

Certificate of Acceptance

PA05/05415

Manufacturer:
Dual Inventive

Issue : 3
Valid From : 26/04/2021

Critical Rail Temperature Monitor 3000 (CRTM and CRM)

Product Description

The CRTM 3000 (Critical Rail Temperature Monitor) enables staff to remotely monitor rail temperature in real time.

The CRM 3000 (Critical Rail Monitor) enables staff to remotely monitor rail temperature in real time.

The CRM 3000 uses modern technology to remove the need for additional power and reducing the size of the unit. The CRM 3000 is the preferred unit, and new purchases should be CRM 3000, rather than CRTM 3000.

The CRM 3000 utilises Narrowband Internet of Thing (NB-IoT) communication network removing the need for external gateway, reducing battery consumption and increases operational life.

The CRM 3000 and CRMT 3000 are designed to measure critical rail temperature at the point of installation and pass this information to the monitoring software (MTinfo3000) to provide remote monitoring and notifications.

The CRM 3000 utilises the same competencies and training material as the CRTM 3000.

Product Image



CRM 3000 (above)



CRTM3000, with additional gateway on the gantry.

Scope of Acceptance

Full Acceptance

Product fully approved to be used on Network Rail Managed Infrastructure in accordance with the terms listed on this certificate and any associated reference documentation.

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:



Aamir Malik
Product Acceptance Coordinator



Gareth Evans
Network Technical Head Track

Please contact prodacc@networkrail.co.uk

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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.

User

- 1) Surface of rail to be clean and free from debris prior to use of CRTM 3000 and CRM 3000.
- 2) Prior to deployment, the cellular network coverage shall be checked to ensure that NB-IoT connectivity can be assured.
Coverage details shall be checked with the cellular network provider or Dual Inventive.
- 3) For use in ambient temperatures between -20°C and 60°C.
- 4) The CRTM 3000 and CRM 3000 comply with Section 9.10 of NR/L2/TRK/3011 for measurement of rail temperature.
- 5) As required by NR/L2/TRK/3011 the CRTM 3000 and CRM 3000 shall be subject to an annual verification against a master thermometer.
The CRTM 3000 and CRM 3000 shall be within $\pm 2C$ of the master thermometer.

Product Configuration

System or Complete Assembly

Part No.	Description	Catalogue No.
40003000	CRTM 3000 set (1 x 40003001 + 2 X 40003002)	087/000887
40003001	CRTM 3000 - Gateway	087/000888
40003002	CRTM 3000 - Sensor	087/000889
40005000	Solar Panel plus support and connector	087/000890
60100004	MAIN Battery	087/000890
70001003	MTINFO 3000 - Servicepack CRTM 3000 Set	087/000891
70001004	MTINFO 3000 - Servicepack CRTM 3000 Gateway	087/000892
70001005	MTINFO 3000 - Servicepack CRTM 3000 Sensor	087/000893
40.00.70.00	The Greenhub 3000 - battery and solar panel all in one unit	087/000872
10.42.0031.00	CRM 3000 – Sensor	087/008736

Hardware (Maintenance Spare and Line Replaceable Unit)

Part No.	Description	Catalogue No.
80500001	Fleetservice CRTM 3000 set	087/000894
80500002	Fleetservice CRTM 3000 sensor	087/000895
80500003	Fleetservice CRTM 3000 Gateway	087/000896

Software

Part No.	Description	Catalogue No.
40003001	CRTM 3000 - Gateway	2.00
40003002	CRTM 3000 - Temperature Sensor	2.00

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Assessed Documentation

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
14C01593RPT01	Electromagnetic Compatibility Test Report		06/01/2015	1
	CRTM Risk Analysis			1
	CRTM 3000 Quick Start		07/2013	1
	CRTM 3000 presentation		08/2013	1
	CRTM Trial data		04/2013	1
	CRTM 3000 Support to 05415 CAR v2.00		08/2013	1
	EMC testplan – Gateway & Sensors v2.00		16/12/2014	1
	Product Specifications CRTM 3000		08/2013	1
NL019481	Dual Inventive Holding B.V ISO9001 Certificate	--	14/09/2018	3
2505	Dual Inventive RISQS Certificate	--	(expires) 03/12/2021	3
	Intellectual Property Statement CRM 3000	--	03/2021	3
CRM 3000 - DoC-v5-20210315	Dual Inventive Declaration of Conformity (CRM 3000)	--	02/2021	3
	CRM 3000 EN50159 Summary	--	16/06/2020	3
M19.002-P19.001	Vibration and Shock Tests on CRM 3000	--	29/11/2019	3
19C00849RPT01	Electromagnetic Compatibility Test Report-CRM 3000	--	20/11/2019	3
1821404/AA/00	Radio Equipment Directive certificate – in accordance to Article 3 of 2014/53/EU		13/07/2018	3
Reference List CRT devices Dual Inventive	Reference List CRT devices Dual Inventive	--	--	3
Data Comparison - CRM 3000	Data comparison CRM 3000 against NR datum temperature sensors	--	--	3
10.42.0031.00	A158 CRM exploded drawing	1.00	15/01/2020	3
TRUK/TN 21/088	Dual Inventive CRM3000 Track PA requirements Checklist	1.2	26/03/2021	3

Manuals and Training Materials

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
HL_CRM_3000_IA_E NG_IA	Manual for installation and use of the CRM 3000	--	January 2020	3

Certificate History

Issue	Date	Issue History
1	02/07/2013	First Accepted for use.
2	06/11/2018	Battery and Solar panel all in one unit added to certificate as additional part.
3	26/04/2021	CRM 3000 sensor added to certificate.

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Contact Details

Manufacturer

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General Terms & Conditions

1) General

- 1) This certificate can only be amended by Network Rail Product Acceptance, the Professional Head or nominated delegate. Any alterations made by a other persons 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 via the NR sponsoring applicant.

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 Network Rail Design for Reliability Standard(DFR) NR-L2-RSE-0005 and in any deed of warranty for the relevant certificate number.
- 2) Notify Network Rail Product Acceptance:
 - 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 Product Acceptance or National Supply Chain (NSC) 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 Network Rail Product Acceptance.
- 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, where the specification and/or Product Acceptance Certificates specify quality assurance classifications 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 Product Acceptance.
- 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 Product Acceptance.
- 4) Inform Network Rail Product Acceptance 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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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 RIS-8270-RST, 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 and Road) 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.