



1788 Linking Devices Specifications

Catalog Numbers 1788-CN2DN, 1788-CN2FFR, 1788-CN2PAR, 1788-EN2DNR, 1788-EN2DNROM, 1788-EN2FFR, 1788-EN2PAR, 1788-FB4R, 1788-FB6

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Summary of Changes

This publication contains the following new or updated information. This list includes substantive updates only and is not intended to reflect all changes.

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| Updated the environmental specifications and certifications | 2, 3 |

Environmental Specifications - 1788 Linking Devices

| Attribute | 1788-CN2DN | 1788-EN2DNR | 1788-EN2DNROM | 1788-EN2FFR, 1788-CN2FFR | 1788-EN2PAR, 1788-CN2PAR | 1788-FB4R, 1788-FB6 |
|--|--|--|---|--|--|------------------------|
| Temperature, operating IEC 60068-2-1 (Test Ad, Operating Cold) IEC 60068-2-2 (Test Bd, Operating Dry Heat) IEC 60068-2-14 (Test Nb, Operating Thermal Shock) | 0...60 °C (32...140 °F) | -25...+60 °C (-13...+140 °F) | 0...60 °C (32...140 °F) | | | |
| Temperature, surrounding air, max | 60 °C (140 °F) | | | | | |
| Temperature, nonoperating IEC 60068-2-1 (Test Ab, Unpackaged Nonoperating Cold) IEC 60068-2-2 (Test Bb, Unpackaged Nonoperating Dry Heat) IEC 60068-2-14 (Test Na, Unpackaged Nonoperating Thermal Shock) | -40...+85 °C (-40...+185 °F) | | | 0...60 °C (32...140 °F) | | |
| Relative humidity IEC 60068-2-30 (Test Db, Unpackaged Damp Heat) | 5...95% noncondensing | | | | | |
| Shock, operating IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 30 g | | | 15 g | | |
| Shock, nonoperating IEC 60068-2-27 (Test Ea, Unpackaged Shock) | 50 g | | 30 g | | | |
| Vibration IEC 60068-2-6 (Test Fc, Operating) | 2 g @ 10...500 Hz | | | 0.5 g @ 10...500 Hz | | |
| Emissions IEC 61000-6-4 | Class A | | IEC 61000-6-4 | | Class A | |
| ESD Immunity IEC 61000-4-2 | 6 kV contact discharge 8 kV air discharge | | | | | |
| Conducted RF Immunity IEC 61000-4-6 | 10V rms with 1 kHz sine wave 80% AM from 150 kHz...80 MHz | | | | | |
| Radiated RF Immunity IEC 61000-4-3 | 10V/m with 1 kHz sine wave 80% AM from 30...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 3V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz | 10V/m with 1 kHz sine wave 80% AM from 80...1000 MHz and 1400...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 1V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz | 10V/m with 1 kHz sine wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM at 1890 MHz 10V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz | 10V/m with 1 kHz sine wave 80% AM from 80...2000 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 900 MHz 10V/m with 200 Hz 50% Pulse 100% AM @ 1890 MHz 3V/m with 1 kHz sine wave 80% AM from 2000...2700 MHz | | |
| EFT/B Immunity IEC 61000-4-4 | ±4 kV at 5 kHz on power ports ±3 kV at 5 kHz on communication ports | ±3 kV at 5 kHz on power ports ±3 kV at 5 kHz on EtherNet/IP™ and DeviceNet® ports | ±3 kV at 5/100 kHz on DC power ports ±3 kV at 5/100 kHz on communication ports | ±4 kV at 5 kHz on power ports ±3 kV at 5 kHz on Ethernet and FF ports | ±3 kV at 5 kHz on communication ports | |
| Surge Transient Immunity IEC 61000-4-5 | ±2 kV line-earth (CM) on communication ports | ±500V line-line (DM) and ±1 kV line-earth (CM) on power ports ±2 kV line-earth (CM) on EtherNet/IP and DeviceNet ports | ±500V line-line(DM) and ±1 kV line-earth(CM) on power ports ±2 kV line-earth(CM) on communications ports | ±1 kV line-line (DM) and ±2 kV line-earth (CM) on power ports ±1 kV line-earth (CM) on ControlNet® ports ±2 kV line-earth (CM) on Ethernet and FF ports | ±2 kV line-earth (CM) on communication ports | |
| Voltage variation IEC 61000-4-29 | - | | 10 ms interruption on DC power port | | - | |
| Enclosure type rating | None (open-style) | | Meets IP67 and NEMA 4/4X | | None (open-style) | |
| Temperature code | T4 | | - | | T4 | |

As of the publishing date, the only active devices in this publication are the 1788-CN2DN and 1788-EN2DNR linking devices. The certifications in this table applied before the obsolete devices were delisted.

Certifications - 1788 Linking Devices

| Certification | 1788-CN2DN | 1788-EN2DNR | 1788-EN2DNR0M | 1788-EN2FFR, 1788-CN2FFR | 1788-EN2PAR, 1788-CN2PAR | 1788-FB4R, 1788-FB6 |
|--------------------|---|--|---|--|--|--------------------------|
| cULus, or cURus | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. | - | UL Listed Industrial Control Equipment, certified for US and Canada. See UL File E65584. | UL Listed: Industrial Control Equipment, certified for US and Canada. See UL File E320594. | | UL Recognized Component: |
| | UL Listed for Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E194810. | | | UL Listed for: Class I, Division 2 Group A,B,C,D Hazardous Locations, certified for U.S. and Canada. See UL File E320595 | UL Recognized Component Industrial Control Equipment for: | |
| UKCA and CE | UK Statutory Instrument 2016 No. 1091 and European Union 2014/30/EU EMC Directive, compliant with: | | | | | |
| | EN 61326-1: Meas./Control/Lab., Industrial Requirements EN 61000-6-2: Industrial Immunity EN 61131-2: Programmable Controllers (Clause 8, Zone A and B) | | | | | |
| RCM | EN 55011: Measurement limits and methods (Group 1, Class A) | EN 61000-6-4: Industrial Emissions | | | | |
| | UK Statutory Instrument 2012 No. 3032 and European Union 2011/65/EU RoHS, compliant with: EN IEC 63000; Technical documentation | | | | | |
| Ex | Australian Radiocommunications Act, compliant with: | | - | European Union 2014/34/EU ATEX Directive, compliant with: | | |
| | AS/NZS CISPR 11; Industrial Emissions | EN 61000-6-4; Industrial Emissions | | EN IEC 60079-0; Explosive Atmospheres, General Requirements EN IEC 60079-7; Explosive Atmospheres, Equipment protection by type of protection "n" II 3 G Ex nA IIC T4 Gc DEMCO 14 ATEX 1346005X | | |
| KC | UK Statutory Instrument 2016 No. 1107 and European Union 2014/34/EU ATEX Directive, compliant with: | - | | European Union 2014/34/EU ATEX Directive, compliant with: | | |
| | EN IEC 60079-0; Explosive Atmospheres, General Requirements EN IEC 60079-7; Explosive Atmospheres, Equipment protection by increased safety "e" II 3 G Ex ec IIC T4 Gc UL 23 ATEX 2987X UL23UKEX2826X | DEMCO 13 ATEX 1355620X UL23UKEX2776X | EN IEC 60079-0; Explosive Atmospheres, General Requirements EN IEC 60079-15; Explosive Atmospheres, Equipment protection by type of protection "n" II 3 G Ex nA IIC T4 Gc DEMCO 14 ATEX 1346005X | | | |
| KC | Korean Registration of Broadcasting and Communications Equipment, compliant with: Article 58-2 of Radio Waves Act, Clause 3 | | | | | |
| CCC | CNCA-C23-01:2019 强制性产品认证实施规则 防爆电气 CNCA-C23-01:2019 CCC Implementation Rule Explosion-Proof Electrical Products CCC: 2020122309113842 | | - | | CNCA-C23-01:2019 强制性产品认证实施规则 防爆电气 CNCA-C23-01:2019 CCC Implementation Rule Explosion-Proof Electrical Products CCC: 2020122309113842 | |
| EtherNet/IP | - | ODVA conformance tested to EtherNet/IP specifications. | | | | - |
| DeviceNet | ODVA conformance tested to DeviceNet specifications | | | - | | |
| CI | ControlNet International conformance tested to ControlNet specifications. | - | | | | |
| FF | - | | | Foundation Fieldbus Test Campaign Number: CT0152FF | - | |

See the Product Certification link at rok.auto/certifications for declarations of conformity, certificates, and other certification details.

ControlNet to DeviceNet Linking Device

The 1788-CN2DN linking device connects a ControlNet® network to a DeviceNet network.

Technical Specifications - 1788-CN2DN

| Attribute | 1788-CN2DN |
|---------------------------------|---|
| Power requirements | Input: 24V DC, 500 mA DeviceNet: 24V DC, 90 mA, Class 2 |
| Isolation voltage | 30V (continuous), basic insulation type, between all ports. Type tested according to UL 61010-1 and 61010-2-201 |
| Wire type | |
| ControlNet | RG6 |
| DeviceNet | 0.52 mm ² (20 AWG), 1485C-P1-Cxxx For more information, see the DeviceNet Media Design Installation Guide, publication DNET-UM072 . |
| Power | 0.25...2.5 mm ² (22...14 AWG) solid or stranded copper wire rated at 75 °C (167 °F), or greater, 1.2 mm (3/64 in.) insulation, max |
| Wiring category | 3 - on power ports 2 - on communication ports Use this Conductor Category information to plan conductor routes. See the Industrial Automation Wiring and Grounding Guidelines, publication I770-4.1 . |
| Dimensions (H x W x D), approx. | 120.0 x 200.0 x 87.0 mm (4.69 x 7.88 x 3.44 in.) |

EtherNet/IP to DeviceNet Linking Devices

The 1788-EN2DNR and 1788-EN2DROM linking devices connect an EtherNet/IP™ network to a DeviceNet® network.

Technical Specifications - 1788-EN2DNR

| Attribute | 1788-EN2DNR |
|---------------------------------|---|
| Power requirements | Input: 24V DC, 150 mA, Class 2/SELV DeviceNet: 24V DC, 60 mA, Class 2/SELV |
| Isolation voltage | 30V (continuous), basic insulation type, power to system, Ethernet to system, DeviceNet to system, and USB to system. Tested according to UL 508. |
| Wire type | |
| EtherNet/IP | RJ45 connector according to IEC 60603-7, 2 or 4 pair Category 5e minimum cable according to TIA 568-B.1 or Category 5 cable according to ISO/IEC 24702. |
| DeviceNet | 0.52 mm ² (20 AWG), 1485C-P1-Cxxx. For more information, see the DeviceNet Media Design Installation Guide, publication DNET-UM072 . |
| Power | 0.25...2.5 mm ² (22...14 AWG) solid or stranded copper wire that is rated at 105 °C (221 °F), or greater, 1.2 mm (3/64 in.) insulation, max |
| Wiring category | 2 - on power ports 2 - on communication ports Use this Conductor Category information to plan conductor routes. For more information, see the Industrial Automation Wiring and Grounding Guidelines, publication I770-4.1 . |
| Dimensions (H x W x D), approx. | 114.8 x 35.0 x 100.0 mm (4.52 x 1.38 x 3.94 in.) |

The 1788-EN2DNR linking device was discontinued as of December 31, 2022.

Technical Specifications - 1788-EN2DNR0M

| Attribute | 1788-EN2DNR0M |
|--------------------|--|
| Power requirements | Logic power supply: 24V DC SELV/PELV (-15...+20%), 100 mA, max at 24V DC DeviceNet power supply: 24V DC SELV/PELV, 20 mA max at 24V DC |
| Wiring category | 3 - on USB ports 2 - on power ports 2 - on communications ports Use this Conductor Category information to plan conductor routes. For more information, see the Industrial Automation Wiring and Grounding Guidelines, publication I770-4.1 . |

FOUNDATION Fieldbus Linking Devices

The 1788-EN2FFR and 1788-CN2FFR linking devices provide a gateway between FOUNDATION Fieldbus (FF) networks and EtherNet/IP and ControlNet networks, respectively.

These linking devices were discontinued as of March 1, 2024. As a replacement, use the Aparian A-FFL/B module. For more information, see aparian.com.

Technical Specifications - 1788-EN2FFR, 1788-CN2FFR

| Attribute | 1788-EN2FFR, 1788-CN2FFR |
|--------------------|--|
| Power requirements | Input: 24...32V DC, 0.75 A, Class 2/SELV FF: 0.5 A @24V DC single trunk; 0.4 A @ 24V DC dual trunk Power is connected to the linking device by using the 2-way Phoenix connector. |
| Power consumption | 260 mA at 24V (with no field devices attached) |
| Power dissipation | 12.24 W at 24V DC |
| Isolation voltage | 30V (continuous), basic insulation type, network channels to power, and network channels to network channels. No isolation between redundant network channels. Type tested at 500V DC for 60 s. |
| Wire type | |
| Ethernet | CAT5 STP/UTP |
| DC power and FF | 0.205...0.823 mm ² (24...18 AWG) solid or stranded copper wire rated at 82 °C (180 °F) or greater 1.2 mm (3/64 in.) insulation max |
| Wiring category | 1 - on power ports 2 - on ControlNet, Ethernet, and FF ports Use this Conductor Category information to plan conductor routes. For more information, see the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 . |
| Terminal torque | DC Power connections: 0.22...0.25 N•m (2...2.2 lb•in) FF connections: 0.21...0.25 N•m (1.9...2.2 lb•in) |

FOUNDATION Fieldbus Junction Boxes

The legacy 1788-FBJB4R and 1788-FBJB6 junction boxes provide connections to FOUNDATION Fieldbus networks.

These junction boxes were discontinued as of March 1, 2024.

Technical Specifications - 1788-FBJB4R, 1788-FBJB6

| Attribute | 1788-FBJB4R | 1788-FBJB6 |
|------------------------------|---|---|
| Power requirements | Input: 12...32V DC, 0.5 A, Class 2/SELV Drop output: 12...32V DC, 40 mA, resistive only Trunk output: 12...32V DC, 0.36 A, resistive only | Trunk output: 12...32V DC, 0.48 A, resistive only |
| Power consumption | 40 mA at 24V, max | |
| Isolation voltage | No isolation between communication channels | |
| Conductor temperature rating | > 82 °C (180 °F) | |
| Terminal torque | 0.5...0.6 N•m (4.4...5.3 lb•in) | |
| Wire type DC power and FF | 0.205...0.823 mm ² (24...18 AWG) solid or stranded copper wire rated at 82 °C (180 °F) or greater, 1.2 mm (3/64 in.) insulation max | |
| Wiring category | 2 - on communication ports Use this Conductor Category information to plan conductor routes. For more information, see the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 . | |

PROFIBUS PA Linking Devices

The 1788-EN2PAR and 1788-CN2PAR linking devices provide a gateway between PROFIBUS PA networks and EtherNet/IP and ControlNet networks, respectively.

These linking devices were discontinued as of November 1, 2021. As a replacement, use the Aparian A-PAL/B module. For more information, see aparian.com.

Technical Specifications - Legacy 1788-EN2PAR, 1788-CN2PAR

| Attribute | Legacy 1788-EN2PAR, 1788-CN2PAR |
|--------------------------|---|
| Power requirements | Input: 24...32V DC, 0.75 A, Class 2/SELV PA: 0.5 A @ 24V DC single trunk; 0.4 A @ 24V DC dual trunk Power is connected to the linking device by using the 4-way Phoenix connector. |
| Power consumption | 260 mA at 24V (with no field devices attached) |
| Power dissipation | 12.24 W at 24V DC |
| Isolation voltage | 30V (continuous), basic insulation type, network channels to power, and network channels to network channels. No isolation between redundant network channels. Type tested at 500V DC for 60 s. |
| Wire type | |
| Ethernet | CAT5 STP/UTP |
| DC power and PROFIBUS PA | 0.205...0.823 mm ² (24...18 AWG) solid or stranded copper wire rated at 82 °C (180 °F) or greater, 1.2 mm (3/64 in.) insulation max |
| Wiring category | 1 - on power ports 2 - on ControlNet, Ethernet, and Foundation Fieldbus ports Use this Conductor Category information to plan conductor routes. For more information, see the Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 . |
| Terminal torque | DC Power connections: 0.22...0.25 N•m (2...2.2 lb•in) PROFIBUS PA connections: 0.5...0.6 N•m (4.4...5.3 lb•in) |

Additional Resources

| Resource | Description |
|---|--|
| EtherNet/IP to DeviceNet Linking Device Product Information, publication 1788-PC001 | Describes how to install the 1788-EN2DNR linking device. |
| EtherNet/IP to DeviceNet Linking Device User Manual, publication 1788-UM059 | Provides information about how to use the 1788-EN2DNR linking device. |
| ControlNet-to-DeviceNet Linking Device Installation Instructions, publication 1788-IN052 | Provides information about how to use the 1788-CN2DN linking device. |
| Linking Devices Product Information, publication 1788-PC002 | Describes how to install the 1788-CN2FFR, 1788-CN2PAR, 1788-EN2FFR, and 1788-EN2PAR linking devices |
| EtherNet/IP and ControlNet to FOUNDATION Fieldbus Linking Devices User Manual, publication 1788-UM057 | Provides information about how to use the 1788-EN2FFR and 1788-CN2FFR linking devices. |
| EtherNet/IP and ControlNet to PROFIBUS PA Linking Device User Manual, publication 1788-UM058 | Provides information about how to use the 1788-EN2PAR and 1788-CN2PAR linking devices. |
| FOUNDATION Fieldbus Junction Box Installation Instructions, publication 1788-IN006 | Describes how to install the 1788-FB4R and 1788-FB6 junction boxes. |
| EtherNet/IP Network Devices User Manual, publication ENET-UM006 | Describes how to configure and use EtherNet/IP devices to communicate on the EtherNet/IP network. |
| Ethernet Reference Manual, publication ENET-RM002 | Describes basic Ethernet concepts, infrastructure components, and infrastructure features. |
| FOUNDATION Fieldbus Design Considerations Reference Manual, publication PROCES-RM005 | Provides design choices and best practices for implementing a FOUNDATION Fieldbus network with the 1788-EN2FFR or 1788-CN2FFR linking devices. |
| Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1 | Provides general guidelines for installing a Rockwell Automation industrial system. |
| Product Certifications website, rok.auto/certifications . | Provides declarations of conformity, certificates, and other certification details. |

You can view or download publications at rok.auto/literature.

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| | | |
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