

Manufacturer:
Trans-Tronic Ltd

Issue : 3
Valid From : 26/01/2016

Class II Hybrid Signalling Power Products

Product Description

A range of Class II Hybrid Signalling Transformers, Transformer-rectifiers and Multi-output Power Supplies for Signalling applications.

Product Image



Scope of Acceptance

Full Acceptance

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

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

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

Reviewed by:

Authorised by:

Nigel Edwards
Head of Power Distribution HV/LV

Vanessa Cumine
Process & Change Specialist

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

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Specific Conditions

The following Conditions are specific to the approved product/s contained within this Certificate. These conditions must be adhered to in addition to the Network Rail General Conditions contained within the "General Terms and Conditions" section. Failure to adhere to these conditions may result in the withdrawal or suspension of Acceptance of some, or all of the items contained within the accepted configuration.

Manufacturer

- 1) The Routine tests defined in the Quality procedures of Trans-Tronic Ltd shall be applied to all units prior to release.
- 2) A batch sampling plan in accordance with BS6001 shall be prepared and updated. An appropriate number of samples shall be drawn from each batch to demonstrate compliance has been achieved with NR/L2/SIG/30007 and associated requirements.
- 3) All enclosures shall satisfy the dielectric test in accordance with BS EN 61439 clause 10.9.4 to a test voltage of 3.5kV.
- 4) All test records shall be maintained for traceability of tests

User

- 1) Conditions for installation, commissioning and maintenance to be adhered too are defined in the O&M Manual provided by Trans-Tronic Ltd.
- 2) The following application criteria and constraints apply:
 - a) Installations where compatibility for space, voltage and load are satisfied;
 - b) The Class II Transformers, Transformer-rectifiers and Multi-output Power Supplies are suitable for use in coastal areas;
 - c) Not to be used in sub-surface environments in accordance with section 12 stations and locations;
 - d) Primary Protection of the Class II Hybrid Transformers, Transformer-rectifiers and Multi-output Power Supplies shall be either BS88 Type gG or IEC 60269, 10x38mm gG fuses. Miniature Circuit Breakers shall not be used;
 - e) The Transformer-rectifiers listed on this certificate can be used as a replacement for legacy units compliant to BR865.

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3) Transformer-rectifier Conditions

The load in terms of the maximum number of point machines from each output for each unit, is defined in tables below.

For improved reliability, the standard configuration for powering twin-pump, Hy-drive machines is using a 5A, dual output T/J where each pump has a dedicated power supply. This cannot be achieved with single output 10A, T/J which is therefore restricted to powering only one Hy-drive pump.

Table 1

TB203. Single Output, 650/120V d.c. 2.5A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	1 machine
ALSTOM, HW2000	1 machine
Siemens, Style 63	1 machine
SPX Rail Systems, Clamplock Points Machine	2 machines

Table 2

TB206. Single Output, 650/120V d.c. 5A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	2 machines
ALSTOM, HW2000	2 machines
ALSTOM, Hy-drive	1 pump (equates to half of a Hy-drive machine)
IAD Rail Systems, HPSS	1 machine
Siemens, Style 63	2 machines
SPX Rail Systems, Clamplock Points Machine	4 machines

Table 3

TB209. Single output 650/120V d.c. 10A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	4 machines
ALSTOM, HW2000	4 machines
ALSTOM, Hy-drive	1 pump (equates to half of a Hy-drive machine)
IAD Rail Systems, HPSS	2 machines
Siemens, Style 63	4 machines
SPX Rail Systems, Clamplock Points Machine	8 machines

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Table 4

TB204. Single Output, 400V – 440V/120V d.c. 2.5A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	1 machine
ALSTOM, HW2000	1 machine
Siemens, Style 63	1 machine
SPX Rail Systems, Clamplock Points Machine	2 machines

Table 5

TB207. Single Output, 400V – 440V/120V d.c. 5A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	2 machines
ALSTOM, HW2000	2 machines
ALSTOM, Hy-drive	1 pump (equates to half of a Hy-drive machine)
IAD Rail Systems, HPSS	1 machine
Siemens, Style 63	2 machines
SPX Rail Systems, Clamplock Points Machine	4 machines

Table 6

TB210. Single output 400 – 440V/120V d.c. 10A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	4 machines
ALSTOM, HW2000	4 machines
ALSTOM, Hy-drive	1 pump (equates to half of a Hy-drive machine)
IAD Rail Systems, HPSS	2 machines
Siemens, Style 63	4 machines
SPX Rail Systems, Clamplock Points Machine	8 machines

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Table 7

TB205. Single Output, 230V/120V d.c. 2.5A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	1 machine
ALSTOM, HW2000	1 machine
Siemens, Style 63	1 machine
SPX Rail Systems, Clamplock Points Machine	2 machines

Table 8

TB208. Single Output, 230V/120V d.c. 5A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	2 machines
ALSTOM, HW2000	2 machines
ALSTOM, Hy-drive	1 pump (equates to half of a Hy-drive machine)
IAD Rail Systems, HPSS	1 machine
Siemens, Style 63	2 machines
SPX Rail Systems, Clamplock Points Machine	4 machines

Table 9

TB211. Single output 230V/120V d.c. 10A Transformer-rectifier	
Points Machine Type	Load Constraints
ALSTOM, HW1000	4 machines
ALSTOM, HW2000	4 machines
ALSTOM, Hy-drive	1 pump (equates to half of a Hy-drive machine)
IAD Rail Systems, HPSS	2 machines
Siemens, Style 63	4 machines
SPX Rail Systems, Clamplock Points Machine	8 machines

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Product Configuration

Class II Hybrid Transformers

Part No.	Description	Catalogue No.
TB126	Class II Hybrid Transformer 650/110V 250VA	054/212570
TB091	Class II Hybrid Transformer 650/110V 500VA	054/212571
TB092	Class II Hybrid Transformer 650/110V 1000VA	054/212572
TB129	Class II Hybrid Transformer 650/110V 1500VA	054/212573
TB093	Class II Hybrid Transformer 650/110V 3000VA	054/212574
TB127	Class II Hybrid Transformer (400-440V)/110V 250VA	054/212575
TB123	Class II Hybrid Transformer (400-440V)/110V 500VA	054/212576
TB095	Class II Hybrid Transformer (400-440V)/110V 1000VA	054/212577
TB130	Class II Hybrid Transformer (400-440V)/110V 1500VA	054/212578
TB096	Class II Hybrid Transformer (400-440V)/110V 3000VA	054/212579
TB128	Class II Hybrid Transformer 230/110V 250VA	054/212580
TB097	Class II Hybrid Transformer 230/110V 500VA	054/212581
TB098	Class II Hybrid Transformer 230/110V 1000VA	054/212582
TB131	Class II Hybrid Transformer 230/110V 1500VA	054/212583
TB099	Class II Hybrid Transformer 230/110V 3000VA	054/212584
TB132	Class II Hybrid Transformer 650/230V 250VA	054/212585
TB133	Class II Hybrid Transformer 650/230V 500VA	054/212586
TB134	Class II Hybrid Transformer 650/230V 1000VA	054/212587
TB143	Class II Hybrid Transformer 650/230V 1500VA	054/212588
TB144	Class II Hybrid Transformer 650/230V 3000VA	054/212589
TB166	Class II Hybrid Transformer 650/110V 5000VA	054/212599
TB169	Class II Hybrid Transformer Input: 650V Outputs: x1 (110/140V, 850VA) Outputs: x1 (110V, 150VA)	0054/212602
TB171	Class II Hybrid Transformer Input: 650V Outputs: x4 (110/140V, 350VA)	0054/212603

Class II Hybrid Multi-output Power Supplies

TB167	Class II Hybrid Multi-output Power Supply Input: 650V Outputs: x3 (110/140V, 350VA) Outputs: x1 (110/140V, 500VA) Outputs: x2 (50V, 150W)	0054/212604
TB168	Class II Hybrid Multi-output Power Supply Input: 650V Outputs: x2 (110/140V, 450VA) Outputs: x1 (50V, 150W)	0054/212605

Class II Hybrid Transformer-rectifiers

Part No.	Description	Catalogue No.
TB203	Class II Hybrid Transformer Rectifier 650V input, 120V dc output, 2.5A output (continuous), 10A output (int. driving).	054/212590
TB206	Class II Hybrid Transformer Rectifier 650V input, 120V dc output, 5A output (continuous), 20A output (int. driving).	054/212591
TB209	Class II Hybrid Transformer Rectifier 650V input, 120V dc output, 10A output (continuous), 40A output (int. driving).	054/212592

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Class II Hybrid Transformer-rectifiers

Part No.	Description	Catalogue No.
TB204	Class II Hybrid Transformer Rectifier 400-440V input, 120V dc output, 2.5A output (continuous), 10A output (int. driving).	054/212593
TB207	Class II Hybrid Transformer Rectifier 400-440V input, 120V dc output, 5A output (continuous), 20A output (int. driving).	054/212594
TB210	Class II Hybrid Transformer Rectifier 400-440V input, 120V dc output, 10A output (continuous), 40A output (int. driving).	054/212595
TB205	Class II Hybrid Transformer Rectifier 230V input, 120V dc output, 2.5A output (continuous), 10A output (int. driving).	054/212596
TB208	Class II Hybrid Transformer Rectifier 230V input, 120V dc output, 5A output (continuous), 20A output (int. driving).	054/212597
TB211	Class II Hybrid Transformer Rectifier 230V input, 120V dc output, 10A output (continuous), 40A output (int. driving).	054/212598

Certificate of Acceptance

PA05/05325

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Assessed Documentation

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
---	PA05/05321 Acceptance requirements doc	---	02-03-2012	1
---	PA05/05325 Acceptance requirements doc	---	02-03-2012	1
---	PA05/05321 Product application form	---	31/08/2013	1
---	PA05/05325 Product application form	---	undated	1
---	PA05/05325 Product evidence zip file.	---	04-07-2013	1
---	Iss3_TT_Evidence (see NR Sharepoint)	---	18-12-15	3

Manuals and Training Materials

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
---	O&M manual – Class II Hybrid Transformer Rectifier for point machines	1.4	26/07/2013	1
---	O&M manual – Class II Hybrid FSP Isolating Transformer	1.4	26/07/2013	1
---	O&M manual – Class II Hybrid FSP Isolating Transformer	2.0	03/03/15	3

Certificate History

Issue	Date	Issue History
1	26-07-2013	First accepted for use
2	31-07-2013	Re-issued to capture correct part numbers
3	26-01-2016	Re-issued to add new products (TB166, TB169, TB171, TB167 & TB168)

Contact Details

Manufacturer

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General Terms & Conditions

1) General

- 1) This certificate can only be amended by Network Rail Technology Introduction Group. Any alterations made by a different person will invalidate the entire certificate.
- 2) Failure to abide by the requirements in this Certificate of Acceptance may invalidate the certificate, thereby restricting the right to operate the product and / or limiting the future supply and deployment of the product on the infrastructure.
- 3) Upon the review date this certificate and the product it relates to is invalid and not accepted for use. Manufacturers are to make an application for a review prior to the review date.

2) Manufacturer

The Manufacturer shall:

- 1) Ensure that all products supplied comply with the standards defined in the Acceptance Requirements or otherwise documented as part of the assessment, including meeting the reliability requirements included in the Acceptance Requirements and in any deed of warranty for the relevant certificate number.
- 2) Notify Network Rail Technology Introduction Group:
 - a. Within 48 hours, of any deficiencies affecting the quality, functionality or safety integrity of the product (including corrective action undertaken or proposed).
 - b. Of any intended change to the accepted product; changes include:
 - i. a change to the product configuration (to the actual product or its application);
 - ii. a variation to or addition of manufacturing locations or processes;
 - iii. a change in the name or ownership of the manufacturing company;
 - iv. any changes to the ability or intention to support with technical services, spares or repairs.
- 3) The Manufacturer shall provide Network Rail Technology Introduction Group at least 12 (twelve) months notice of its intention to discontinue supply or to provide such notice as is reasonable if such discontinuance is outside its control and will offer the opportunity of a Last Time Buy to Network Rail together with date for last order placement and supply of the parts affected. The introduction of proposed alternative products shall be communicated to the Network Rail Technology Introduction Group.
- 4) Provide further copies of operating and maintenance manuals to purchasers / users of the product as necessary (including certificates of conformance, calibration etc).
- 5) Provide further copies of training manuals and an appropriate level of training to purchasers or users of the product as necessary.
- 6) Where applicable, specialist technical support, repairs and servicing of the product shall be carried out by the Original Equipment Manufacturer (OEM) or authorised agent only.
- 7) Network Rail may request information from the manufacturer to prove product compliance with clauses 1 and 2 above and reserve the right to suspend and/or withdraw any application where information is not forthcoming within a reasonable timeframe.
- 8) In accordance with Network Rail's Quality Assurance Policy Statement 2011, where the specification and/or Product Acceptance Certificates specify quality assurance classifications (QA1 to QA5) for the products, the manufacturer shall comply with the specified level of quality assurance for each product and allow Network Rail access to carry out its quality assurance checks.
- 9) The manufacturer shall give Network Rail's representatives access at all reasonable times to its premises and allow them to inspect its quality systems and production methods and, if requested, to inspect, examine and test the products both during and after their manufacture and the materials being used in their manufacture.

3) Conditions of Use

Specifiers, installers, operators, maintainers, etc. using the product shall:

- 1) Comply with the certificate conditions. If a condition is not understood guidance must be sought from Network Rail Technology Introduction Group.
- 2) Check that the application of use complies with the relevant certificate's scope of acceptance.
- 3) Report any defect if it is a design or manufacturing fault likely to affect performance and/or the safe operation of the railway in writing to Network Rail Technology Introduction Group.
- 4) Inform Network Rail Technology Introduction Group in writing of a change to the product configuration (or to the actual product or its application).
- 5) Operate, maintain and service the product in accordance with Network Rail standards and Operation and Maintenance manuals as appropriate.
- 6) Be appropriately trained and authorised for the installation, maintenance and use of the product.
- 7) Only send products for repair or reconditioning to the Original Equipment Manufacturer (OEM) or authorised agent.
- 8) Users are to be aware that Product Acceptance is not a substitute for design approval.

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4) Compliance

Railways and Other Guided Systems (ROGS) Regulations

- 1) Where the product is to be used in areas where Network Rail is not the Infrastructure Manager (e.g. leased stations), the sponsor shall additionally obtain formal consent from the Infrastructure Manager for the locality where the equipment is to be installed. This may include a requirement for additional safety verification. The decision of that Infrastructure Manager is binding, and cannot be overridden by Network Rail except by the escalation processes established in the ROGS regulations
- 2) As required in Railway Group Standard GE/RT8270, at each use of this product the project or group responsible for installation and commissioning shall be required to demonstrate compatibility with:

- a. All rail vehicle types that have access rights over the area affected by the change
- b. Infrastructure managed by others
- c. Neighbours.

Railway Interoperability Regulations

- 3) For interoperable constituents of systems the project or group responsible for installation and commissioning shall be required to demonstrate compliance with the relevant Technical Specifications for Interoperability (TSI) where appropriate.
- 4) An authorisation from the national safety authority (i.e. the Railway Safety Directorate of the Office of Rail Regulation) is required before the equipment is to be used in revenue earning service.

5) Supply Chain Arrangements

- 1) Certificates of acceptance do not imply any particular quantity of supply nor any exclusivity of supply.
- 2) Products may be purchased by Network Rail or its agents, suppliers or contractors.
- 3) Manufacturers should note that it is not necessary to enter into any exclusive supply arrangements with resellers or other suppliers