

# Certificate of Acceptance

OFFICIAL  
PA05/05043

**Manufacturer:**  
Dual Inventive

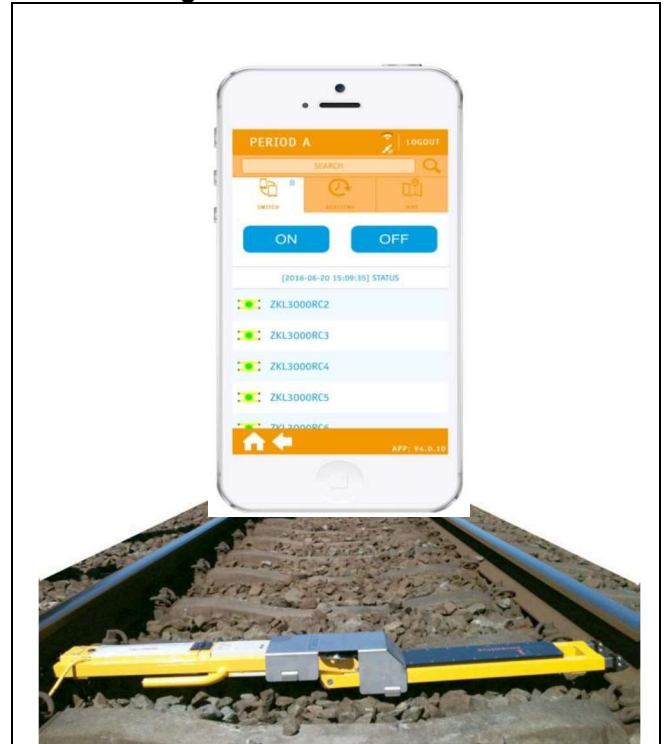
**Issue :** 12  
**Valid From :** 12/08/2022

## ZKL 3000 (RC) and RS 3000 (RC)

### Product Description

A remote controlled T-COD for activating track circuits during planned engineering operations. This product may also be left deactivated in traffic in between shift operations (as per operating instructions).

### Product Image



### Scope of Acceptance

#### Full Acceptance

Products and control processes fully approved within the limitations specified on this certificate.

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:

Steve Rennolds  
Product Acceptance Specialist

Peter Stone  
Acting Network Technical Head of Plant

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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) See General Terms and Conditions

### User

1)	All staff must be fully briefed of the use of the ZKL 3000 (RC) prior to entering the worksite
2)	Equipment SHALL ONLY be used by authorised personnel in accordance with mandatory rules and regulations, equipment operating instructions, and the operators declared Safe System of Work for ALL operational circumstances on Network Rail infrastructure
3)	Equipment Operator(s) and planners SHALL ensure that equipment is maintained in accordance with equipment manufacturer's recommendations detailed in the Operation and Maintenance Manual. Excluding pre-use maintenance activities, all other maintenance SHALL ONLY be conducted by the OEM or their approved agencies.  If at any point a product is found to be defective it SHALL be removed from the infrastructure, labelled 'DO NOT USE' (with a fault description if possible) and returned to the provider
4)	Equipment Operator(s) SHALL ensure that all staff required to use the equipment are suitably trained and authorised
5)	The Product SHALL <b>NOT</b> to be used for additional protection of possessions
6)	Local telecommunications coverage SHALL be established prior to the deployment of an (RC) unit to determine if it can be suitably managed during operation
7)	Appropriate PPE SHALL be worn at all times whilst the equipment is being installed/operated
8)	Unit weight is: 9 Kg Carry case: 6.5 Kg Total = 15.5 Kg
9)	The number of projects which can be operated by a single ZKL user SHALL be limited to 3 to reduce the likelihood of confusion when protecting multiple worksites.
10)	Once placed in circuit the product SHALL be secured by an external padlock. Padlock specifications are not specified but SHALL be robust enough to suitably resist tampering. Padlock keys/codes SHALL ONLY to be retained by the persons responsible (as defined within the work plan) to install and remove the product
11)	In the event of product/communications failure it is possible to operate the (RC) unit manually via a key operated switch. Such keys SHALL ONLY be retained by the persons responsible (as defined within the work plan) to operate the product (i.e. the delegated ZKL user or suitably briefed equivalent)

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12)	All deployment and operations of the ZKL 3000 (RC) SHALL be managed via the MTinfo process (as defined within the training programme). Access and use of this software process SHALL ONLY be done by person(s) competent in the activity and with suitable knowledge of worksite/activity planning procedures
13)	When carrying the ZKL3000 (RC) prior to installation or following removal the product SHALL ONLY be held as stated in the training programme so as not to damage the contact points
14)	Product battery life SHALL be managed as defined during the planning phase. When using an external battery pack care SHALL be taken to locate and secure the battery module in a position where it cannot foul the running rail or be influenced by passing traffic
15)	Product SHALL NOT to be left in traffic during OTM maintenance activities that involve disturbance between the running rails.
16)	When using an RS3000 or Dual Inventive Application it SHALL be retained and operated by a competent ZKL user in line with the specified worksite plan at all times.
17)	All pre-use and battery inspections SHALL be completed before each operation either using the Dual Inventive Application or on-site inspection.
18)	When using an RS3000 or Dual Inventive Application all maintenance and control procedures SHALL be adhere to as per items 2, 3, 4, 7, 10, 13
19)	Where the RS3000 or Dual Inventive Application it is to be operated from a signal box location care SHALL be taken to ensure all local and mandated communications protocols are adhere to. This process SHALL be agreed with the relevant signalling team prior to finalising the work plan
20)	Where used in 3 <sup>rd</sup> Rail 750V DC areas, the locations at which ZKL3000(RC) units are to be installed SHALL be in compliance with the requirements of NR/L3/OPS/009
21)	The ZKL3000(RC) SHALL <b>NOT</b> to be used in locations equipped with 4 <sup>th</sup> Rail electrification
22)	The Dual Inventive App SHALL ONLY be downloaded from an approved store (iOS App Store, Google Play or Windows store)
23)	The Dual Inventive App SHALL <b>NOT</b> be used on a device that has been jailbroken or rooted
24)	Solar Panel SHALL ONLY to be used for charging ZKL 3000 RC batteries
25)	The solar panel mounting base SHALL ONLY be used at sites approved by the Route Services Buildings and Civils Engineer

## Product Configuration

### System or Complete Assembly

Part No.	Description	Catalogue No.
1010004400	ZKL 3000 RC (version 3.xx) including remote switch connection	0057/052973
4010001001	RS 3000	0057/052974
4010000013	Transportation case, for use with ZKL 3000 AND RS 3000 remote control T-COD system	0057/052975
4010000014	Battery Compartment Key	0057/052976
4010000016	Test Tool	0057/052977

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Part No.	Description	Catalogue No.
4010000018	User manual on Dual Inventive USB stick, for use with ZKL 3000 and RS 3000	0057/052978
4010000019	Padlock	0057/052979
4010000029	Locking clamp, RVS additional security, for use with ZKL 3000 AND RS 3000	0057/052980
4010000051	Back-up Battery	0057/052981
4010000052	Main Battery	0057/052982
4010000058	10m Power Cable and Adapter	0057/052983
4010001060	Main Battery Charger	0057/052984
4010001070	Back-up Battery Charger	0057/052985
4010000063	20m Power Cable and Adapter	0057/052986
7010000030	Fleet Service ZKL 3000 RC	0057/052987
4010000054	Manual override key	0057/052988
4010000025	Contact points (8 per ZKL 3000 RC), for use with ZKL 3000 AND RS 3000	0057/052989
4010000062	BYPASS back-up by-pass connection for use with ZKL 3000 AND RS 3000	0057/052990
4010000003	Solar Panel plus pole support and connector	0087/000890
4010000006	BBX 3000 mounting base and connector	0087/000873
4010000007	NRG Solar panel for ZKL 3000	0087/000969
4010000008	NRG Solar panel for ZKL 3000 and RS 3000	0087/000970
4010000009	Solar NRG 3000 Plus	0094/002587
4010000010	Solar NRG 3000 Optimiser Upgrade Kit	0094/002588
4010000068	A290 Battery Linking Cable	0094/002582
8010000054	AFTC Conversion update for ZKL 3000 RC V3	0094/002589
N/A	MTinfo 3000 Smartphone Application for use on iOS, Android or Windows smart devices	iOS App Store, Google Play or Windows store
N/A	MTinfo 3000 (version 5.xx) web interface	Access only via: <a href="https://mtinfo3000.com">https://mtinfo3000.com</a>

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## Assessed Documentation

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
B1	User guide containing maintenance / operation instructions	14-06-2012	B1	T1 / 1
A2	Trial strategy and acceptance plan	2012	A2	1
A3	System safety plan Phase 1-2	2012	A3	1
A4	ZKL-RC Risk assessment	2012	A4	1
C8	Phase 1a trial evaluation report	2012	C8	1
D1	Local trial plan for phase 2	2012/13	D1	1
0	File register.xls	On going	0	1
Certificate	PD T-COD 004 (En)	16-08-2012	Certificate	1
A21i. ZKL(RC) Briefing of risk control measures v09	E03. ZKL-RC Risk assessment v17	v09	27 Nov 2015	3
E01. ZKLRC Safety case and phase 3 local trial plan v04-6	Safety Case for Use of Multiple ZKL(RC) Remotely Controlled Track Circuit Operating Devices (includes local trial report for phase 3)	V4.6	27 Nov 2015	3
E03. ZKL-RC Risk assessment v17	E03. ZKL (RC) Risk assessment	V17	13 Jan 2016	3
Email	Confirmation from Mike Carey SRP Chair	N/A	13 Sep 2016	4
Installation Manual	By-pass Installation Manual	1.00	27-01-2016	4
Installation Manual	ZKL 3000 RC Installation Manual	1	May 2016	4
Drawing	By-pass Clamp	1	N/A	4
71003 ZKL 3000 RC	PDA to Mobile Phone	1	27-06-16	5
D6	Cyber Security Audit Report	1	June 2015	5
ZKL 3000 RC	Switching Manual	1	Aug 2017	5
ZKL 3000 RC	RAMS-Summary	1	Feb 2017	5
20180222	Solar NRG Impact analysis	1	July 2018	6
15C01294RPT01	Solar NRG 3000 EMC Test report	1	July 2018	6
71003 ZKL 3000	MTinfo 3000	1	July 2018	6
HL_MTinfo3000_V5_PP_ZKL3000RC_IA_ENG	Manual for using the web interface MTinfo 3000 version 5 to prepare for the use of the ZKL 3000 RC system	1	May 2019	7
HL_SWITCHING_ZKL3000RC_MTinfo3000A_PP_ENG_IA	Manual for switching the ZKL3000 RC using the MTinfo 3000 app	1	June 2019	7
ZKL_3000RC_V5_ENG_APR_2019_INTERACTIEF[1]	Manual for installing ZKL 3000 Remote Control (RC) Line Blockage System ZKL 3000 RC	1	April 2019	7
71003 ZKL 3000 RC - MTinfo 3000 v5	MTinfo 3000 V4 to V5	1	21-08-2017	7
Change 50 ZKL 3000 RC	Translation change 50 of CIA ZKL 3000 RC v8	1	16-05-2019	7

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Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
Security Audit - mtinfo3000	Security Audit – Mtinfo3000	-	April 2018	7
Change 52 ZKL 3000 RC	Translation change 52 of changelog ZKL 3000 RC v9.01	1	16-05-2019	7
BICON Report DUA-20181002-L1-SE EMC Test Report	BICON EMC Test Report: ZKL 3000 RC v3	-	15-11/2018	7
M18.003-P18.002 Dual Inventive Env Test Report	Vibration and shock tests on a ZKL 3000 RC	-	09-11-2018	7
C18.001-P18.002 Dual Inventive Env Test Certificate	Test Certificate: ZKL 3000 RC	-	01-11-2018	7
Change 53 ZKL 3000 RC	Abstract change 53 of changelog ZKL 3000 RC v9.01	1	21-05-2019	7
71003 - LED PCB LID testing	LED PCB LID	1	15-04-2019	7
71027 - Delta Safety Case 20181129 - v1.01	ZKL 3000 RC v3 Delta Safety Case	1	27-05-2019	7
[C1] 71003 - Hazardlog ZKL 3000 RC - 4.00	ZKL 3000 RC Hazard Log	4	28-11-2018	7
ISA Certificaat_180243_15 012_ZKL_3000RC_v3_NL	DEKRA Rail Certificate for ZKL 3000 RC v3	-	20-12-2018	7
BBX3000_solar_panel_base_01042019	Quick Start BBX3000	-	March 2019	7
20181217 Ballast Box	Memo: Ballast Box Calculations	-	27/08/2018	7
AFTC_Compatibility_update_v1.00-1	AFTC Compatibility Add on	1	06/06/2022	10
20211216 Full functional test ZKL 3000 RC v3.1-v3	Full functional test ZKL 3000 RC	3.1	06/06/2022	10
EMC ZKL 3000 RC v3.1 - 20210744RPT02	EMC test report	3.1	06/06/2022	10
M21.001-P21.003 Dual Inventive - T1 en A1 - ZKL 3000 RC v3.1	Climate test report	3.1	06/06/2022	10
M21.002-P21.002 Dual Inventive - Shock and Vibration - ZKL 3000 RC v3.1	Shock and Vibration report	3.1	06/06/2022	10
Changelog ZKL_MAIN_HW_003 v17	Change log	17	06/06/2022	10
CIA_JIRA_ZKL3K-236-v11	Change, Impact, Analysis report	11	06/06/2022	10



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Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
G1-16 PFMEA DI ZKL 3000 RC 22-01-2022	FMEA	01/2022	06/06/2022	10
P21_089_01-21.580-BOE-OUM_Quantitative risk analysis ZKL3000RC-v1.2	Risk analysis	1.2	06/06/2022	10
20220066RPT01	EMC test report Solar Power optimiser	1	07/06/2022	10
G3-20210814FullFunction altestNRGSolarchargerProto4-290422-1139	Full Functional test NRG Solar charger	1	07/06/2022	10
Solar NRG 3000 - Power Optimisation summary	Solar NRG 3000 - Power Optimisation summary	-	07/06/2022	10
	Dave Allen – Work Force safety rep. email reminder re change of terminology from COSS (RC) to ZKL user		14.6.22	11

## Certificate History

Issue	Date	Issue History
T1	11 Jan 2013	First accepted for trial use
T2	31 Jan 2013	Second acceptance in order to take out the condition 'Not to be used outside of a possession' and add 'Equipment must only be used once a line blockage has been taken'.
T3	18 July 2013	Third acceptance certificate. Changes made to the operational procedures in light of moving to trial phase 2c & 2d, whereby the use of the ZKL3000 (RC) forms part of the process of taking the line blockage. As such a line blockage can not be a pre requisite of the ZKL's deployment as stated in Issue 2 of the trial certificate.
1	30 Jan 2014	Full Approval within the scope of the limitations on this certificate
2	7 April 2015	Restrictions amended to permit use within 3 <sup>rd</sup> Rail DC electrified areas.
3	13 Jan 2016	Certificate reissued to acknowledge the enabling of multiple ZKL installation.
4	31 Oct 2016	Certificate reissued to include a By-pass Clamp to ensure electrical continuity is maintained. Item is not a safety critical component as confirmed by SRP Chair.
5	29 Nov 2017	Certificate reissued to include Dual Inventive RS3000 switching function to Dual Inventive Application .
6	9 July 2018	Certificate reissued to include Dual Inventive Solar Panel NRG 3000 and update to the Dual Inventive Mobile App
7	24 June 2019	Certificate re-issued following update of ZKL 3000 RC to version 3 and MTinfo to version 5. Solar panel mounting base also included. User conditions amended in line with updates.
8	23 December 2019	Certificate re-issued to change manufacturer part numbers following stock system update, no change to product.
9	21 January 2022	A290 Battery link cable added to certificate.

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10	10 June 2022	Back-up Battery Charger part number changed..
11	14.6.22	Updated to capture request from Dave Allen re change of terminology from COSS (RC) to ZKL User to bring the PA in line with the Sentinel competence of the individual and Training record held on Oracle.
12	12.08.22	Solar NRG 3000 Plus; Solar NRG 3000 Optimiser and; AFTC compatibility update parts added.

## Contact Details

### Manufacturer

Lex van der Poel  
Dual Inventive

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### Applicants

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### Lead Reviewing Engineer

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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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#### 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 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.