

**Manufacturer:**  
ATL Transformers Ltd

**Issue :** 2  
**Valid From :** 06-03-20

## Class II Hybrid Transformer-rectifiers

### Product Description

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

### Product Image



### Scope of Acceptance

#### Full Acceptance

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

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

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

Reviewed by:

Authorised by:



Samantha Flint  
Product Acceptance Coordinator



Felix Langley  
Professional Head of Power Distribution HV/LV



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

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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 ATL Transformers 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 ATL Transformer Ltd, Operations & Maintenance Manual, Doc Ref 152, Issue1, 23/11/15.
- 2) The following application criteria and constraints apply:
  - a) Installations where compatibility for space, voltage and load are satisfied;
  - b) The Class II Transformer-rectifiers 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, Transformer-rectifiers 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;
- 3) The load in terms of the maximum number of point machines from each output for each unit is defined in the 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

T3040, T3403, T3404 – Single Output, 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

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Table 2

<b>T3024, T3405, T3406 - Single Output, 120V d.c. 5A Transformer-rectifier</b>	
<b>Points Machine Type</b>	<b>Load Constraints</b>
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

<b>T3007, T3407, T3408 - Single Output, 120V d.c. 10A Transformer-rectifier</b>	
<b>Points Machine Type</b>	<b>Load Constraints</b>
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

Table 4

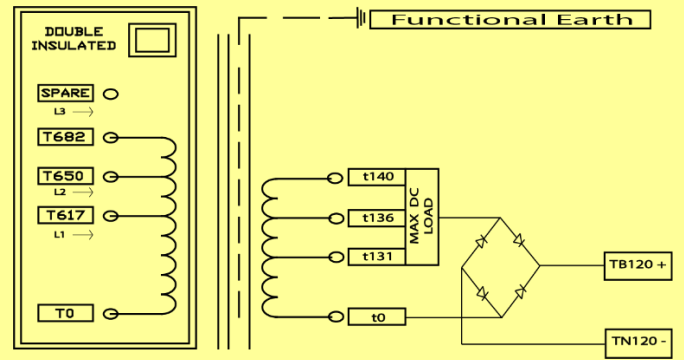
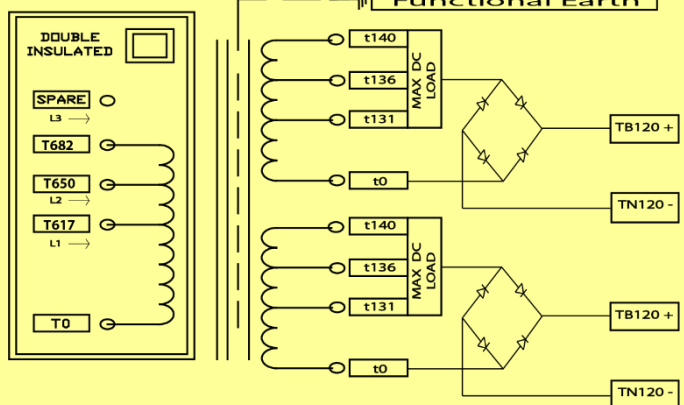
<b>T3055, T3409, T3410, T3092 – Dual Output, 120V d.c. 5A Transformer-rectifier</b>	
<b>Points Machine Type</b>	<b>Load Constraints (each output)</b>
ALSTOM, HW1000	2 machines
ALSTOM, HW2000	2 machines
ALSTOM, Hy-drive	1 pump (equates to half of a Hy-drive machine)
IAD Rail Systems, HPSS	1 machine
Siemens, Style 63	2 machines
SPX Rail Systems, Clamplock Points Machine	4 machines

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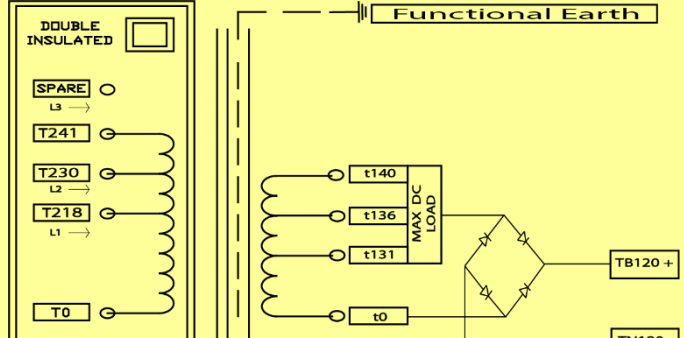
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## Product Configuration

### Class II Hybrid Transformer-rectifier Units 650/120Vd.c.

Part No.	Description	Catalogue No.	Wiring Diagram
T2966	Class II, Hybrid, 650V/120Vd.c. 1 x 2.5A dc output Transformer-rectifier	054/035055	
T3024	Class II, Hybrid, 650V/120Vd.c. 1 x 5A dc output Transformer-rectifier	054/035056	
T3007	Class II, Hybrid, 650V/120Vd.c. 1 x 10A dc output Transformer-rectifier	054/035057	
T3055	Class II, Hybrid, 650V/120Vd.c. 2 x 5A dc output Transformer-rectifier	054/035058	

### Class II Hybrid Transformer-rectifier Units 230/120Vd.c.

Part No.	Description	Catalogue No.	Wiring Diagram
T3403	Class II, Hybrid, 230V/120Vd.c. 1 x 2.5A dc output Transformer-rectifier	0054/035060	
T3405	Class II, Hybrid, 230V/120Vd.c. 1 x 5A dc output Transformer-rectifier	0054/035061	
T3407	Class II, Hybrid, 230V/120Vd.c. 1 x 10A dc output Transformer-rectifier	0054/035062	

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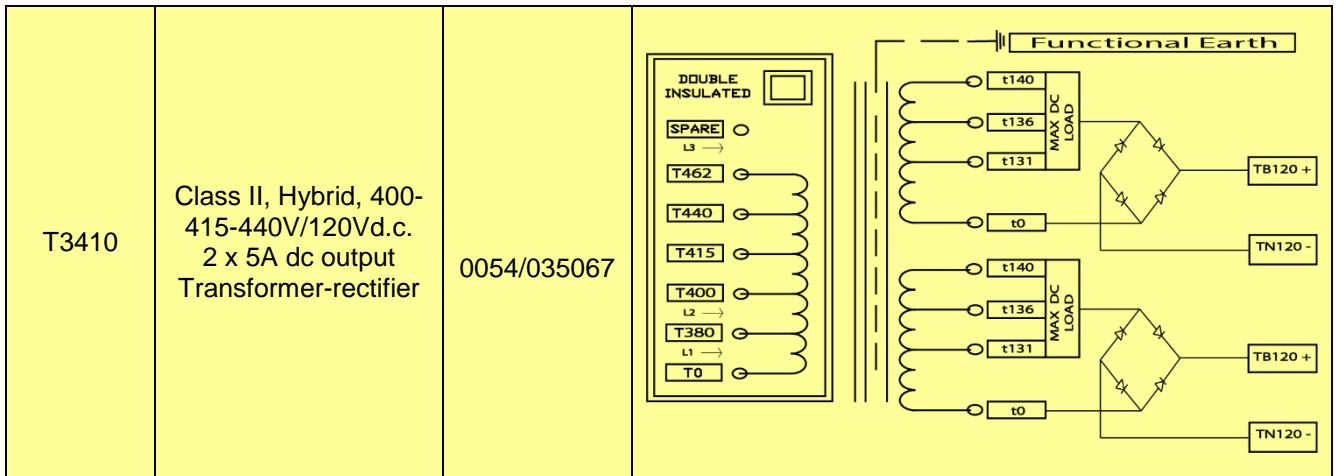
<p>T3409</p>	<p>Class II, Hybrid, 230V/120Vd.c. 2 x 5A dc output Transformer-rectifier</p>	<p>0054/035063</p>	
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**Class II Hybrid Transformer-rectifier Units 400-415-440V/120Vd.c.**

Part No.	Description	Catalogue No.	Wiring Diagram
<p>T3092</p>	<p>Class II, Hybrid, 400V/120Vd.c. 2 x 5A dc output Transformer-rectifier</p>	<p>054/035059</p>	
<p>T3404</p>	<p>Class II, Hybrid, 400-415-440V/120Vd.c. 1 x 2.5A dc output Transformer-rectifier</p>	<p>0054/035064</p>	
<p>T3406</p>	<p>Class II, Hybrid, 400-415-440V/120Vd.c. 1 x 5A dc output Transformer-rectifier</p>	<p>0054/035065</p>	
<p>T3408</p>	<p>Class II, Hybrid, 400-415-440V/120Vd.c. 1 x 10A dc output Transformer-rectifier</p>	<p>0054/035066</p>	

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## Assessed Documentation

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
N/A	PA05_6329_TJ_Compliance (Excel spreadsheet providing a Compliance Summary)	-	16/12/15	1
2013-0390	ERA Report, Assessment of ATL Class II Hybrid Transformer	1	20/01/14	1
105	ATL Technical Datasheet, 650VAC/120V @ 2.5A DC Class II Hybrid Transformer Rectifier	1	2/12/15	1
106	ATL Technical Datasheet, 650VAC/120V @ 5A DC Class II Hybrid Transformer Rectifier	1	2/12/15	1
107	ATL Technical Datasheet, 650VAC/120V @ 10A DC Class II Hybrid Transformer Rectifier	1	2/12/15	1
146	ATL Technical Datasheet, 650VAC/2x120V @ 5A DC Class II Hybrid Transformer Rectifier	1	2/12/15	1
147	ATL Technical Datasheet, 400VAC/2x120V @ 5A DC Class II Hybrid Transformer Rectifier	1	2/12/15	1
153	Factory Test Specification for Class II Hybrid FSP Transformer Rectifiers for Network Rail	0	10/12/15	1
076	Manufacturing Manual for Class II Hybrid FSP eco-rail® Transformers for Network Rail	5	10/06/15	1
102	ATL Test Report: Class II Hybrid FSP Transformer Rectifiers for Network Rail	1	15/12/15	1
Elec Spec No T3040	Test Certificate	0	12/01/15	1
Elec Spec No T3024	Test Certificate	0	29/10/14	1
Elec Spec No T3007	Test Certificate	0	12/06/15	1
Elec Spec No T3055	Test Certificate	1	23/09/15	1
Elec Spec No T3092	Test Certificate	1	23/09/15	1
N/A	Declaration of Conformity Product: Class II Hybrid FSP Transformer Rectifiers for Network Rail. Model Numbers: T3040, T3024, T3007, T3055 & T3092	-	11/12/15	1
FS 571915	ISO 9001:2008 Quality Management Certificate of Registration	-	29/05/14	-
152				
-	Vishay Semiconductors, VS-MB Series. Single phase bridge (power modules), 25A/35A	-	10/07/13	1
T3040	Bill of Materials	-	12/12/15	1
T3024	Bill of Materials	-	12/12/15	1
T3007	Bill of Materials	-	15/01/14	1
T3055	Bill of Materials	-	12/12/15	1
T3092	Bill of Materials	-	12/12/15	1
Copyright © 2015 ATL Transformers Ltd	PA 05/06329 ATL Ltd Product Copyright Notice	-	December 2015	-

# Certificate of Acceptance

PA05/06329

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## Manuals and Training Materials

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
152	Class II Hybrid TJs For Network Rail Power Distribution Networks Operations & Maintenance Manual	1	23/11/15	1
TECH-152	ATL Test Report: Derived Voltage variant sampling of PADS approved range PA05/05761 PA05/06391 products	1	July 2019	2
	Declaration of Conformity - Council Directive 2006/95/EC (December 2006) on Low Voltage Equipment Safety: BS EN 61558-1 Council Directive 2004/108/EC (December 2004) on Electromagnetic Compatibility		05/03/2019	2
	Email from Neville Haide confirming there are minor changes in design to those already approved		29/11/2019	2

## Certificate History

Issue	Date	Issue History
1	29/01/16	First accepted for use
2	26/02/20	Product range extended

## 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