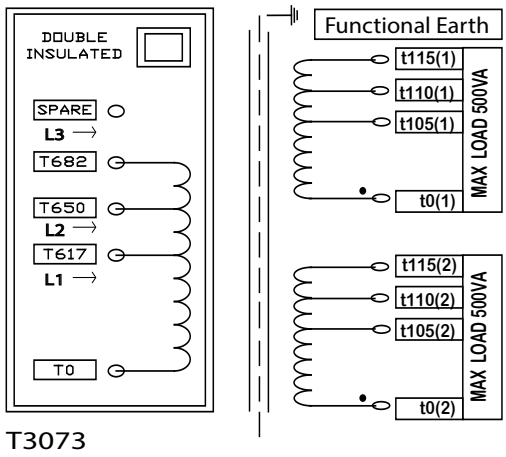
Aluminium:
T3362 T3366 T3370 T3374 T3382 T3386

Copper:
T3354 T3358



650-110V Signalling Transformers Dual Output WTS

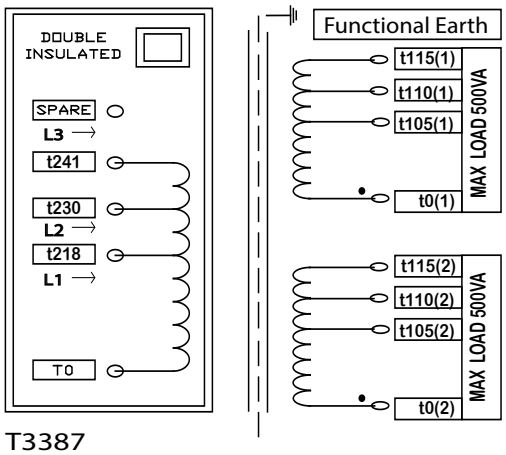
Aluminium:
T3073



T3073

230-110V Signalling Transformers Dual Output WTS

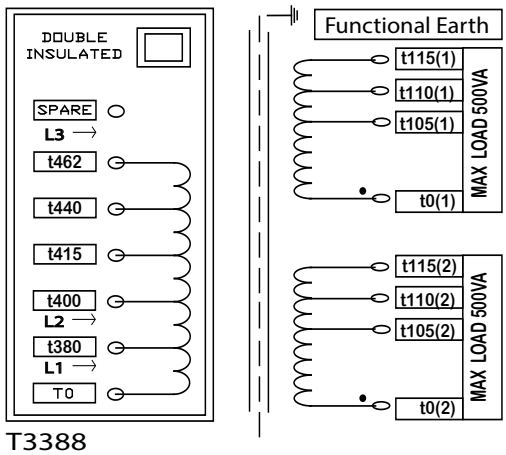
Aluminium:
T3387



T3387

400-415-440/110V Signalling Transformers Dual Output WTS

Aluminium:
T3388

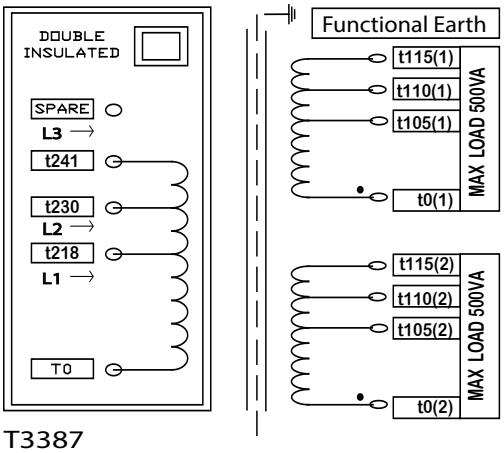


T3388

Wiring Diagrams
250VA-10KVA
Aluminium & Copper Multi Output

650-230V Signalling Transformers Dual Output WTS

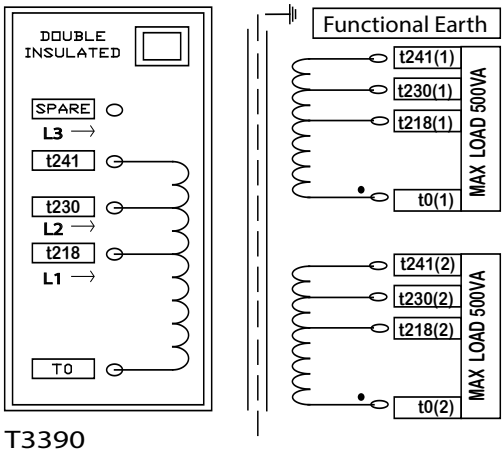
Aluminium:
T3389



T3387

230-230V Signalling Transformers Dual Output WTS

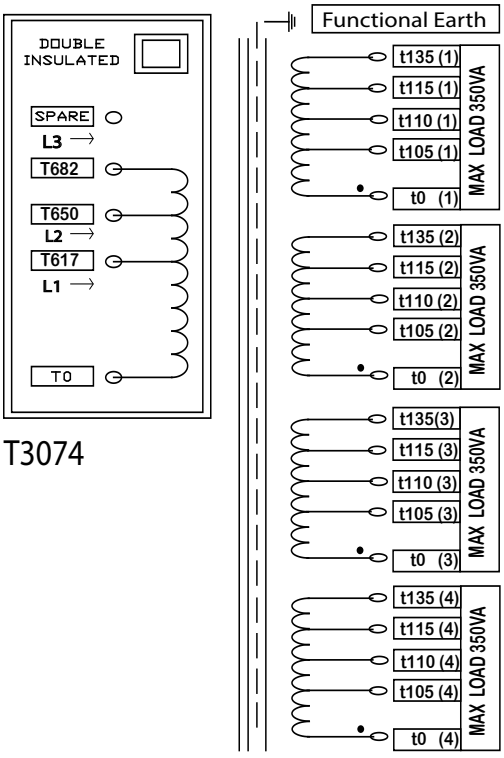
Aluminium:
T3390



T3390

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

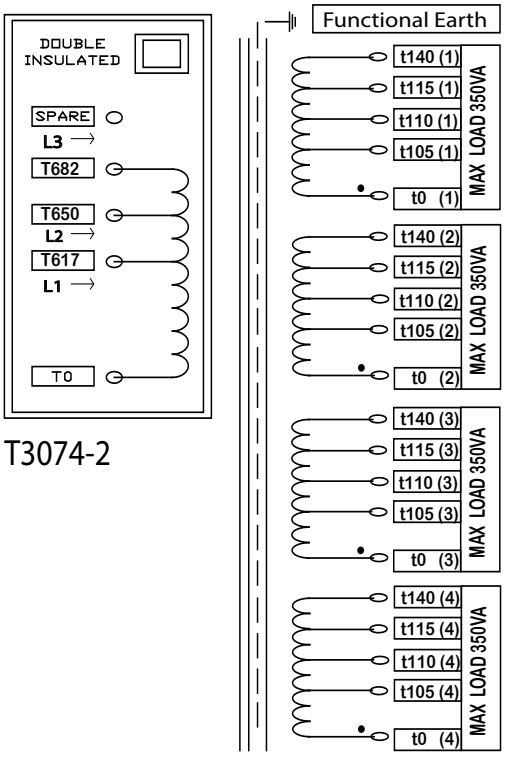
Aluminium:
T3074



T3074

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

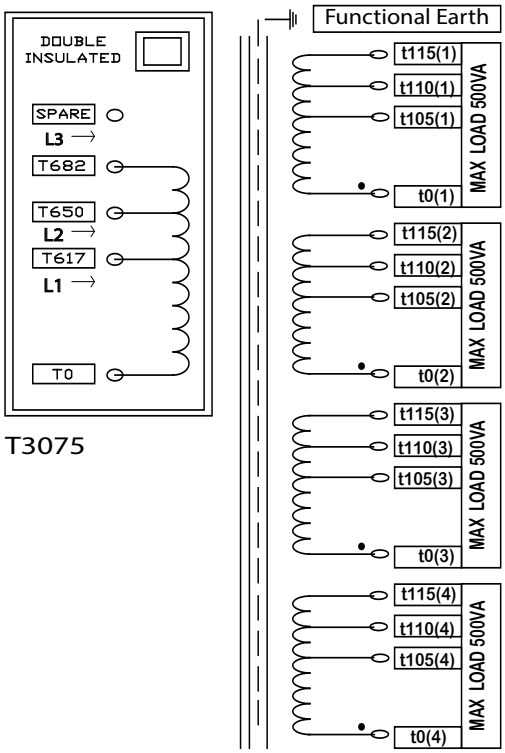
Aluminium:
T3074-2



T3074-2

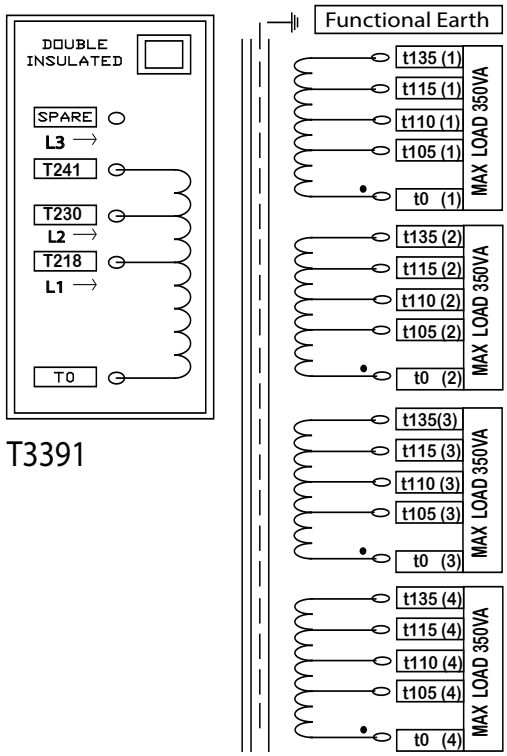
650/110V Signalling Transformers Quad Output WTS (110 - 115V)

Aluminium:
T3075



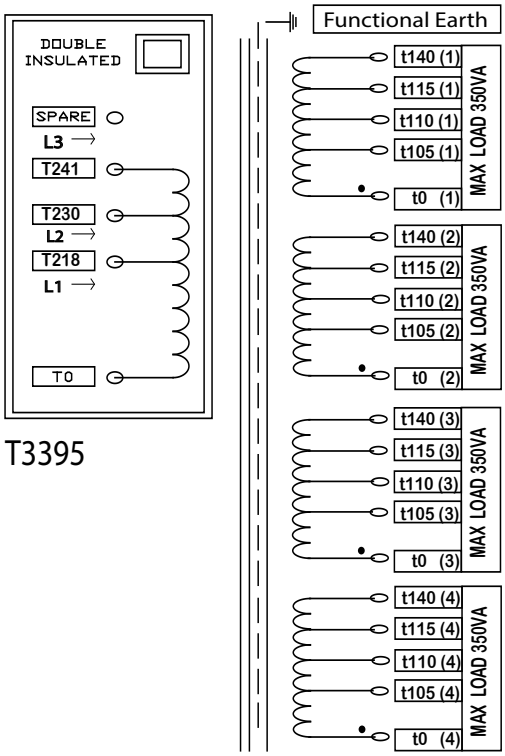
230-110V Signalling Transformers Quad Output SSI (110 - 135V)

Aluminium:
T3391



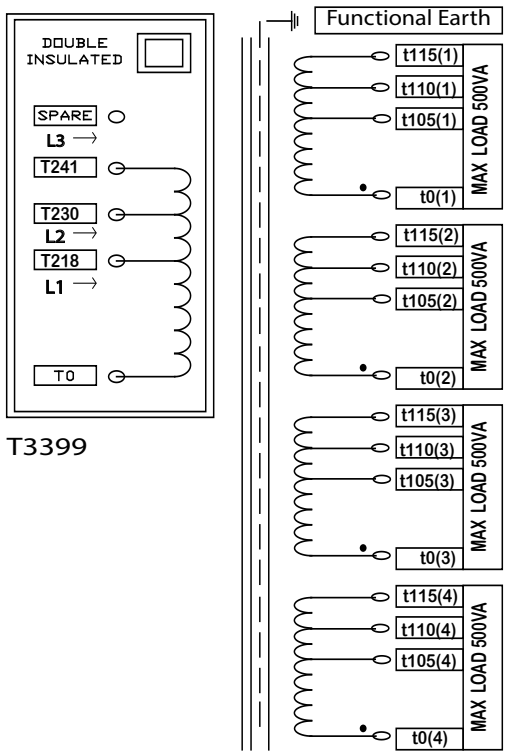
230-110V Signalling Transformers Quad Output SSI (110 - 140V)

Aluminium:
T3395



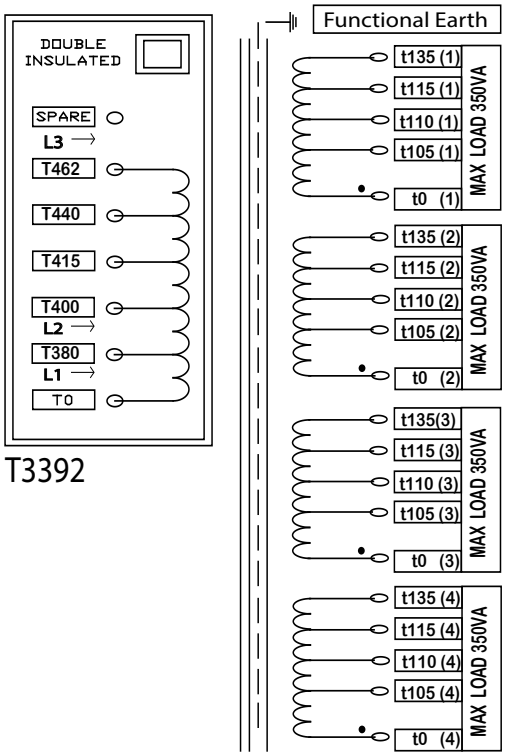
230-110V Signalling Transformers Quad Output WTS (110 - 115V)

Aluminium:
T3399



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

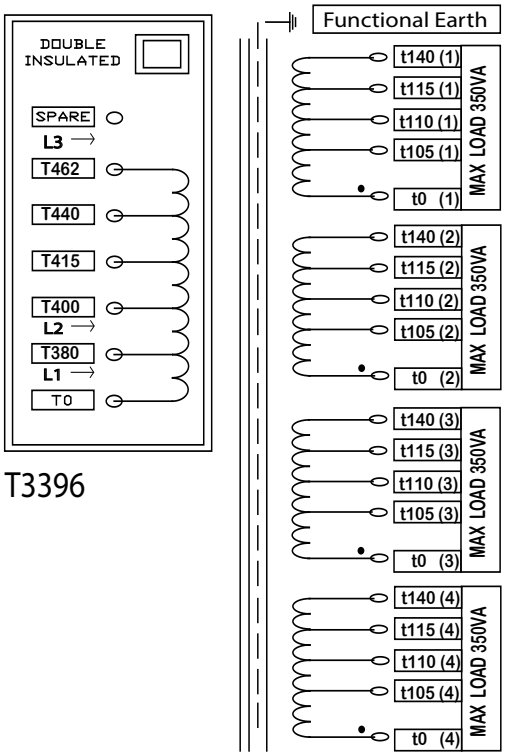
Aluminium:
T3392



T3392

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

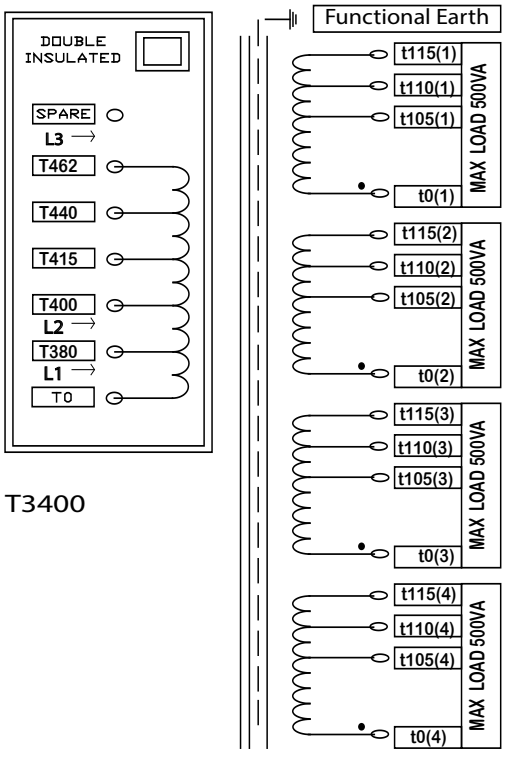
Aluminium:
T3396



T3396

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

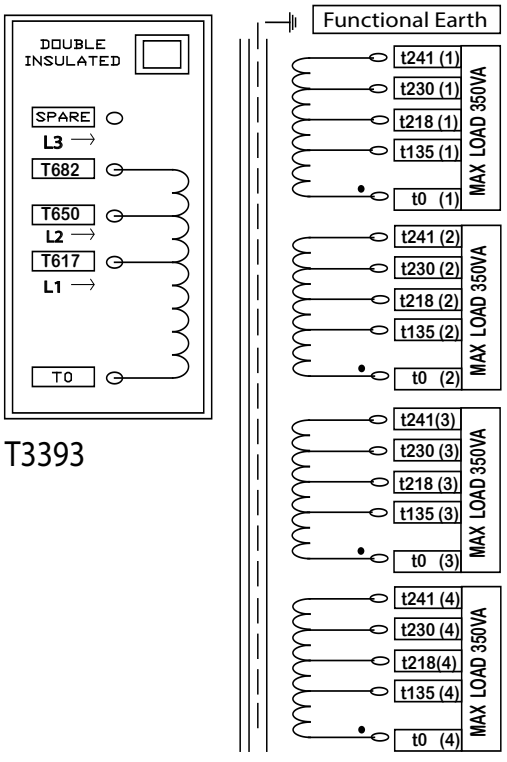
Aluminium:
T3400



T3400

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

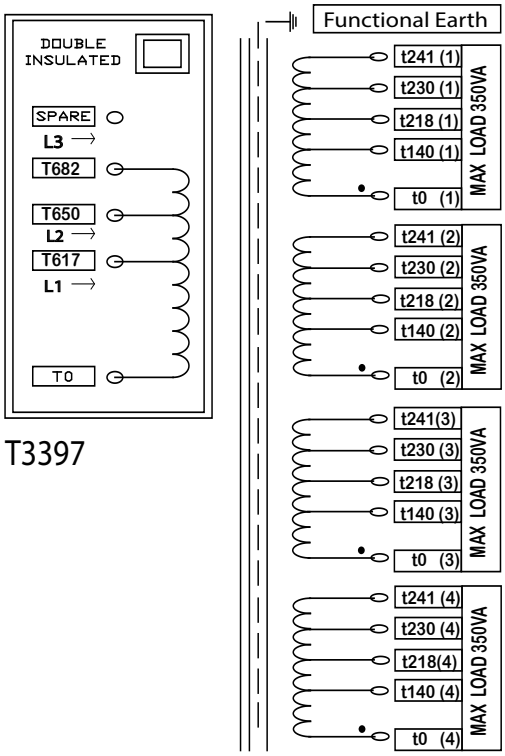
Aluminium:
T3393



T3393

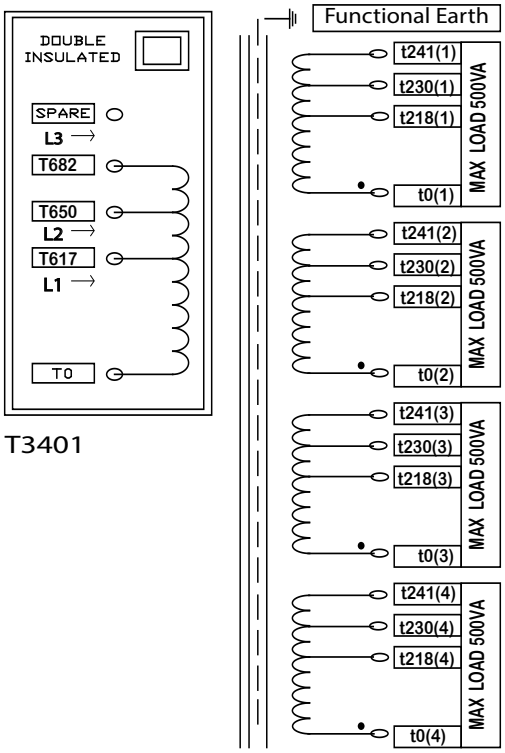
650-230V Signalling Transformers Quad Output SSI (140- 230V)

Aluminium:
T3397



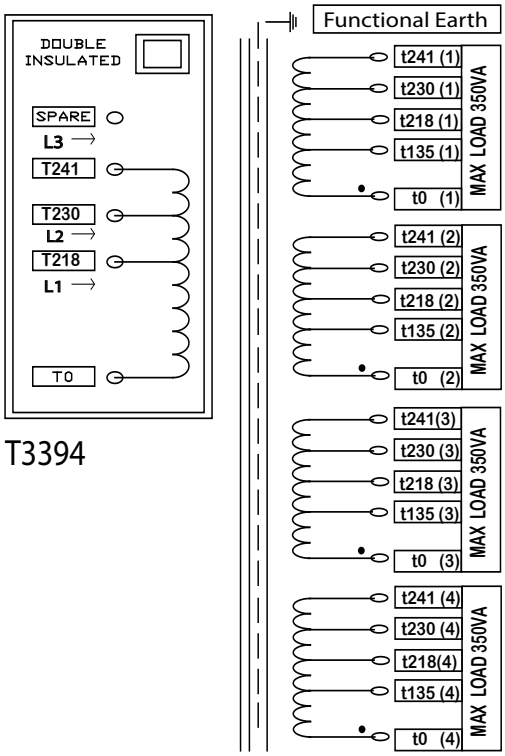
650-230V Signalling Transformers Quad Output WTS (230 - 241V)

Aluminium:
T3401



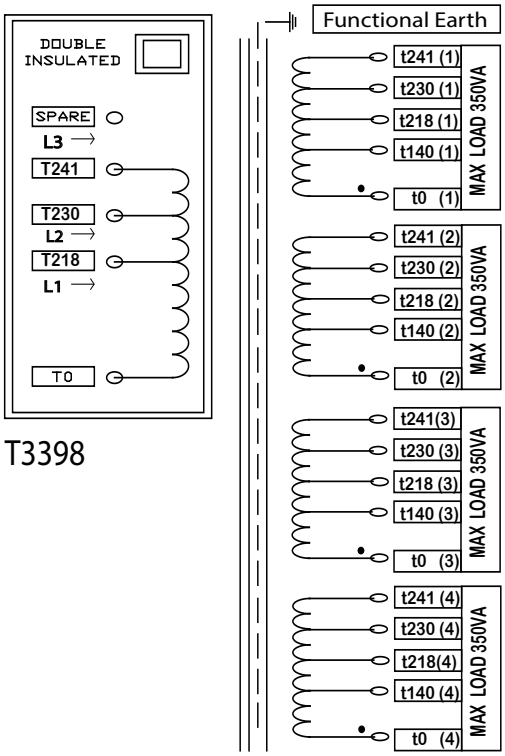
230-230V Signalling Transformers Quad Output SSI (135 - 230V)

Aluminium:
T3394



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

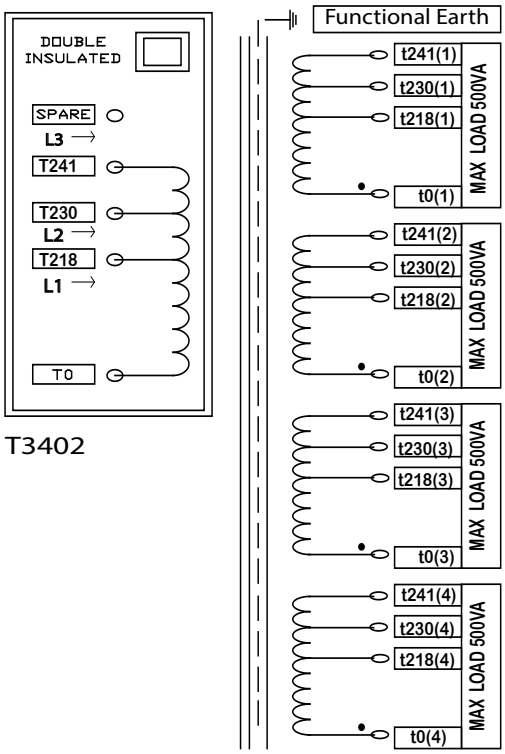
Aluminium:
T3398



Wiring Diagrams
250VA-10KVA / 2.5A-10A
Aluminium & Copper Multi Output/Point Drive Rectifers

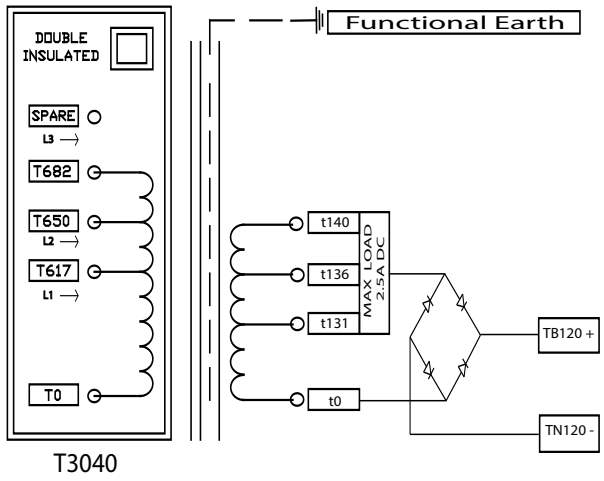
230-230V Signalling Transformers
Quad Output WTS (230 - 241V)

Aluminium:
T3402



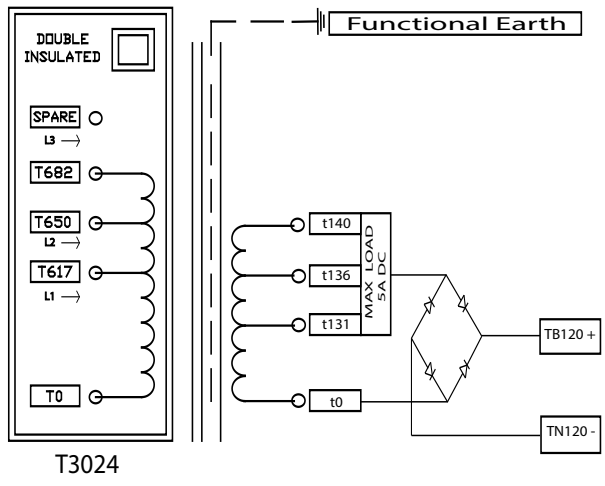
650/120VDC Point Drive Rectifier
650VAC/120V @ 2.5A

Copper:
T3040



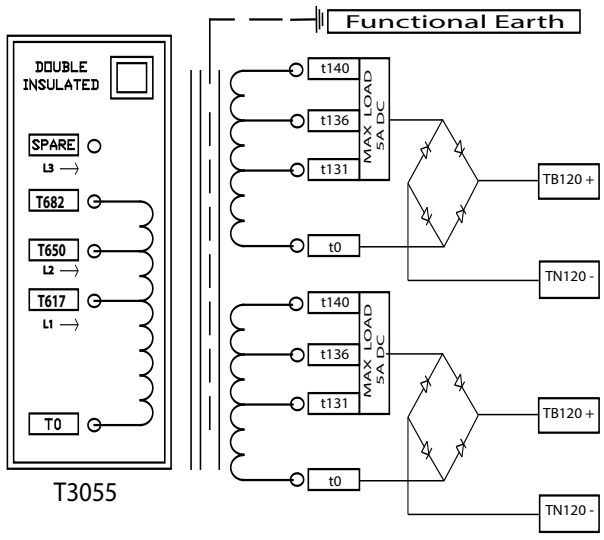
650/120VDC Point Drive Rectifier
650VAC/120V @ 5A

Copper:
T3024



650/120VDC Point Drive Rectifier
650VAC/ 2 X 120V@5A

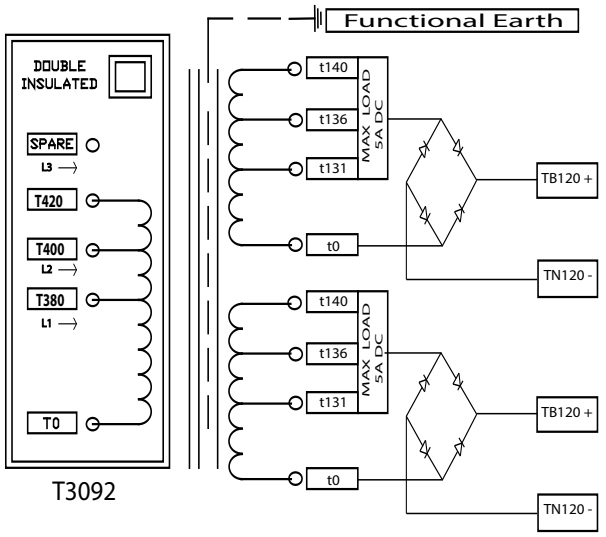
Copper:
T3055



Wiring Diagrams
2.5A-10A
Copper Point Drive Rectifers

400/120VDC Point Drive Rectifier
400VAC/ 2 X 120V@5A

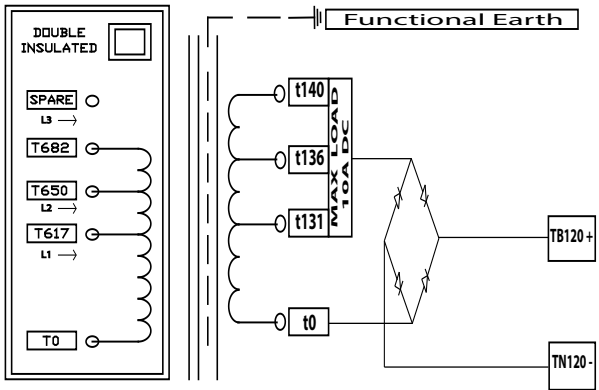
Copper:
T3092



T3092

650/120VDC Point Drive Rectifier
650VAC/120VDC @10A

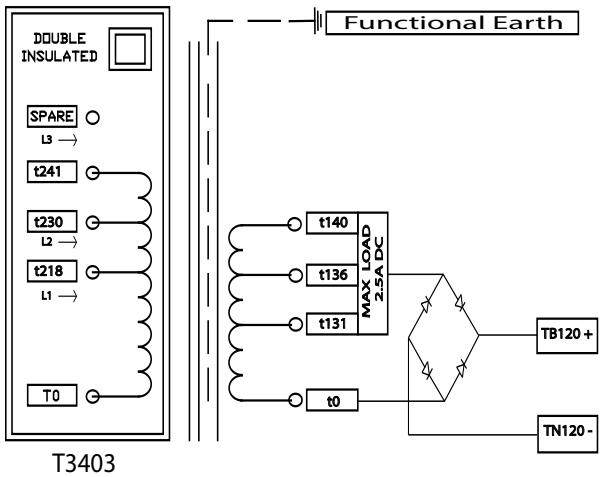
Copper:
T3007



T3007

230/120VDC Point Drive Rectifier
650VAC/120V @ 2.5A

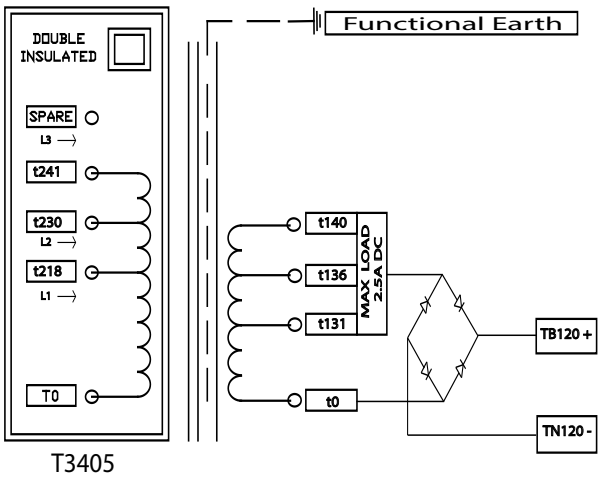
Copper:
T3403



T3403

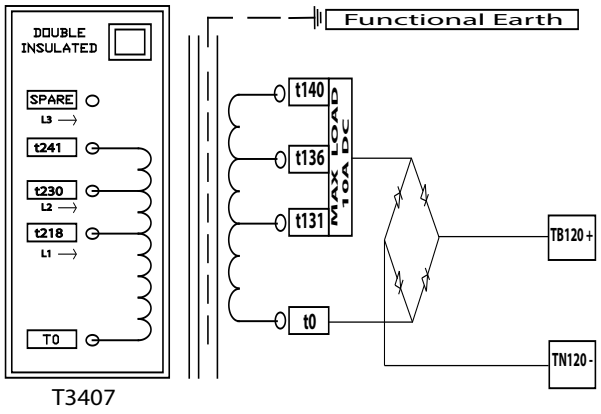
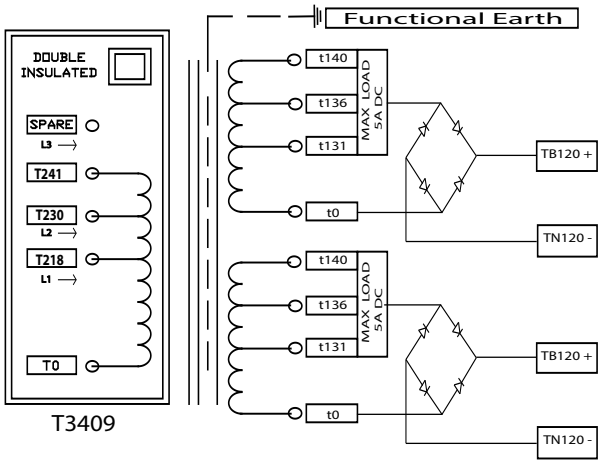
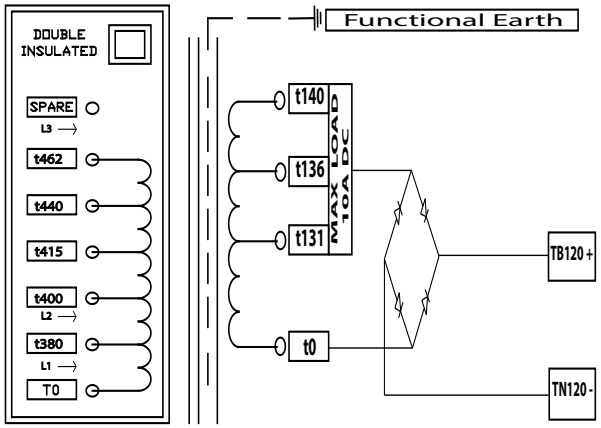
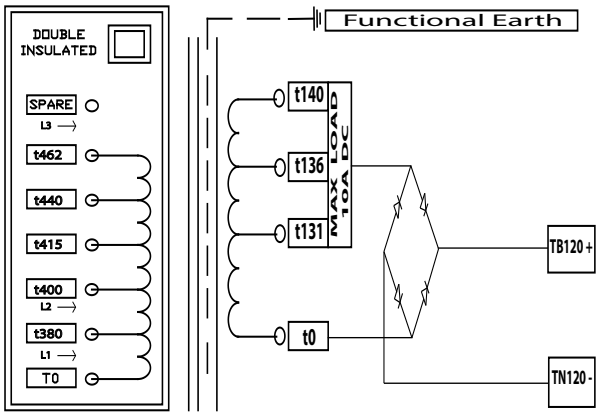
230/120VDC Point Drive Rectifier
650VAC/120V @ 5A

Copper:
T3405

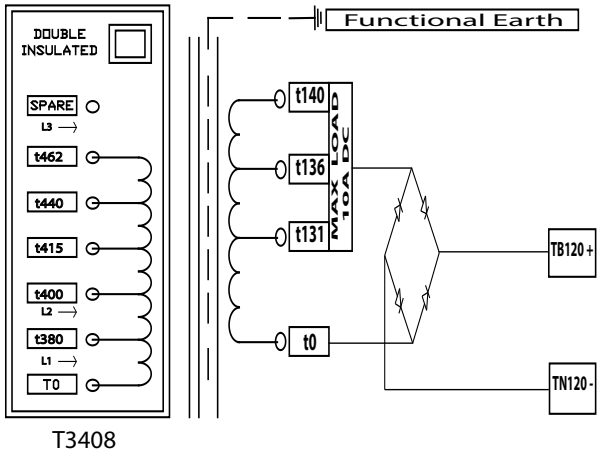
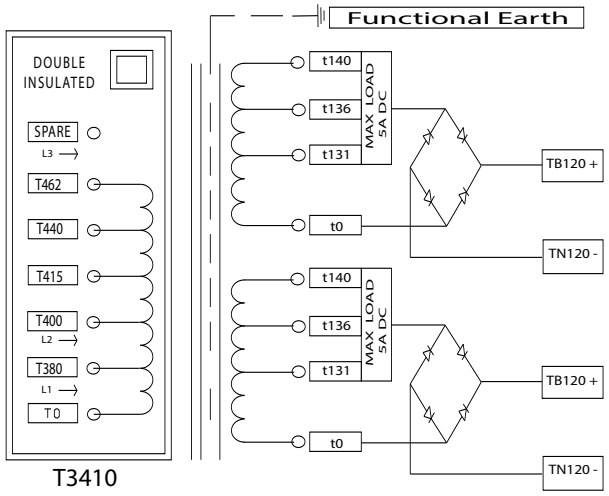


T3405

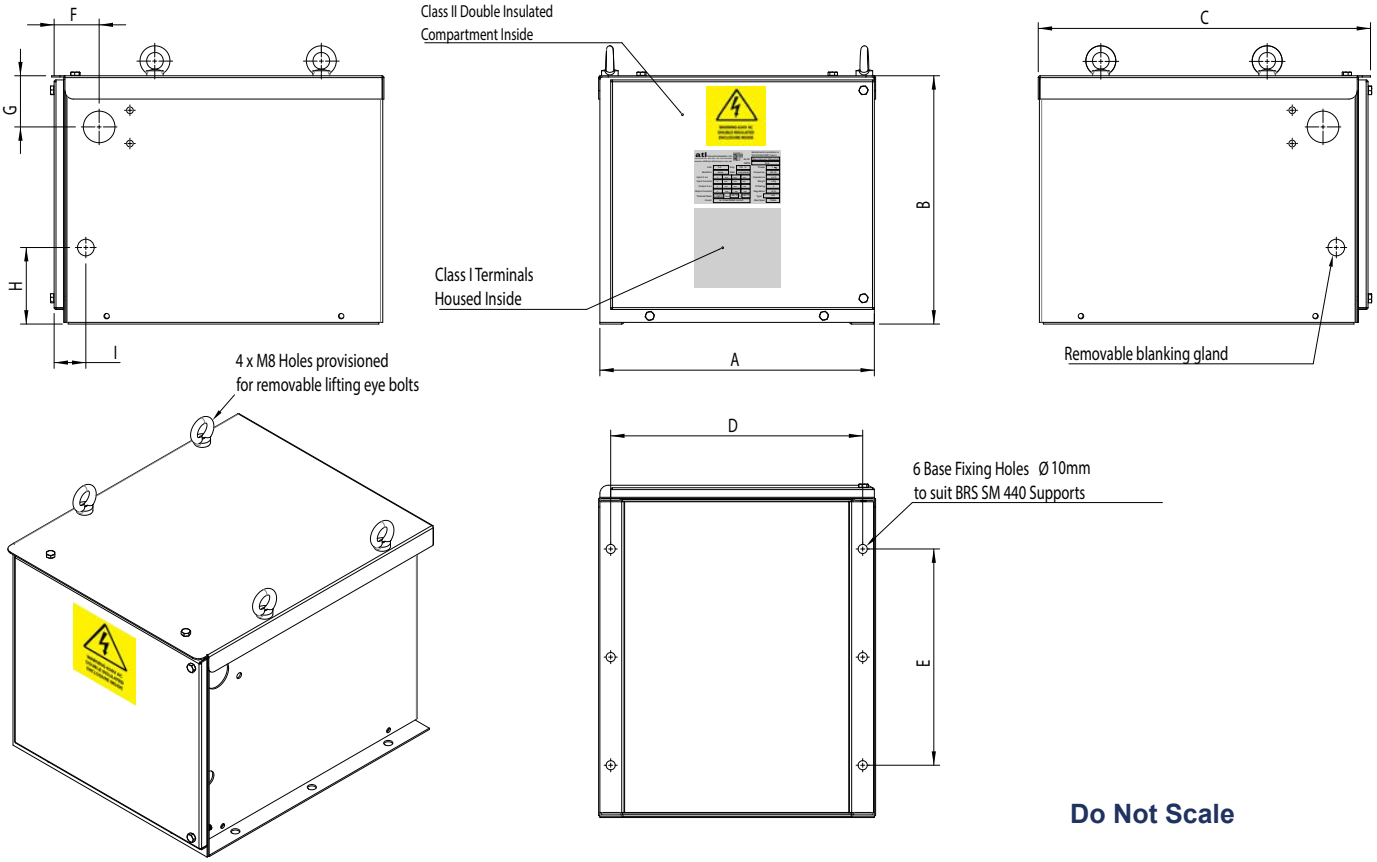
Wiring Diagrams
2.5A-10A
Copper Point Drive Rectifers

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 Rectifers

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

General Arrangements
250VA-10KVA
Aluminium & Copper Wound FSP Transformer Specifications



Do Not Scale

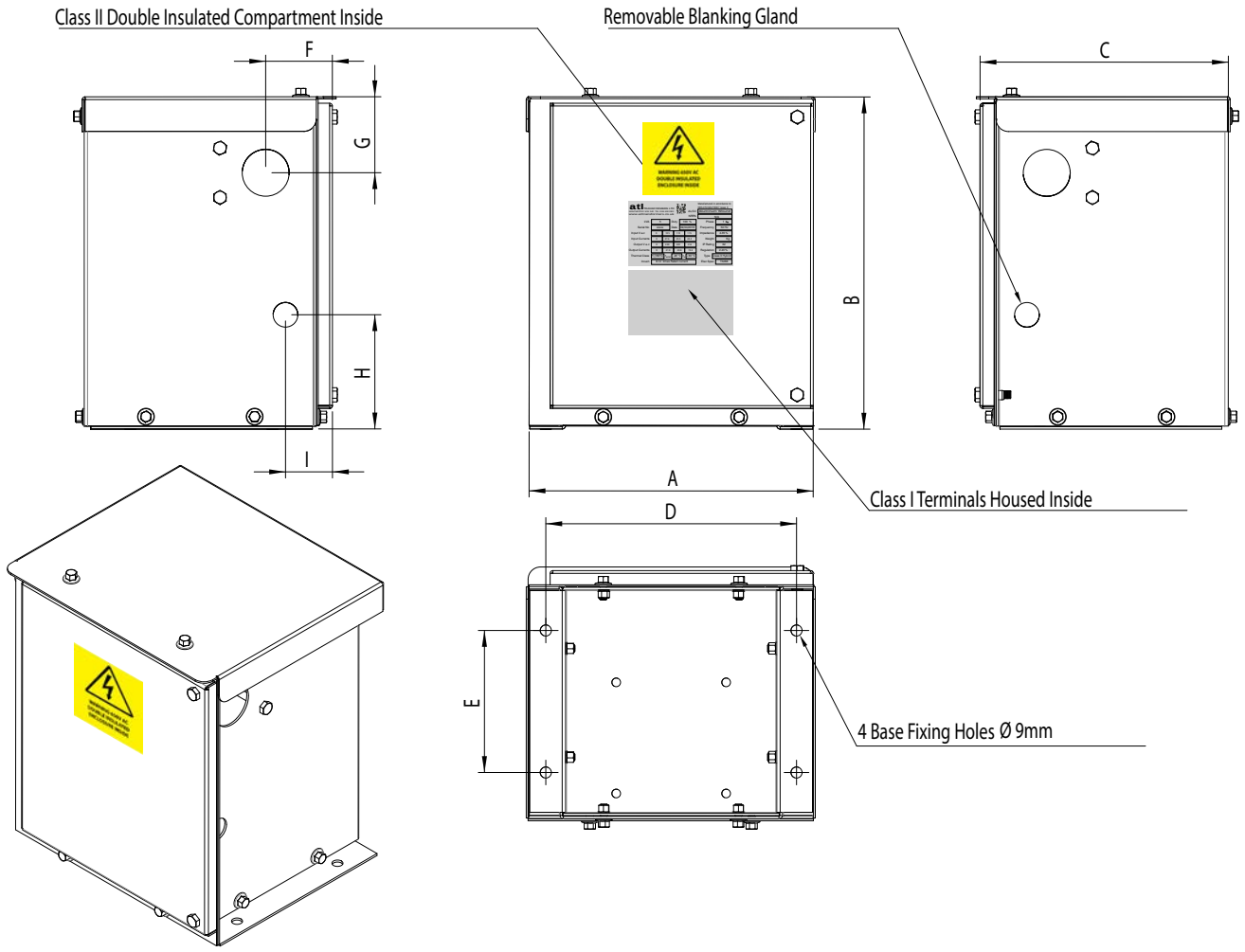
Aluminium Wound FSP Transformers									
Model (VA)	Dimension (mm)								
	A	B	C	D	E	F	G	H	I
1000VA	289	299	245	260	115	43	62	73	27
1500VA	289	299	277	260	115	54	62	93	27
2000VA	289	299	320	260	115	43	62	93	27
3000VA	289	299	320	260	115	43	62	93	27
5000VA	333	325	402	307	260	54	62	91	48
10,000VA	See Page 36								
1000VA Dual Output	289	299	277	260	115	54	62	93	27
1400VA Dual Output	289	299	320	260	115	43	62	93	27
2000VA Quad Ouput	289	299	320	260	115	43	62	93	27

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	92	22
500VA	222	268	205	203	115	54	62	92	22
1000VA	289	299	245	260	115	43	62	73	27
1500VA	289	299	277	260	115	54	62	93	27
2-4000VA	289	299	320	260	115	43	62	93	27

General Arrangements

2.5A-10A

Single & Multi Output
Transfomer Rectifiers for Point Drive Systems



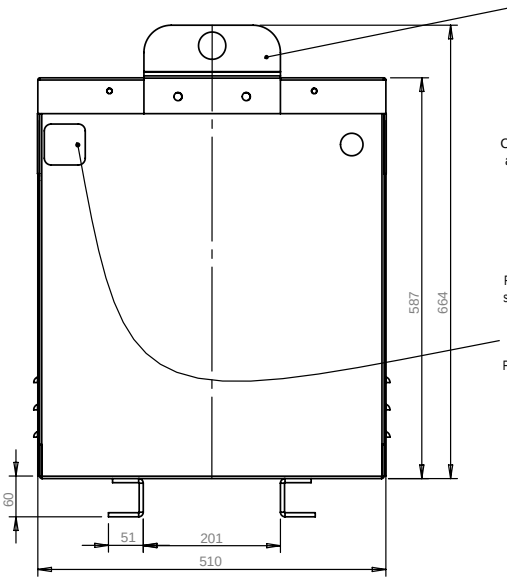
Do Not Scale

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	27
5A	286	299	249	259	115	54	62	93	38
2x5A	286	299	329	259	115	54	62	93	38
2x5A	286	299	329	259	115	54	62	93	38
10A	286	299	329	259	115	54	62	73	38

General Arrangements

10KVA

Aluminium
FSP Transformer Specifications



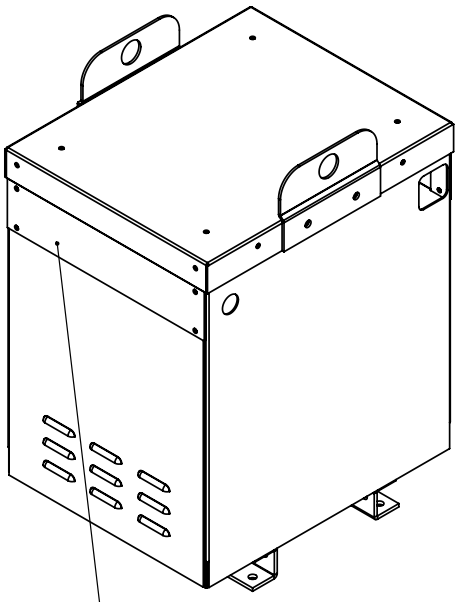
Cables must enter through the provisioned access holes for both the Class I & Class II cables.

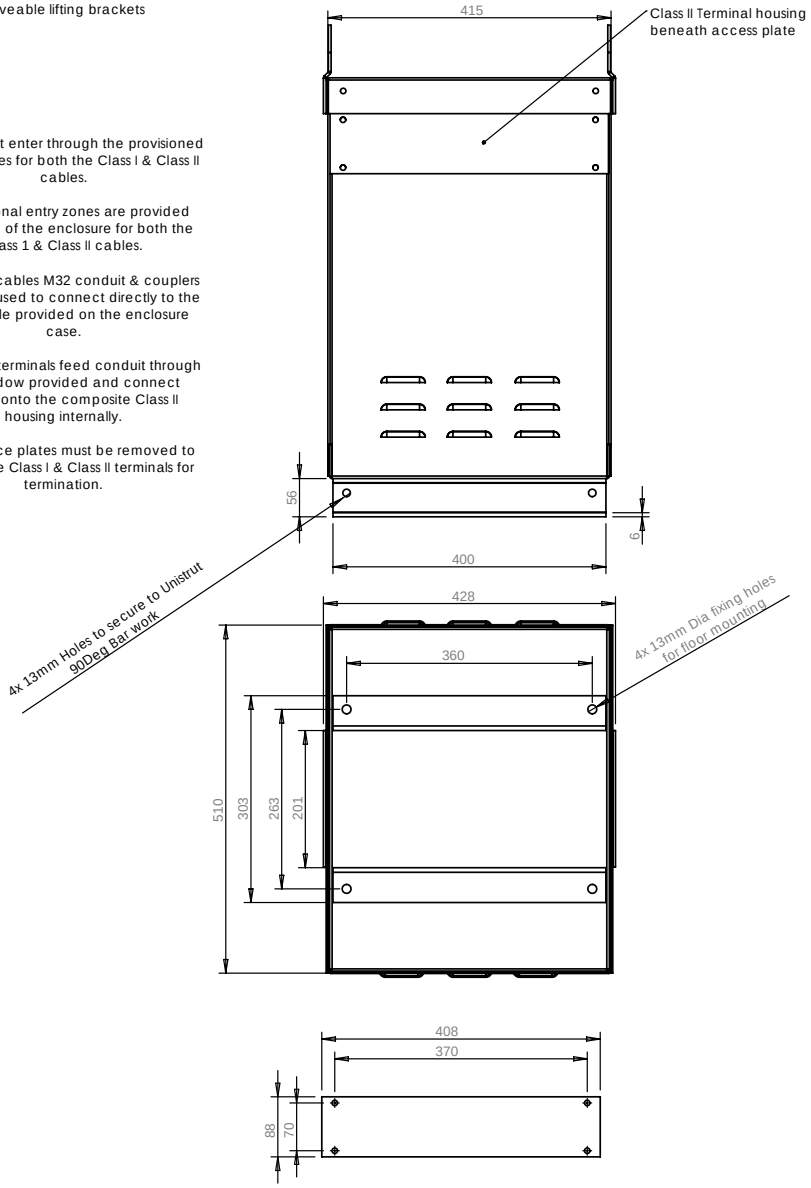
Two optional entry zones are provided either side of the enclosure for both the Class 1 & Class II cables.

For Class I cables M32 conduit & couplers should be used to connect directly to the 33mm hole provided on the enclosure case.

For Class II terminals feed conduit through the window provided and connect directly onto the composite Class II housing internally.

Both Service plates must be removed to access the Class I & Class II terminals for termination.





NOTE 1: 2x Removeable access plates

Certificate of Acceptance PA05/06391

Manufacturer:
ATL Transformers Ltd.

Issue : 4
Valid From : 31-08-2017

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:

Tom Riley
Product Acceptance Coordinator

Jerry Morling
Head of Signalling

Nigel Edwards
Head of Power Distribution HV/LV

Rail Signalling Transformers & Point Drive Rectifiers

Certificate of Acceptance PA05/05761

Manufacturer:
ATL Transformers LTD

Issue : 3
Valid From : 21/08/15

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.
Authorised by:

Vanessa Cumine
Product Acceptance Specialist

Alex Buchinger
Head of Power Distribution HV/LV (Acting)

Jerry Morling BEng MSc CEng MIET, MIRSE
Professional Head Signalling

Please contact technologyintroduction@networkrail.co.uk

Network Rail Infrastructure Ltd Registered Office Kings Place 90 York Way London N1 9AG 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 : 1
Valid From : 29-01-2016

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:

Vanessa Cumine
Process & Change Specialist

Authorised by:

Nigel Edwards
Head of Power Distribution HV/LV

Jerry Morling BEng MSc CEng MIET, MIRSE
Professional Head 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
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DATASHEET BROCHURE
ASP/PSP Transformers

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

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

Aluminium PSP/ASP Transformers

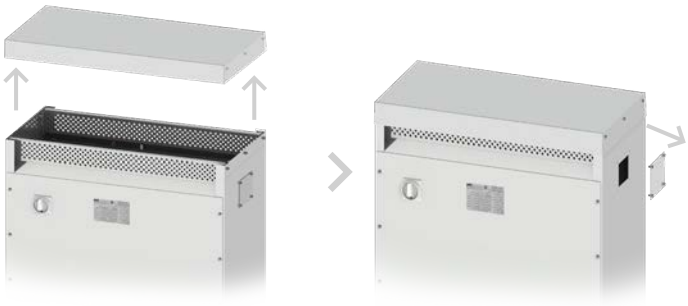
ATL's PSP/ASP range of transformers has been designed to meet the requirements of previous British rail standards BR924A but enhanced for a modern railway with elements of up to date standards IEC600076 & NR/L2/SIGELP/30007. During development ATL sought advice from maintainers and installers to engineer 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

eco - rail® ALUMINIUM Technology Inside

Powered By ATL Transformers Ltd

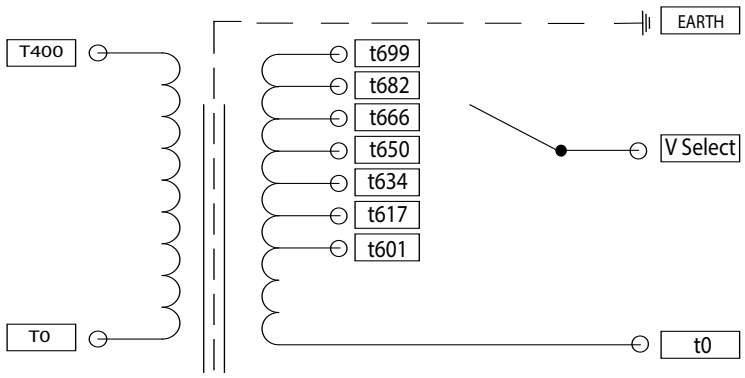
As with our New generation of Signalling transformers our eco-rail aluminium technology is available across the full PSP/ASP range. Lighter is in this case better and we offer this feature also within a smaller package to conventional copper wound transformers. We are able to achieve this due to our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

Data Specification
Single Phase 400/650V

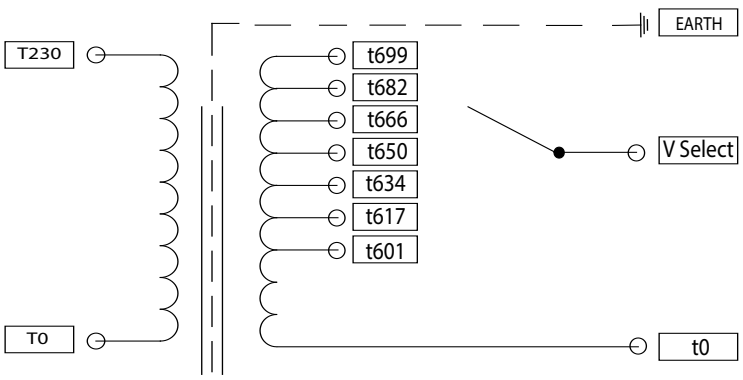
Rating		**10KVA**	**15KVA**	**20KVA**	**25KVA**	**30KVA**	**35KVA**	**40KVA**	**50KVA**	**60KVA**	**80KVA**
Part Number		**T2909**	**T3077**	**T2910**	**T3078**	**T2911**	**T3079**	**T3235**	**T3103**	**T2913**	**T3320**
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	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	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400V	400V	400V	400V	400V	400V	400V	400V	400V	400V
	Primary taps	-	-	-	-	-	-	-	-	-	-
	Recommended protection	40A Type C or D	50A Type C or D	80A Type C or D	80A Type C or D	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
	% Efficiency @ 100% FL	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%
	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	<10 x Flc	<10 x Flc	<10 x Flc
	I^2t (inrush)	< 625	< 1406	< 2500	< 3906	< 5625	<7656	< 10000	< 15625	< 22500	< 6992
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	0.57	0.65	0.99	0.82	0.61	0.87	0.68	1.3	2.12	1.85
Output	Secondary rated voltage (V)	650	650	650	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%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	204	635	985	976	1122	1692	1187	974	1291	2875
	Duration of prospective fault current	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds
	Regulation at no-load and full rating of the transformer	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%
	Insulation Resistance (Ω)	Primary to Core *>100M Ω* Secondary to Core *>100M Ω* Primary to Secondary *>100M Ω*									
Weight (kg)		150	190	215	240	310	310	390	450	500	555

Wiring Diagram



Data Specification
Single Phase 230/650V

Rating		**10KVA**	**15KVA**	**20KVA**	**25KVA**	**30KVA**	**35KVA**	**40KVA**	**50KVA**	**60KVA**
Part Number		**T2909-1**	**T3077-1**	**T2910-1**	**T3078-1**	**T2911-1**	**T3079-1**	**T3235-1**	**T3103-1**	**T2913-1**
Equipment Classification	Primary Winding Classification	Class I	Class I	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	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400V	400V	400V	400V	400V	400V	400V	400V	400V
	Primary taps	-	-	-	-	-	-	-	-	-
	Recommended protection	40A Type C or D	63A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	225A Type C or D	300A Type C or D	350A Type C or D
	% Efficiency @ 100% FL	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%
	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	<10 x Flc	<10 x Flc
	I^2t (inrush)	< 1890	< 4253	< 7561	< 11814	< 17013	< 23156	< 30245	< 47258	<68052
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	0.66	0.57	1.18	1.3	1.43	1.27	-	1.28	-
Output	Secondary rated voltage (V)	650	650	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%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	353	303	542.6	494	682	791	-	937	-
	Duration of prospective fault current	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds
	Regulation at no-load and full rating of the transformer	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%
	Insulation Resistance (Ω)	Primary to Core *>100M Ω* Secondary to Core *>100M Ω* Primary to Secondary *>100M Ω*								
Weight (kg)		150	190	215	240	310	310	390	450	500

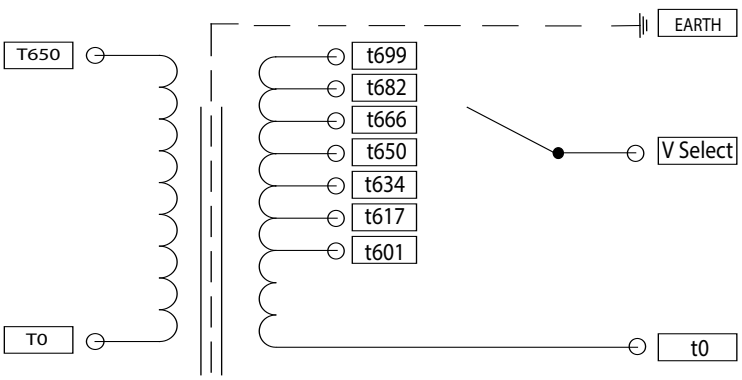


Wiring Diagram

IP32 Principal Supply Point (PSP) Transformers

Data Specification
Single Phase 650/650V

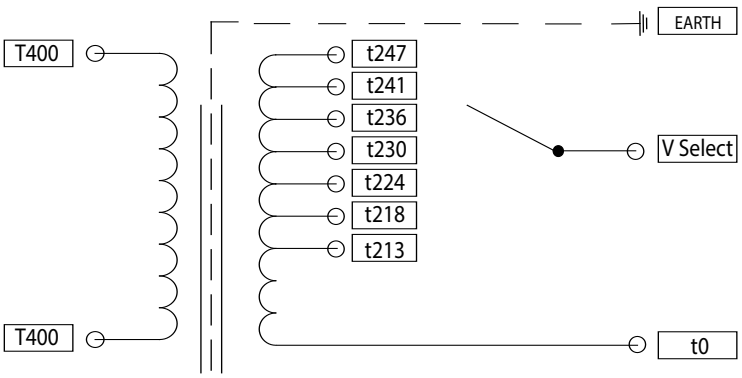
Rating		10KVA	15KVA	20KVA	25KVA	30KVA	35KVA	40KVA	50KVA	60KVA
Part Number		T2909-2	T3077-2	T2910-2	T3078-2	T2911-2	T3079-2	T3235-2	T3103-2	T2913-2
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	650	650	650	650	650	650	650	650	650
	Primary taps	-	-	-	-	-	-	-	-	-
	Recommended protection	20A Type C or D	32A Type C or D	50A Type C or D	63A Type C or D	63A Type C or D	80A Type C or D	80A Type C or D	100A Type C or D	125A Type C or D
	% Efficiency @ 100% FL	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%
	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	<10 x Flc	<10 x Flc
	I^2t (inrush)	< 236	< 946	< 1479	< 2130	< 2130	< 2899	< 3789	< 5917	< 8520
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	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%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-	-	-
	Duration of prospective fault current	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds
	Regulation at no-load and full rating of the transformer	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%
	Insulation Resistance (Ω)	Primary to Core *>100M Ω* Secondary to Core *>100M Ω* Primary to Secondary *>100M Ω*								
Weight (kg)		150	190	215	240	310	310	390	450	500



Wiring Diagram

Data Specification
Single Phase 400/230V

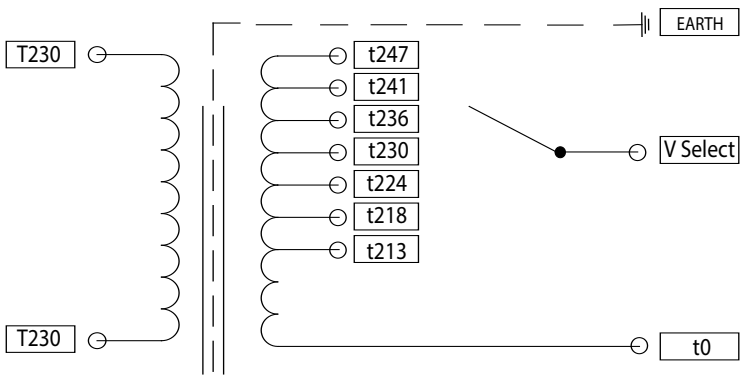
Rating		10KVA	15KVA	20KVA	25KVA	30KVA	35KVA	40KVA	50KVA	60KVA
Part Number		T2909-3	T3077-3	T2910-3	T3078-3	T2911-3	T3079-3	T3235-3	T3103-3	T2913-3
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Secondary Winding Classification	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400V	400V	400V	400V	400V	400V	400V	400V	400V
	Primary taps	-	-	-	-	-	-	-		
	Recommended protection	40A Type C or D	50A Type C or D	80A Type C or D	80A Type C or D	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
	% Efficiency @ 100% FL	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%	>96%
	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	TBA	TBA
	I^2t (inrush)	< 625	< 1406	< 2500	< 3906	< 5625	<7656	< 10000	< 15625	< 22500
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	TBA	TBA
	X/R ratio	-	-	-	-	-	-	-	-	-
Output	Secondary rated voltage (V)	230	230	230	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%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-	-	-
	Duration of prospective fault current	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	TBA	TBA
	Regulation at no-load and full rating of the transformer	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%
	Insulation Resistance (Ω)	Primary to Core *>100M Ω* Secondary to Core *>100M Ω* Primary to Secondary *>100M Ω*								
Weight (kg)		150	190	215	240	310	310	390	TBA	TBA



Wiring Diagram

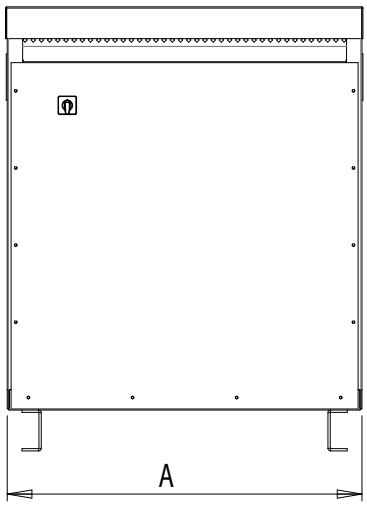
Data Specification
Single Phase 230/230V

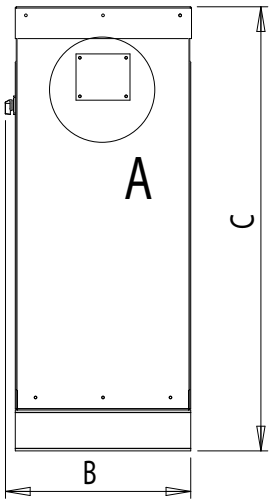
Rating		**10KVA**	**15KVA**	**20KVA**	**25KVA**	**30KVA**	**35KVA**	**40KVA**	**50KVA**	**60KVA**
Part Number		**T2909-4**	**T3077-4**	**T2910-4**	**T3078-4**	**T2911-4**	**T3079-4**	**T3235-4**	**T3103-4**	**T2913-4**
Equipment Classification	Primary Winding Classification	Class I	Class I	Class I	Class 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	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	230V	230V	230V	230V	230V	230V	230V	230V	230V
	Primary taps	-	-	-	-	-	-	-	-	-
	Recommended protection	40A Type C or D	63A Type C or D	125A Type C or D	160A Type C or D	180A Type C or D	200A Type C or D	225A Type C or D	300A Type C or D	350A Type C or D
	% Efficiency	>97%	>97%	>97%	>97%	>97%	>97%	>97%	TBA	TBA
	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	TBA	TBA
	I^2t (inrush)	< 1890	< 4253	< 7561	< 11814	< 17013	< 23156	< 30245	< 47258	<68052
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	-	-	-	-	-	-	-	-
Output	Secondary rated voltage (V)	230	230	230	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%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	-	-	-	-	-	-	-	-
	Duration of prospective fault current	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	TBA	TBA
	Regulation at no-load and full rating of the transformer	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%
	Insulation Resistance (Ω)	Primary to Core *>100M Ω* Secondary to Core *>100M Ω* Primary to Secondary *>100M Ω*								
Weight (kg)		150	190	215	240	310	310	390	TBA	TBA

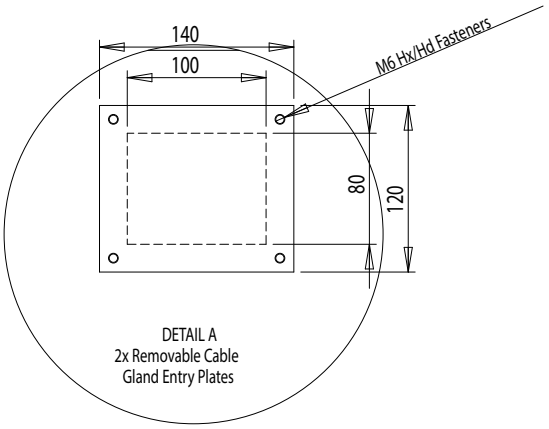


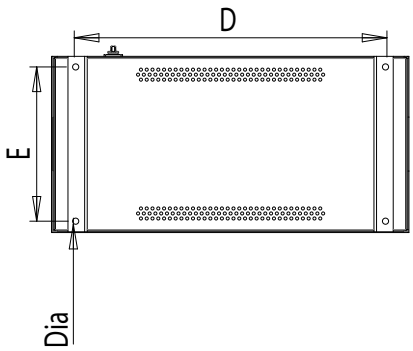
Wiring Diagram

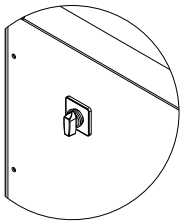
General Arrangements
Single Phase





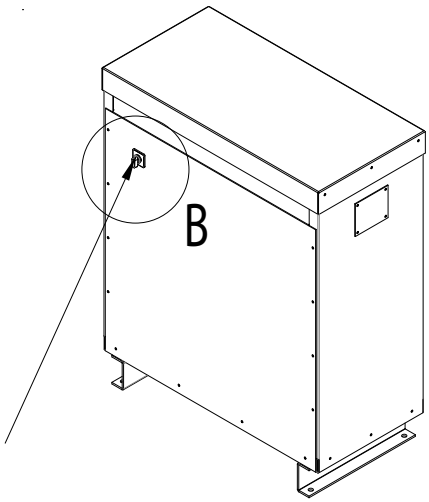






DETAIL B
Tap Changer

SCALE 1:10



Single Phase						
Model	Dimension (mm)					
	A	B	C	D	E	Dia
10KVA	600	550	850	350	500	16
15KVA	600	550	850	350	500	16
20KVA	600	500	850	350	500	16
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.

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.

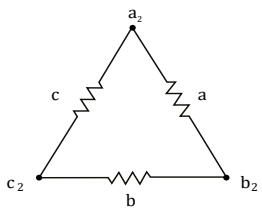
Data Specification

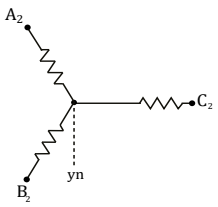
Three Phase 400/650V

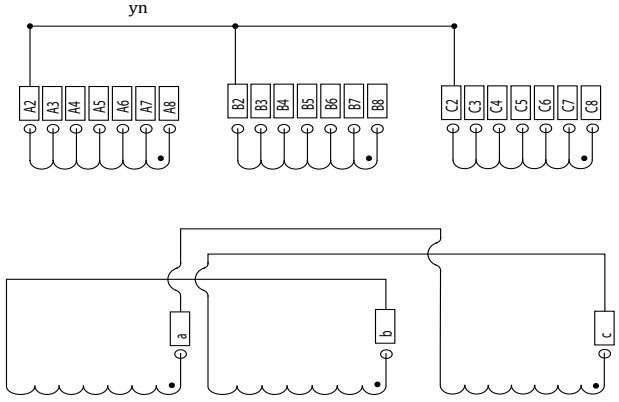
Dyn11 Vector Group

Rating		**10KVA**	**20KVA**	**25KVA**	**30KVA**	**35KVA**	**40KVA**	**50KVA**	**60KVA**	**80KVA**
Part Number		**T2914**	**T2961**	**T3116**	**T2915**	**T3334**	**T2962**	**T3058**	**T2963**	**T3027**
Equipment Classification	Primary Winding Classification	Class I	Class I	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	Class I	Class I
	Winding Conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (V)	400V	400V	400V	400V	400V	400V	400V	400V	400V
	Primary taps	-	-	-	-	-	-	-	-	-
	Recommended protection	20A Type C or D	40A Type C or D	63A Type C or D	63A Type C or D	80A Type C or D	80A Type C or D	100A Type C or D	125A Type C or D	160A Type C or D
	% Efficiency	>97%	>97%	>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	<10 x Flc	<10 x Flc
	I^2t (inrush)	TBA	TBA	TBA	TBA	196	TBA	TBA	TBA	TBA
	% Impedance	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%	< 5%
	X/R ratio	-	1.15	-	-	1.39	-	-	-	-
Output	Secondary rated voltage (V)	650	650	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%	+/- 2.5,5,7.5%	+/- 2.5,5,7.5%
	Prospective fault current (A)	-	353	-	-	659	-	-	-	-
	Duration of prospective fault current	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds	>2 Seconds
	Regulation at no-load and full rating of the transformer	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%	<3.4%
	Insulation Resistance (Ω)	Primary to Core *>100M Ω* Secondary to Core *>100M Ω* Primary to Secondary *>100M Ω*								
Weight (kg)		TBA	280	295	310	330	340	450	500	690

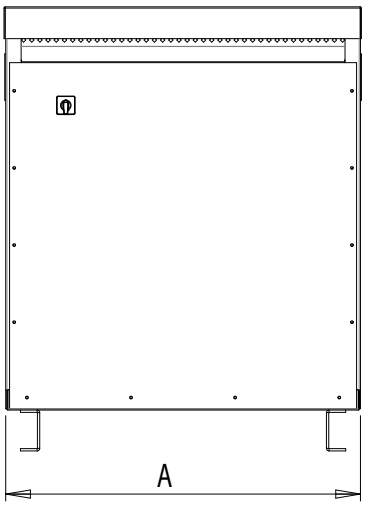
Wiring Diagram

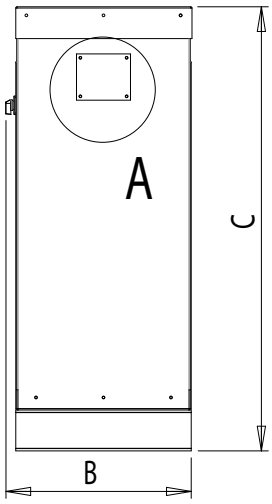


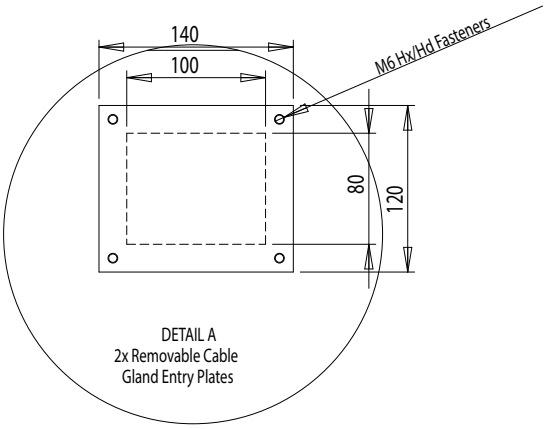


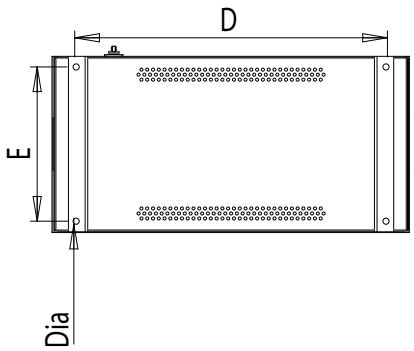


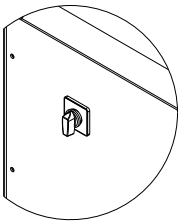
General Arrangements
Three Phase





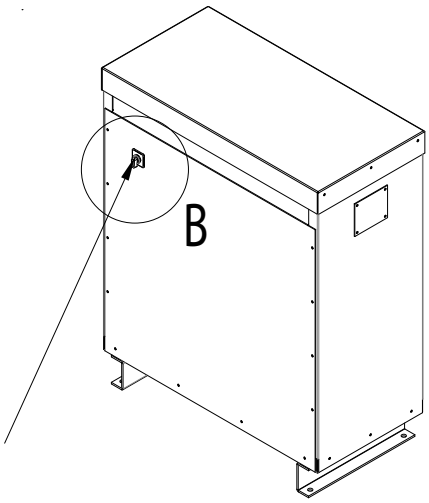






DETAIL B
Tap Changer

SCALE 1:10



On-Load tap changer

Three Phase						
Model	Dimension (mm)					
	A	B	C	D	E	Dia
10KVA	-	-	-	-	-	16
20KVA	760	500	1100	-	-	16
25KVA	760	500	1100	-	-	16
30KVA	760	500	1100	-	-	16
35KVA	760	500	1100	690	400	16
40KVA	760	500	1100	690	400	16
50KVA	920	500	1200	810	400	16
60KVA	920	500	1200	810	400	16
80KVA	920	500	1200	810	400	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.

DATASHEET BROCHURE
ASP/PSP Transformers

IP56 Principle (PSP) and Auxiliary (ASP) supply point Transformers

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

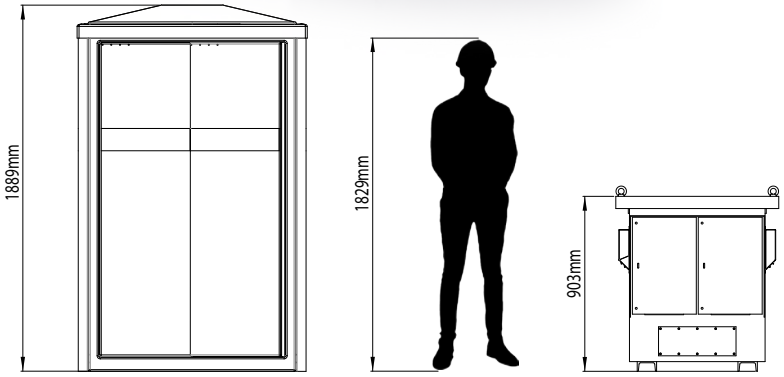
Aluminium
PSP/ASP Transformers

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.

Outdoor IP56
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 may

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

eco - rail® ALUMINIUM Technology Inside

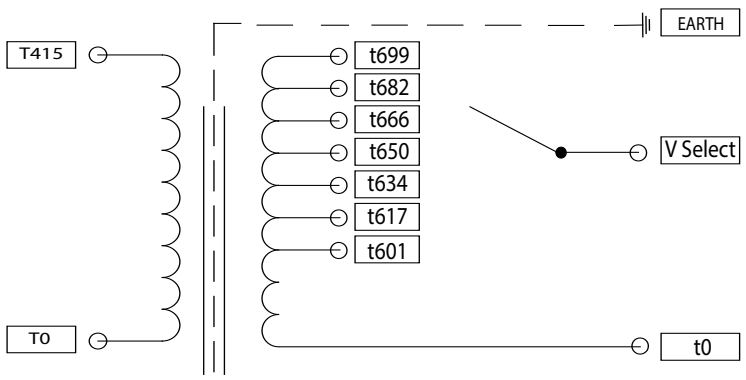
Powered By ATL Transformers Ltd

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.

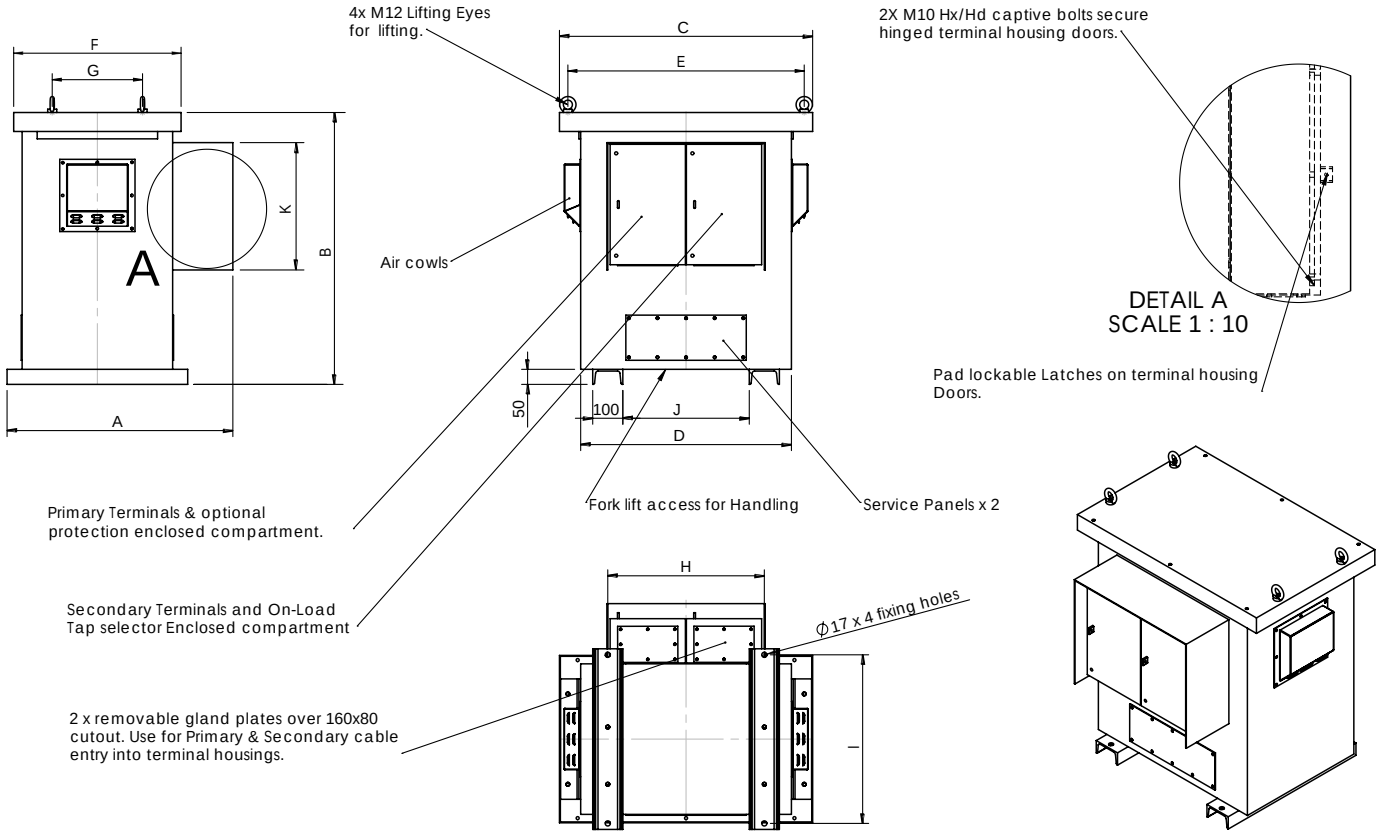
Data Specification
Single Phase 415/650V Class I

Rating		10KVA	20KVA	30KVA	40KVA	50KVA
Part Number		**T3320**	**T3248**	**T3321**	**T3505**	**T3504**
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	-	-	-	-	-
	Recommended protection	32A	65A	100A	130A	160A
	% Efficiency @ 100% FL	>96%	>96%	>96%	>96%	>96%
	Inrush (x times rated current)	<10	<10	<10	<10	<10
	I^2t (inrush)	-	-	-	-	-
	% Impedance	<5%	<5%	<5%	<5%	<5%
	X/R ratio	-	-	-	-	-
Output	Secondary rated voltage (V)	650	650	650	650	650
	Secondary taps	601-617-634-650-666-682-699 VAC	601-617-634-650-666-682-699 VAC	601-617-634-650-666-682-699 VAC	601-617-634-650-666-682-699 VAC	601-617-634-650-666-682-699 VAC
	Prospective fault current (A)	-	-	-	-	-
	Duration of prospective fault current	>2 seconds	>2 seconds	>2 seconds	>2 seconds	>2 seconds
	Regulation at no-load and full rating of the transformer	<3%	<3%	<3%	<3%	<3%
	Insulation Resistance (Ω)	Primary to Core *>100M Ω* Secondary to Core *>100M Ω* Primary to Secondary *>100M Ω*				



Wiring Diagram

General Arrangements
10-50 KVA ASP/PSP



Note: GA applies to all Voltage Ranges on Primary and Secondary from 230-650V

Single 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
20KVA	750	903	841	700	785	556	300	300	560	200	500
30KVA	750	903	841	700	785	556	300	520	560	420	500
40KVA	860	1018	616	700	785	616	300	520	610	420	500
50KVA	860	1018	616	700	785	616	300	520	610	420	500

Note: Specifying ATL Transformers in a project? 3D Models and 2D drawings avaialable 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.

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.

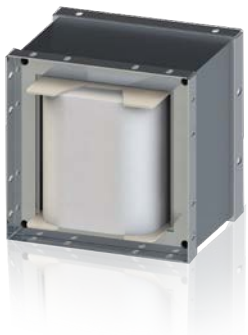
• The safest transformer solution available for Class II schemes.

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 aluminum windings and connection technology. making it more cost effective than traditional copper windings.

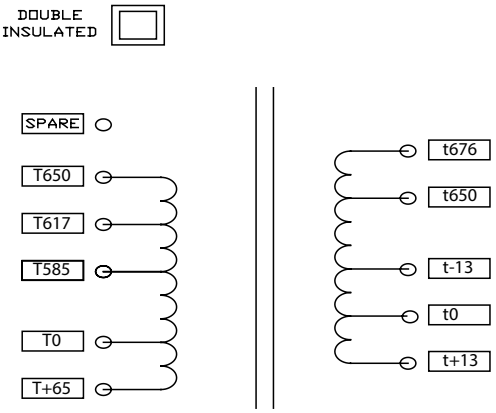
DITA Transformers

Principle System Aplications

- 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 cur rent between different railway traction system designs

Data Specification
Single Output 650/650V

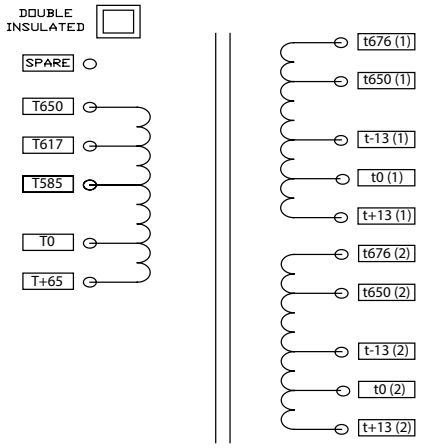
Model		5KVA	10KVA	15KVA	20KVA	30KVA	40KVA
Part Reference		T3258	T3259	T3260	T3257	T3278	T3275
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Winding 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^2t (Fuse selection)	< 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 at no-load and full rating of the transformer	< 3	< 3	< 3	< 3	< 3	< 3
	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*	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



Wiring Diagram

Data Specification
Dual Output 650/650V

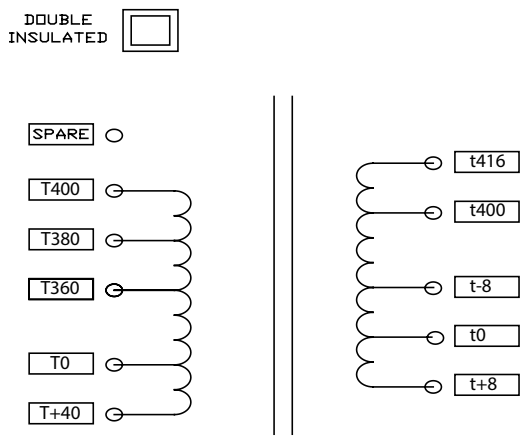
Model		5KVA	10KVA	15KVA	20KVA	30KVA	40KVA
Part Reference		T3258-3	T3259-3	T3260-3	T3257-3	T3278-3	T3275-3
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class 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^2t (Fuse selection)	< 14.79	< 59.17	< 133	< 236	< 532	< 946
	% impedance	< 5	< 5	< 5	< 5	< 5	< 5
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (VAC)	2 X 650	2 X 650	2 X 650	2 X 650	2 X 650	2 X 650
	Secondary taps	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	2 X 2.5KVA (5KVA)	2 X 5KVA (10KVA)	2 X 7.5KVA (15KVA)	2 X 10KVA (20KVA)	2 X 15KVA (30KVA)	2 X 20KVA (40KVA)
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	> 2	> 2	> 2	> 2	> 2	> 2
	Regulation at no-load and full rating of the transformer	< 3	< 3	< 3	< 3	< 3	< 3
	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*	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



Wiring Diagram

Data Specification
Single Output 400/400V

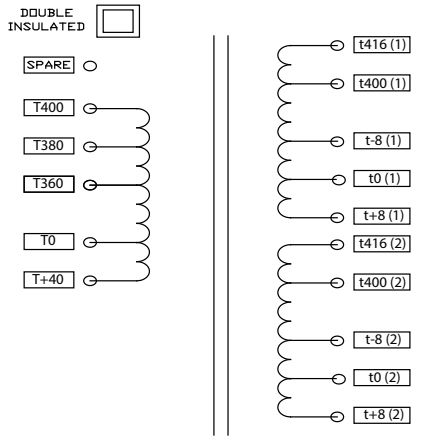
Model		5KVA	10KVA	15KVA	20KVA	30KVA	40KVA
Part Reference		T3258-1	T3259-1	T3260-1	T3257-1	T3278-1	T3275-1
Equipment Classification	Primary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Secondary Winding Classification	Class II	Class II	Class II	Class II	Class II	Class II
	Winding conductor	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium
Input	Primary rated voltage (VAC)	400	400	400	400	400	400
	Primary taps (VAC)	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**
	Recommended Primary protection	20A BS88 & IEC 60269-1&2	35A BS88 & IEC 60269-1&2	50A BS88 & IEC 60269-1&2	80A BS88 & IEC 60269-1&2	100A BS88 & IEC 60269-1&2	140A BS88 & IEC 60269-1&2
	% efficiency	>97	>97	>97	>97	>97	>97
	Inrush (x times rated current)	< 5	< 5	< 5	< 5	< 5	< 5
	I^2t (Fuse selection)	< 39	< 156	< 351	< 625	< 1406	< 2500
	% impedance	< 5	< 5	< 5	< 5	< 5	< 5
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (VAC)	400	400	400	400	400	400
	Secondary taps (VAC)	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416
	Rating	5KVA	10KVA	15KVA	20KVA	30KVA	40KVA
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current (secs)	> 2	> 2	> 2	> 2	> 2	> 2
	% Regulation at no-load and full rating of the transformer	< 3	< 3	< 3	< 3	< 3	< 3
	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*	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



Wiring Diagram

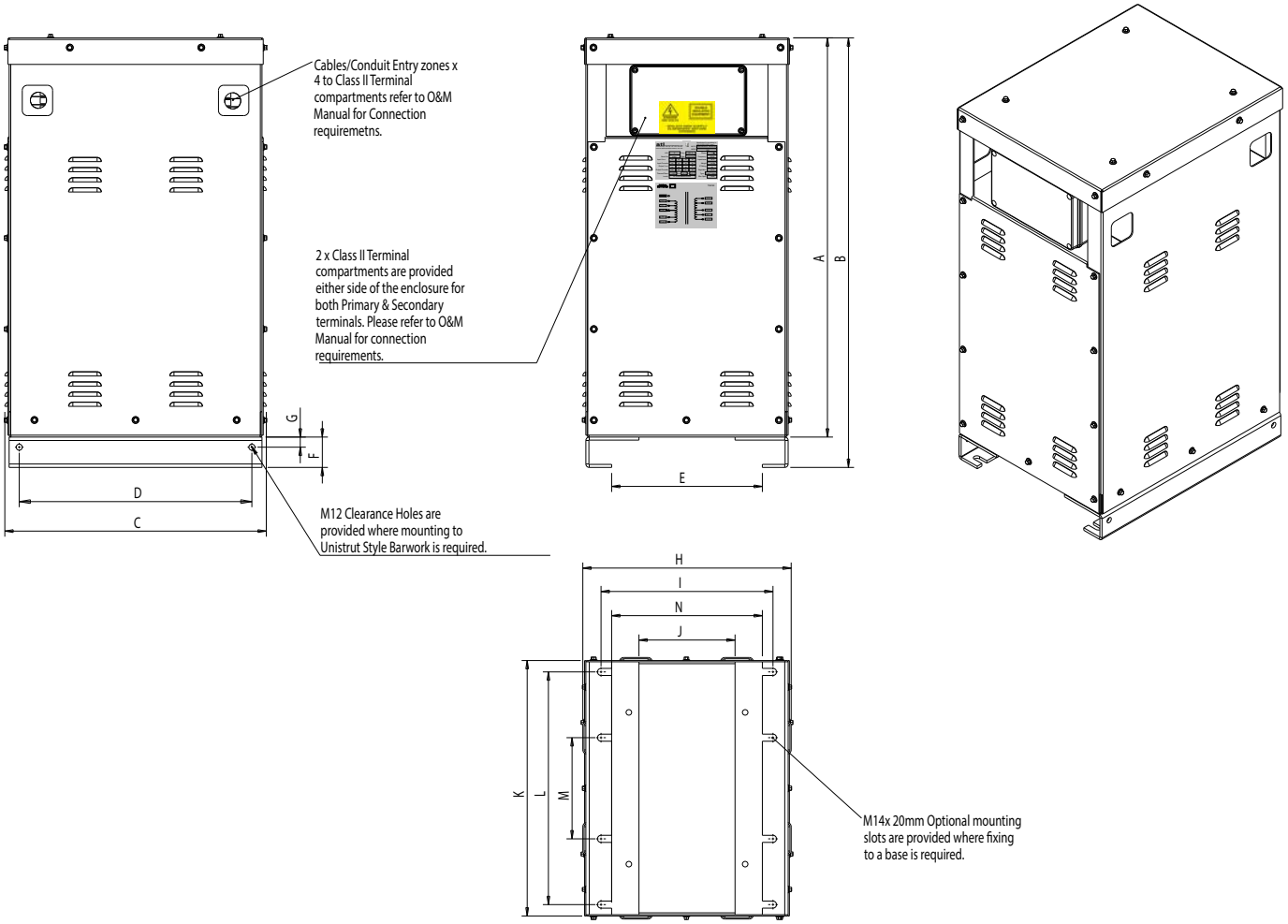
Data Specification
Dual Output 400/400V

Model		5KVA	10KVA	15KVA	20KVA	30KVA	40KVA
Part Reference		T3258-4	T3259-4	T3260-4	T3257-4	T3278-4	T3275-4
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)	400	400	400	400	400	400
	Primary taps (VAC)	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**	40-0-360-380-**400**
	Recommended Primary protection	20A BS88 & IEC 60269-1&2	35A BS88 & IEC 60269-1&2	50A BS88 & IEC 60269-1&2	80A BS88 & IEC 60269-1&2	100A BS88 & IEC 60269-1&2	140A BS88 & IEC 60269-1&2
	% efficiency	>97	>97	>97	>97	>97	>97
	Inrush (x times rated current)	< 5	< 5	< 5	< 5	< 5	< 5
	I^2t (Fuse selection)	< 39	< 156	< 351	< 625	< 1406	< 2500
	% impedance	< 5	< 5	< 5	< 5	< 5	< 5
	X/R ratio	-	-	-	-	-	-
Output	Secondary rated voltage (VAC)	2 X 400	2 X 400	2 X 400	2 X 400	2 X 400	2 X 400
	Secondary taps	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416	8-0-8-**400**-416
	Rating	2 X 2.5KVA (5KVA)	2 X 5KVA (10KVA)	2 X 7.5KVA (15KVA)	2 X 10KVA (20KVA)	2 X 15KVA (30KVA)	2 X 20KVA (40KVA)
	Prospective fault current (A)	-	-	-	-	-	-
	Duration of prospective fault current	> 2	> 2	> 2	> 2	> 2	> 2
	Regulation at no-load and full rating of the transformer	< 3	< 3	< 3	< 3	< 3	< 3
	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*	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



Wiring Diagram

General Arrangements
5-40KVA DITA



Model	Dimension (mm)													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
5KVA	479	539	517	460	298	60	20	412	354	160	505	460	200	312
10KVA	689	749	517	460	298	60	20	412	340	140	505	460	200	298
15KVA	789	849	519	460	298	60	20	412	340	190	505	460	200	298
20KVA	789	849	519	460	398	60	20	512	440	240	505	460	200	398
30KVA	990	1050	517	460	598	60	20	712	640	390	505	460	200	598
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:

Sam Flint
Product Acceptance Coordinator

Authorised by:

Felix Langley
Professional Head of Power Distribution HV/LV

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DATASHEET BROCHURE
Auxiliary Transformers

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

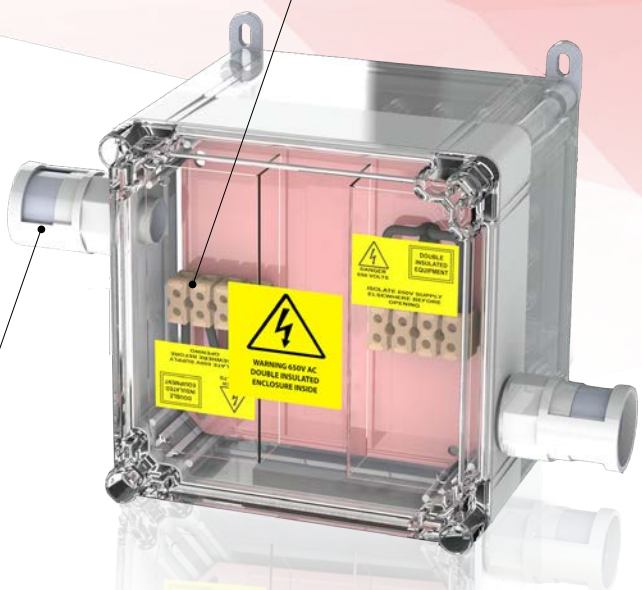
IP67 family of non critical Full Class II isolating transformers for auxiliary circuits. these units are for use within Class II Switchgear Assemblies to Supply Class II Anti Codensation Heaters and lighting.

DANGER
650 VOLTS
DOUBLE
INSULATED
EQUIPMENT
ISOLATE 650V SUPPLY
ELSEWHERE BEFORE
OPENING
WARNING 650V AC
DOUBLE INSULATED
ENCLOSURE INSIDE

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 transfomers are ideal for use within Class II switchgear assemblies to suppy 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

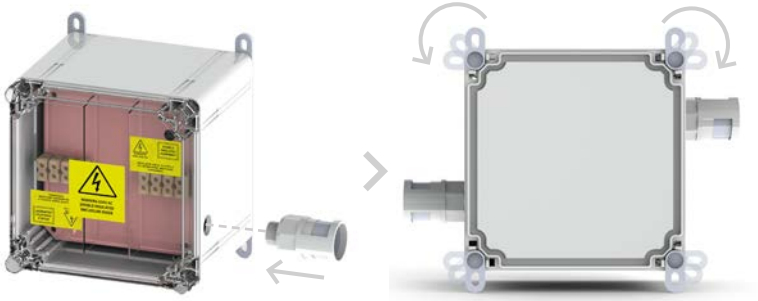


M25 Holes
2 x M25 holes provided for suitable conduict coupling

IP66/IP67 Enclosure
Waterproof

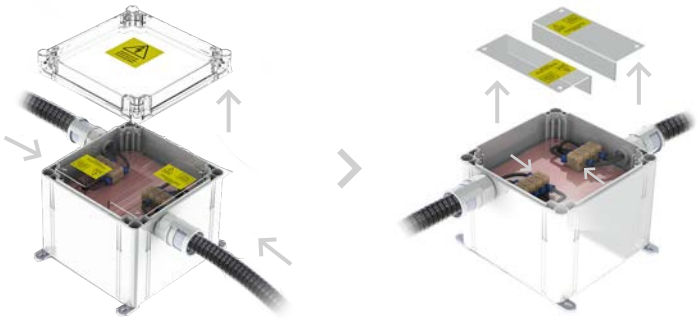
KEY FEATURES

- 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.
- Ajustable mounting feet which gives more option when installing.



Simple to Install

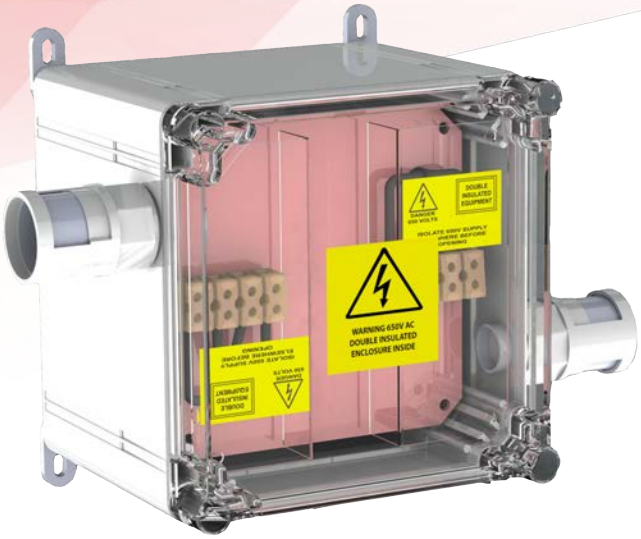
Adjustable mounting feet on the back of enclosure gives more clearance when fitting.



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

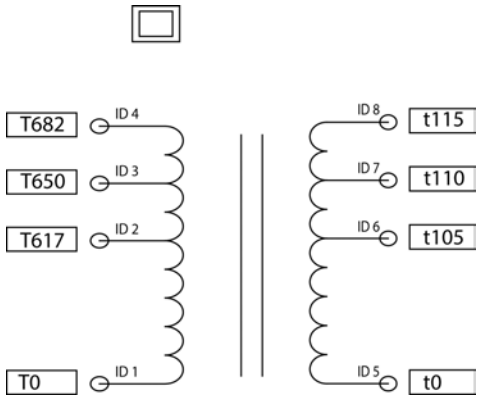


The Auxiliary Transformer is available in wide range of different VA ratings, these include:

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

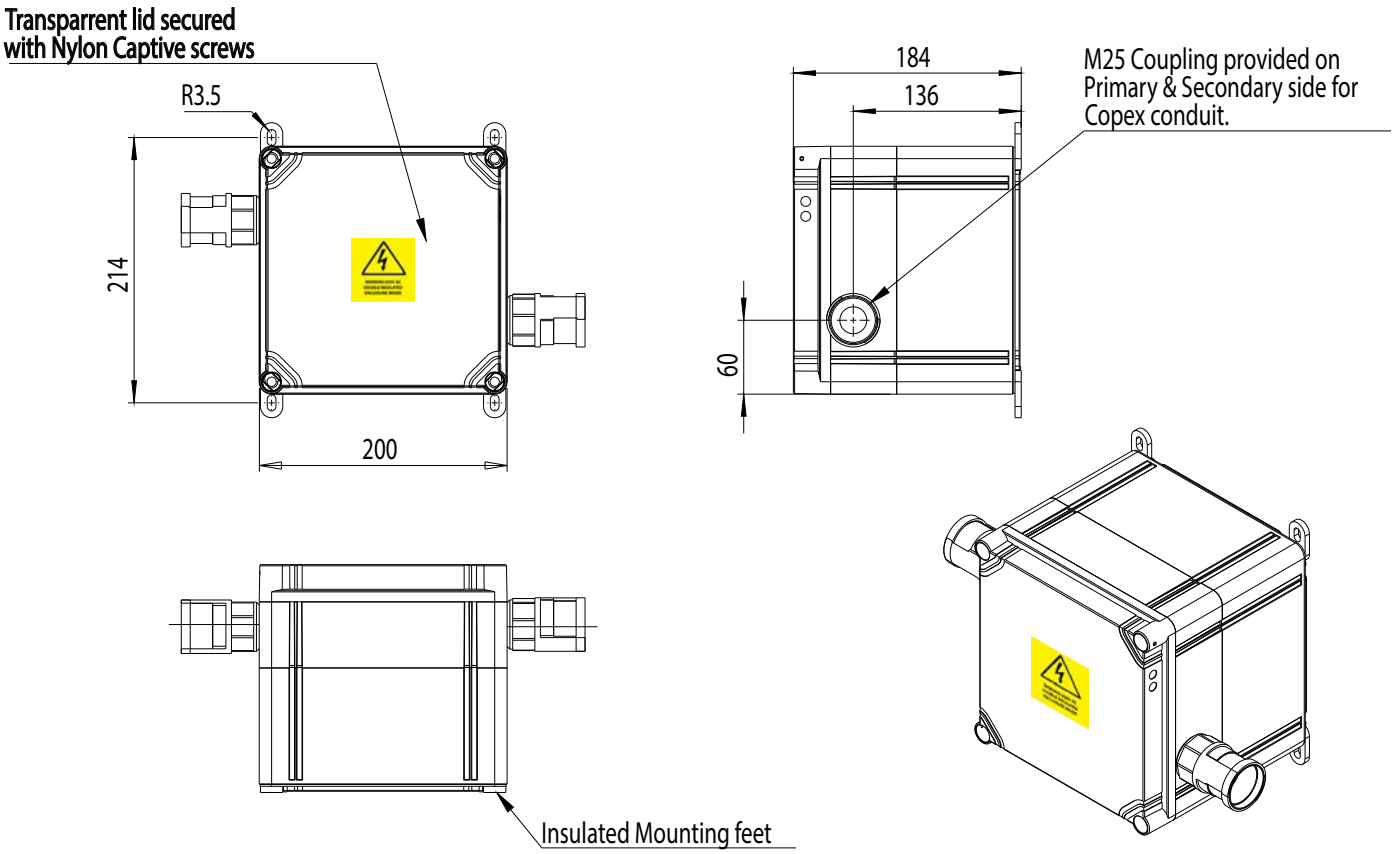
Data Specification
50-250VA

Model		50VA	100VA	150VA	250VA
Part Reference		**T3047**	**T3045**	**T3046**	**T3044**
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	89.3%	90.8%	91.81%	94.29%
	Inrush (x times rated curre nt)	9.0	6.6	5.7	6.32
	I^2t	0.03	0.11	0.08	0.36
	% impedance	8.23%	9.3%	12.53	8.50
	X/R ratio	0.54	0.72	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	11	18	
	Duration of prospective fault current	15.5 Ses	19.7 Secs	11.6 Secs	5.8 Secs
	Regulation at no-load and full rating of the transformer	6.04	6.89	6.80	4.86
	Winding inductance (mH)	0.77	0.60	0.36	35.76
	Winding resistance (Ω)				
	Insulation Resitance (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



Notes

Notes

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

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.

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