



AUSTRALIAN RAIL TRACK CORPORATION

Certificate No.: **S 05-14-20-152**

NEW EQUIPMENT & SYSTEM APPROVAL CERTIFICATE

Approval date: 4 December 2014

Approved by: Review Panel

Report no.: TAR-05-14-20-152

Report date: 7 July 2014

This certificate is issued to:

Supplier: **Exelectronics**

In respect of:

Manufacturer: **Exelectronics**
Unit 8,
1A Coulson Street,
Erskineville,
Sydney NSW 2012

Product description: **EXMODE DC/DC CONVERTER**

Item identification: **SEE APPROVED ITEM LIST**

Application: DC/DC converter for use across entire ARTC network

Relevant Standards:
SPS 02 – 'Environmental Conditions'
SPS 22 – 'Power Supply Units for Signalling Equipment – General Requirements'
SPS 37 – 'Lightning/Surge Protection – Power Inductors'
SDS 25 – 'Signalling Circuit Design Standards'

Conditions of Approval:

1. For installation only in equipment housings having active or passive mechanical ventilation and/or climate control designed to keep the ambient temperature below ARTCs maximum specification.
2. Any input or output connections to circuitry which runs external to the equipment housing must be protected by adequate surge filters including series inductors (as per ARTC specification SPS 37) and triggered spark gaps from line to earth.
3. For use in accordance with ARTC specification SDS 25 and standard typical circuits only modified as required to ensure surge protection (see ii above).
4. Only components from the list in Attachment A may be utilised.
5. Exelectronics to ensure they continue to meet ESG-00-15 Quality Controlled Supplier requirements as set out by ARTC. ARTC reserves the right to conduct its own audit of the manufacture and supply of these components to AS 19011.
6. Power supply de-ratings to be followed as specified in Attachment A conditions of use. It is a requirement of this type approval to de-rate the power output as to align with ARTC Standard SPS02 which requires the equipment to operate up to a temperature of 70°C.
7. Fixing type (Din rail, G rail or BRB) to be included in ordering request.
8. Any subsequent change to the design, materials or manufacturing process is not covered by this approval. The manufacturer should notify ARTC of any modification or changes in order to obtain a valid certificate.

components to AS 19011.

Any subsequent change to the design, materials or manufacturing process is not covered by this approval. The manufacturer should notify ARTC of any modification or changes in order to obtain a valid certificate.

Note/Comments:

None

Issue date:

4 December 2014

Expiry date: N/A

Page:

2 of 5

Issued by:



John Furness
ARTC Manager Standards

NEW EQUIPMENT & SYSTEM APPROVAL - APPROVED ITEM LIST

Product description: EXMODE DC/DC CONVERTER RANGE

Certificate No: S 05-14-20-152

The following lists the individual types (by catalogue number) of DC/DC Converters manufactured by Exelectronics which are type approved for use in signalling circuits on ARTC infrastructure under Type Approval Certificate **S-05-14-20-152** subject only to any conditions shown on that Certificate and the Conditions of Use shown against individual types.

Exmode E30

Type	Input Voltage	Input Fusing (Recommended)	Output Rating	Conditions of Use
30W Model				
E05001	12v Nominal 10.8V to 16V Continuous	5AF	5V 6A	22.5W – de- rating
E05046			12V 2.5A	
E05047			24V 1.25A	
E05048			48V 0.65A	
E05049	24v Nominal 21V to 32V Continuous	2AF	5V 6A	
E05050			12V 2.5A	
E05051			24V 1.25A	
E05052			48V 0.65A	
E05053	48v Nominal 42V to 64V Continuous	1.5AF	5V 6A	
E05054			12V 2.5A	
E05055			24V 1.25A	
E05056			48V 0.65A	

Exmode E60

Type	Input Voltage	Input Fusing (Recommended)	Output Rating	Conditions of Use
60W Model				
E05002	12v Nominal 10.8V to 16V Continuous	10AF	5V 12A	45W – de-rating
E05057			12V 5A	
E05058			24V 2.5A	
E05059			48V 1.25A	
E05060	24v Nominal 21V to 32V Continuous	5AF	5V 12A	
E05061			12V 5A	
E05062			24V 2.5A	
E05063			48V 1.25A	
E05064	48v Nominal 42V to 64V Continuous	2.5AF	5V 12A	
E05065			12V 5A	
E05066			24V 2.5A	
E05067			48V 1.25A	

Exmode E120

Type	Input Voltage	Input Startup/Shutdow n	Input Fusing (Recommende d)	Output Rating	Condition s of Use
120W Model					
E05003	12v Nominal 10 V to 20V Continuous	11V Startup 9.5V Shutdown	16AF	5V 124A	90W – de- rating
E05068				12V 10A	
E05069				24V 5A	
E05070				48V 2.5A	
E05071	24v Nominal 18V to 40V Continuous	20V Startup 17V Shutdown	10AF	5V 124A	
E05072				12V 10A	
E05073				24V 5A	
E05074				48V 2.5A	
E05075	24V Nominal 14.5V to 36V Continuous	15V Startup 13V Shutdown	12.5AF	13.75V 8.8A	
E05076	48v Nominal 36V to 72V Continuous	37V Startup 33V Shutdown	5AF	5V 124A	
E05077				12V 10A	
E05078				24V 5A	
E05079				48V 2.5A	
E05080	110 Nominal 80V to 175V Continuous	87.5V Startup 77V Shutdown	2AF	5V 124A	
E05081				12V 10A	
E05082				24V 5A	
E05083				48V 2.5A	
Wide Input Model 100W					
E05084	9.5V to 36V	11.5V Startup 9.3V	12.5AF	12V 8.3A	75W – de- rating
E05085	Continuous	Shutdown		24V 4.2A	

Exmode E180

Type	Input Voltage	Input Startup/Shutdow n	Input Fusing (Recommende d)	Output Rating	Condition s of Use
180W Model					
E05004	12v Nominal 10 V to 20V Continuous	11V Startup 9.5V Shutdown	25AF	5V 36A	135W – de-rating
E05086				12V 15A	
E05087				24V 7.5A	
E05088				48V 3.8A	
E05089	24v Nominal 18V to 40V Continuous	20V Startup 17V Shutdown	12.5AF	5V 36A	
E05090				12V 15A	
E05091				24V 7.5A	
E05092				48V 3.8A	
E05093	48v Nominal 36V to 72V Continuous	37V Startup 33V Shutdown	6.3AF	5V 36A	
E05094				12V 15A	
E05095				24V 7.5A	
E05096				48V 3.8A	
E05097	110 Nominal 80V to 175V Continuous	87.5V Startup 77V Shutdown	3AF	5V 36A	
E05098				12V 15A	
E05109				24V 7.5A	
E05100				48V 3.8A	
Wide Input Model 150W					
E05101	9.5V to 36V	11.5V Startup 9.3V	20AF	12V 12.5A	112.5W – de-rating
E05102	Continuous	Shutdown		24V 6.3A	

Exmode E300

Type	Input Voltage	Input Start up/Shutdown	Input Fusing (Recommended)	Output Rating	Conditions of Use
300W Model					225W – de-rating
E05005	12v Nominal 10 V to 20V Continuous	11V Startup 9.5V Shutdown	40AF	12V 15A	
E05103				24V 7.5A	
E05104				48V 3.8A	
E05105	24v Nominal 18V to 40V Continuous	20V Startup 17V Shutdown	20AF	12V 15A	
E05106				24V 7.5A	
E05107				48V 3.8A	
E05108	48v Nominal 36V to 72V Continuous	37V Startup 33V Shutdown	12AF	12V 15A	
E05109				24V 7.5A	
E05110				48V 3.8A	
E05111	110 Nominal 80V to 175V Continuous	87.5V Startup 77V Shutdown	5AF	12V 15A	
E05112				24V 7.5A	
E05113				48V 3.8A	
Wide Input Model 300W					225W – de-rating
E05114	30V to 72V Continuous	19.5V Startup 17.5V Shutdown	15AF	24V 12.5A	

Previous model numbers – no longer manufactured (currently in use within ARTC network)

- E05001 – Exmode E30,
- E05002 – Exmode E60,
- E05003 – Exmode E120,
- E05004 – Exmode E180, and
- E05005 – Exmode E300.