Certificate of Acceptance PA05/05350

Manufacturer:
Westermo

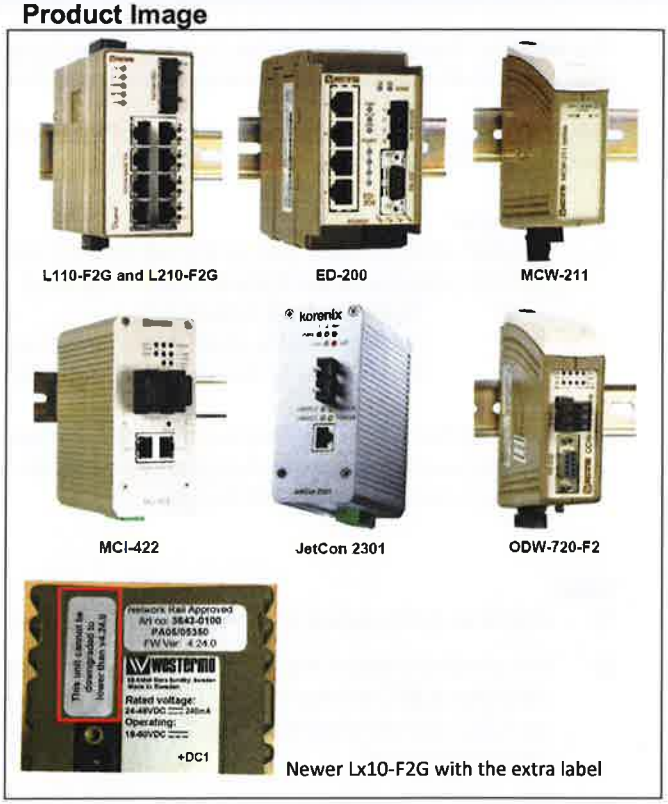
Issue : 6
Valid From : 21/03/19

Media Converter, DIN mounted Layer 2 Switch and Layer 2/ 3 Switch

Product Description

- ODW - 720-F2. Optical to RS 232 converter. Single mode.
- L110-F2G. Compact layer 2 managed Ethernet switch
- L210-F2G. Compact layer 2/ 3 managed Ethernet switch
- MCW211 SM-SC15. Single channel Ethernet optical/ electrical converter. Single mode.
- MCI-422-MM-SC2. Two channel Ethernet optical/ electrical converter. Multimode.
- MCI-422-SM-SC30. Two channel Ethernet optical/ electrical converter. Single mode.
- JetCon 2301 SW-V2. Low latency single channel Ethernet optical/.electrical converter. Single mode.
- ED-200. Remote Serial Ethernet Router. Can act as serial PPP router to provide the remote connection.

Product Image



Scope of Acceptance- Full Acceptance

Equipment shall be deployed at location which meets its' EMC compliance as specified in "Product Configuration" section.

Change made in issue 6:

- Included WeOS release 4.24.0 for all Lx10-F2G devices. The recommendation is to use this release for all new project deployments. However, for existing Lx10-F2G networks the recommendation is not to mix the WeOS releases unless the maintenance replacement unit is a newer unit whose WeOS cannot be downgrade beyond release 4.24.0.
- Owing to a memory chip change in the Lx10-F2G devices, newer units cannot be downgraded to WeOS releases older than 4.24.0. These units have an extra information label with their normal silver label.
- Added Westermo SFPs reference to PA05/06806.

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

Reviewed by:
Steven Reynolds
Product Acceptance Specialist

Authorised by: 05.04.2019
Dan Mandoc
Professional Head of Telecoms

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.

Manufacturer

1) A label shall be attached to the equipment and the packaging to indicate the equipment has been product approved by Network Rail. The label shall include;
   a) 'Network Rail Approved'
   b) Network Rail's product approval certificate number. In this case it is ' PA05/ 05350'
   c) Art no (this is Westermo's hardware and build number).

2) Contact Network Rail Technology Introduction group via prodacc@networkrail.co.uk regarding any firmware and hardware changes. The emails shall include the certificate of acceptance number, the product involve and the changes.

User

1) Install in accordance with the equipment's instructions

2) It is project's responsibility to make sure the equipment can support the intended applications at the intended EMC environment. If the equipment is deployed in EMC environment outside of its' compliant, an EMC expert shall be consulted to understand the possible impacts to the equipment and services being supported.

3) Network Rail approved power supplies shall be used with this range of equipment.

4) **ODW-720-F2 Optical to RS 232 converter.**
   a) The ODW-710-F2 is compliant to operate within railway EMC levels; EN50121-4.
   c) To be used with SFP listed in this certificate.
   d) Screened data cable to be used if deployed at location which is subjected to railway EMC levels

5) **L110-F2G (unit with newer memory chip and the restrictive WeOS roll back has and extra information label)**
   a) The L11 0-F2G is compliant to operate within railway EMC levels; EN50121-4
   b) STP cable to be used when deployed at location which is subjected to railway EMC levels.
   c) SFPs listed in this certificate ~~may be used~~ to equip the optical ports.

6) **L210-F2G (unit with newer memory chip and the restrictive WeOS roll back has and extra information label)**
   a) The L21 0-F2G is compliant to operate within railway EMC levels; EN50121-4
   b) STP cable to be used when deployed at location which is subjected to railway EMC levels.
   c) SFPs listed in this certificate may be used to equip the optical ports.

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7) **MCW211 SM-SC15**
   a) Converts 10/100Base-TX to 100Base-FX. Single channel converter for single mode fibre. SC connector.
   b) The MCW211 is compliant to operate within generic heavy industry EMC levels (EN 61000-6-2). It shall not be used at location which is subjected to railway EMC levels, unless the intended application has been safety assessed to tolerate possible performance disruptions.

8) **MCI-422-MM-SC2**
   a) Only approved to operate in the two channel converter mode. Converts 10/100Base-TX to 100Base-FX with multimode fibre. SC connector.
   b) The MCI-422 is compliant to operate within generic heavy industry EMC levels (EN 61000-6-2). It shall not be used at location which is subjected to railway EMC levels, unless the intended application has been safety assessed to tolerate possible performance disruptions.

9) **MCI-422-SC-SC30**
   a) Only approved to operate in the two channel converter mode. Converts 10/100Base-TX to 100Base-FX with single mode fibre. SC connector.
   b) The MCI-422 is compliant to operate within generic heavy industry EMC levels (EN 61000-6-2). It shall not be used at location which is subjected to railway EMC levels, unless the intended application has been safety assessed to tolerate possible performance disruptions

10) **JetCon 2301-SW V2**
   a) For low latency single channel 10/100Base-TX to 100Base-FX converter. Provides sub 80 µS 10/100Base-TX to 100Base-FX port to port conversion with single mode fibre. SC connector.
   b) The JetCon 2301 is compliant to operate within railway EMC levels; EN50121-4.

11) **SFP: Refer to PA05/06806**
   a) FX-SM-LC40. 100Mbps. single mode (9/125) at 1310 nm, LC connector, approx 40 km.
   b) FX-SM-LC20. 100Mbps. single mode (9/125) at 1310 nm, LC connector, approx 20 km.
   c) FX-MM-LC2. 100Mbps. multimode mode (62 .5/125 & 50/125) at 1310 nm, LC connector, approx 2 km.

12) **ED-200**
   a) Compliant to operate within railway EMC levels; EN50121-4.
   b) ED-200 serial router for connection in point-to-point applications or connection to an external VF modem link.
   c) STP cable and screened RS232 cable shall be used when deployed at location which is subjected to railway EMC levels

Product Configuration

Hardware (Maintenance Spares and Line Replaceable Units)

Part No.	Description	Firmware	Comments	Catalogue No.
365-0722	ODW-720-F2, Fibre to RS232 converter. SFP require.	--	SFP required to equip the optical port	087/045462

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Part No.	Description	Firmware	Comments	Catalogue No.
3643-0100	L110-F2G, 8 x 10/100BaseT, 2 x 100/1000 Mbit/s SFP slots, L2 support	WeOS: 4.9 4.13.1 4.24.0	Layer 2 functionality only. SFPs required to equip the two optical ports. A network of L110-F2G shall all be on the same firmware level. However where faulty unit is replaced, the replacement unit may work with WeOS 4.24.0 if the WeOS cannot be rolled back to match the faulty unit. When creating new network with the L110-F2G the latest WeOS release shall be used	087/045460
3643-0105	L210-F2G, 8 x 10/100BaseT, 2 x 100/1000 Mbit/s SFP slots, full WeOS support	WeOS: 4.9 4.13.1 4.24.0	Layer 2 switch with layer 3 functionality SFPs required to equip the two optical ports. A network of L210-F2G shall all be on the same firmware level. However where faulty unit is replaced, the replacement unit may work with WeOS 4.24.0 if the WeOS cannot be rolled back to match the faulty unit. When creating new network with the L210-F2G the latest WeOS release shall be used	087/045463
3642-0020	MCW211 SM-SC15, Electrical to optical Ethernet media converter.	--	Equipped with single mode SC connector fibre port.	087/045461
3624-0100	MCI-422-MM-SC2, 2 channel electrical to optical Ethernet media converter.	--	Equipped with multimode SC connector fibre port. H/W version: 1.2	087/045464
3642-0110	MCI-422-SM-SC30, 2 channel electrical to optical Ethernet media converter.	--	Equipped with single mode SC connector fibre port. H/W version: 1.2	087/045465

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Part No.	Description	Firmware	Comments	Catalogue No.
9800-0001	JetCon 2301-s Single channel electrical to optical Ethernet media converter	--	Equipped with single mode SC connector fibre port. H/W version 1.0 and version 2.0 This is manufactured by Korenix with Westermo as a distributor.	087/045466
3609-5010	ED-200 Ethernet router over a RS232 WAN link.	V1.04	H/W version: 5	0087/045467

Assessed Documentation

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
--	05350 - Acceptance requirements with responses.doc	--	26/06/2012	1
--	Email from Ray Lock. EN 60950-1 Non low voltage directive compliance.msg	--	25/06/2012	1
--	IS09001-2008-Auq 14. PDF	--	--	1
--	ROHS & WEEE statement.pdf	--	--	1
--	westermo DoC Lx10-F2G.pdf	--	--	1
--	westermo doc mcw-21 1.pdf	--	--	1
--	westermo ug 6645-2204 mcw-211 .pdf	--	--	1
--	TEL-T-0010 (MCW-211 over FTN .doc	--	12/04/2012	1
--	PAD5 05350 westermo L 110-F2 stability_ test zip	--	--	1
--	Reliability Prediction Report LYNX+-2.pdf	--	--	1
--	westermo ua 6643-2213 Lx10-F2G.Ddf	--	--	1
TEL-T-009-TL (issue 1)	Test Report. Westermo ODW-720-F2 bench stability testing working over FTN 1511 MAX with DATA card	--	27/02/2012	2
--	ODW-720-F2 data sheet	--	--	2
--	ODW-720-F2 user guide	--	--	2
--	Lynx_L210-F2G Reliability Prediction Data	--	04/04/2013	3
Email from Vince Collis.	RE: WeOS layer 3 switches used for routing and L110 and L210	--	30/04/2013	3
PA05/05473	ED 200 Ethernet Router with RS232 WAN trial certificate	1	--	4
--	Westermo Stability Performance Test Report-ED 200 PPP Router	--	--	4
--	Westermo Ethernet Router ED-200 datasheet	--	--	4
Email from Roger Matthews	FW: JetCon 2301 Changes - Certificate PA05/05350	--	10/07/14	5
Email from Vince Collis	amendment to firmware version on PADS PA05/04168 and PA05/05350 to v4.13.0 firmware release	--	22/10/2013	5
089604	Release Notes WeOS 4.13.0	--	12/07/13	5

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Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
089604	Release Notes WeOS 4.13.0	--	19/11/13	5
TEL-T-0024	Test Plan, Westermo WeOS release 4.24.0 for inter firmware releases compatibility. DDW-225, DDW-226, Lynx L110, Lynx L210, Lynx L108 and Lynx L208	1	19/02/19	6

Manuals and Training Materials

Reference	Title	Doc. Rev.	Date and Applies to Cert. issue No.	
6645-2204	MCW-211 Series User Guide	A	Apr 2011	2
6651-2231	ODW-720-F2 User Guide	B	Nov 2011	2
6100-0000	SFP Transceivers User Guide	E	Nov 2012	2
6101-3201	Westermo OS Management Guide	4.11.2-0	--	3
6643-2213	Lynx L110/ L210 User Guide	G	Mar 2013	3
TEL-T-0014-TL	Test Report. Bench Stability Testing: Westermo JetCon 2301 and MCI-422	1	18/07/2013	3
--	JetCon 2301 v2.Industrial Fast Ethernet Media Converter. User manual	1.0	21/07/2010	3
--	JetCon 2302. Industrial 2-Channel Fast Ethernet to Fibre Media Converter (MCI-422)	1.1	26/08/2010	3
12A032005E-C	Korenix Technology Co Ltd. 50121-4 compliance cert for JetCon 2301	--	29/03/2012	3
--	Westermo's response to Technical Requirements	--	19/07/2013	3
6609-2281	ED-200 Series User Guide	B	04/202011	4
ED-200 EMC Compliance	Email from Roger Matthews (Westermo) to clarify the EMC compliant is with EN50121-4	--	19/09/2013	4

Certificate History

Issue	Date	Issue History
1	09/07/2012	First accepted for use
2	05/08/2012	Corrected error with L110-F2G descriptions
3	30/07/2013	Included L210-F2G. Included Jetcon 2301 and MCI-422 from PA05/05636
4	24/09/2013	Updated to include ED-200 as an approved product which was trialled under PA05/ 05473
5	10/07/14	Updated to include: - firmware 4.13.1 for Lynx L110 and Lynx 210. - Changes of the part number, descriptions and the hardware version for JetCon.
6	01/03/19	Included WeOS release 4.24.0 and tidied up the comments regarding which release to use for new networks. Existing SFPs referred to PA05/06806

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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 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.