

TECHNICAL BULLETIN

[1 / 16]

BCN-E2113-0023-D

iQ Monozukuri Smart Work Navigator Tested Device Information

■Date of Issue

July 2018 (Ver.D: June 2020)

■Relevant Models

AP10-SWN001AA-MA, AP10-SWN001AA-MB, AP10-SWN001AA-MC, AP10-SWN001AA-MD, AP10-SWN001AA-ME, AP10-SWN001AA-MF, AP10-SWN001BA-MA, AP10-SWN001BA-MB, AP10-SWN001BA-MC, AP10-SWN001BA-MD, AP10-SWN001BA-ME, AP10-SWN001BA-MF

Thank you for purchasing the Mitsubishi Electric FA Application Package.

The peripheral devices listed in this bulletin have been concluded by Mitsubishi Electric to be applicable for the Smart Work Navigator application package.

When using each product, refer to corresponding manuals.

In addition, contact to the manufacturer for the production status of each product.

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MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS : 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA, JAPAN

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1 TERMS

Unless otherwise specified, this technical bulletin uses the following terms.

| Term | Description |
|----------------------|--|
| Recommended Product | A product that complies with our standard. Make sure that you use the product compliant with the specification (standard). |
| Compatible Product | Compatible product satisfies the requirements to be interfaced with Mitsubishi Electric application packages. Therefore, make sure to comply with the specifications for that product when using it together with Mitsubishi Electric products. Even when Compatible Products are used, some products may not be compatible. Because the specifications of the products are changed according to the date of manufacture. When using Compatible Products, examine the products fully and decide whether to use or not. |
| Discontinued Product | A product that has been introduced as Recommended Product or Compatible Product in the bulletin before. We think that you will have difficulty to obtain the product because of production discontinuation and others. |

2 ELECTRIC SCREWDRIVER

2.1 Recommended Product

NITTO KOHKI CO.,LTD.

Electric screwdriver interlocking with other FA device

| Model | Start method | Torque range | Number of rotations | Remarks | |
|-------------------|---------------|--|---------------------|------------------------|--|
| DLV30A06L-ASL(AA) | Lever start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | |
| DLV30A12L-ASL(AA) | | | 1200rpm | | |
| DLV30A20L-ASL(AA) | | | 2000rpm | | |
| DLV45A06L-ASL(AA) | | 2.0 to 4.5N·m | 650rpm | | • 100V AC specifications • With pistol grip |
| DLV45A12L-ASL(AA) | | | 1200rpm | | |
| DLV70A06L-ASL(AA) | | 3.8 to 7.0N·m | 650rpm | | |
| DLV30A06P-ASL(AA) | Push to start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | |
| DLV30A12P-ASL(AA) | | | 1200rpm | | |
| DLV30A20P-ASL(AA) | | | 2000rpm | | |
| DLV45A06P-ASL(AA) | | 2.0 to 4.5N·m | 650rpm | | • 100V AC specifications • With pistol grip |
| DLV45A12P-ASL(AA) | | | 1200rpm | | |
| DLV70A06P-ASL(AA) | | 3.8 to 7.0N·m | 650rpm | | |

*1 When the low-torque screw is used

*2 When the high-torque screw is used

Electric screwdrivers with screw tightening counter

| Model | Start method | Torque range | Number of rotations | Remarks | |
|-------------------|---------------|--|---------------------|------------------------|--|
| DLV30A06L-SPC(AA) | Lever start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | |
| DLV30A12L-SPC(AA) | | | 1200rpm | | |
| DLV30A20L-SPC(AA) | | | 2000rpm | | |
| DLV45A06L-SPC(AA) | | 2.0 to 4.5N·m | 650rpm | | • 100V AC specifications • With pistol grip |
| DLV45A12L-SPC(AA) | | | 1200rpm | | |
| DLV70A06L-SPC(AA) | | 3.8 to 7.0N·m | 650rpm | | |
| DLV30A06P-SPC(AA) | Push to start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | |
| DLV30A12P-SPC(AA) | | | 1200rpm | | |
| DLV30A20P-SPC(AA) | | | 2000rpm | | |
| DLV45A06P-SPC(AA) | | 2.0 to 4.5N·m | 650rpm | | • 100V AC specifications • With pistol grip |
| DLV45A12P-SPC(AA) | | | 1200rpm | | |
| DLV70A06P-SPC(AA) | | 3.8 to 7.0N·m | 650rpm | | |

*1 When the low-torque screw is used

*2 When the high-torque screw is used

HIOS Inc.

Electric screwdriver with built-in torque sensor

| Model | Start method | Torque range | Number of rotations | Remarks |
|---------|--------------|----------------|---------------------|--------------------------|
| PG-3000 | Lever start | 0.2 to 0.55N·m | 980/680rpm | — |
| PG-5000 | | 0.4 to 1.2N·m | 900/590rpm | — |
| PG-7000 | | 1.0 to 2.8N·m | 960/630rpm | — |
| T-70BL | — | — | — | Screwdriver power supply |
| PG-01 | — | — | — | Control unit (checker) |

2.2 Discontinued Product

NITTO KOHKI CO., LTD

Electric screwdriver interlocking with other FA devices

| Model | Start method | Torque range | Number of rotations | Remarks | Substitute |
|------------------|---------------|--|---------------------|--|-------------------|
| DLV30LL-ASL(DJE) | Lever start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | DLV30A06L-ASL(AA) |
| DLV30SL-ASL(DJE) | | | 1200rpm | | DLV30A12L-ASL(AA) |
| DLV30HL-ASL(DJE) | | | 2000rpm | | DLV30A20L-ASL(AA) |
| DLV45LL-ASL(DKE) | | 2.0 to 4.5N·m | 650rpm | • 100V AC specifications • With pistol grip | DLV45A06L-ASL(AA) |
| DLV45SL-ASL(DKE) | | | 1200rpm | | DLV45A12L-ASL(AA) |
| DLV70LL-ASL(DKE) | | | 650rpm | | DLV70A06L-ASL(AA) |
| DLV30LP-ASL(DJE) | Push to start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | DLV30A06P-ASL(AA) |
| DLV30SP-ASL(DJE) | | | 1200rpm | | DLV30A12P-ASL(AA) |
| DLV30HP-ASL(DJE) | | | 2000rpm | | DLV30A20P-ASL(AA) |
| DLV45LP-ASL(DKE) | | 2.0 to 4.5N·m | 650rpm | • 100V AC specifications • With pistol grip | DLV45A06P-ASL(AA) |
| DLV45SP-ASL(DKE) | | | 1200rpm | | DLV45A12P-ASL(AA) |
| DLV70LP-ASL(DKE) | | | 650rpm | | DLV70A06P-ASL(AA) |

*1 When the low-torque screw is used

*2 When the high-torque screw is used

Electric screwdrivers with screw tightening counter

| Model | Start method | Torque range | Number of rotations | Remarks | Substitute |
|-------------|---------------|--|---------------------|--|-------------------|
| DLV30LL-SPC | Lever start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | DLV30A06L-SPC(AA) |
| DLV30SL-SPC | | | 1200rpm | | DLV30A12L-SPC(AA) |
| DLV30HL-SPC | | | 2000rpm | | DLV30A20L-SPC(AA) |
| DLV45LL-SPC | | 2.0 to 4.5N·m | 650rpm | • 100V AC specifications • With pistol grip | DLV45A06L-SPC(AA) |
| DLV45SL-SPC | | | 1200rpm | | DLV45A12L-SPC(AA) |
| DLV70LL-SPC | | | 650rpm | | DLV70A06L-SPC(AA) |
| DLV30LP-SPC | Push to start | 0.4 to 1.6N·m ^{*1} 1.2 to 3.0N·m ^{*2} | 650rpm | 100V AC specifications | DLV30A06P-SPC(AA) |
| DLV30SP-SPC | | | 1200rpm | | DLV30A12P-SPC(AA) |
| DLV30HP-SPC | | | 2000rpm | | DLV30A20P-SPC(AA) |
| DLV45LP-SPC | | 2.0 to 4.5N·m | 650rpm | • 100V AC specifications • With pistol grip | DLV45A06P-SPC(AA) |
| DLV45SP-SPC | | | 1200rpm | | DLV45A12P-SPC(AA) |
| DLV70LP-SPC | | | 650rpm | | DLV70A06P-SPC(AA) |

*1 When the low-torque screw is used

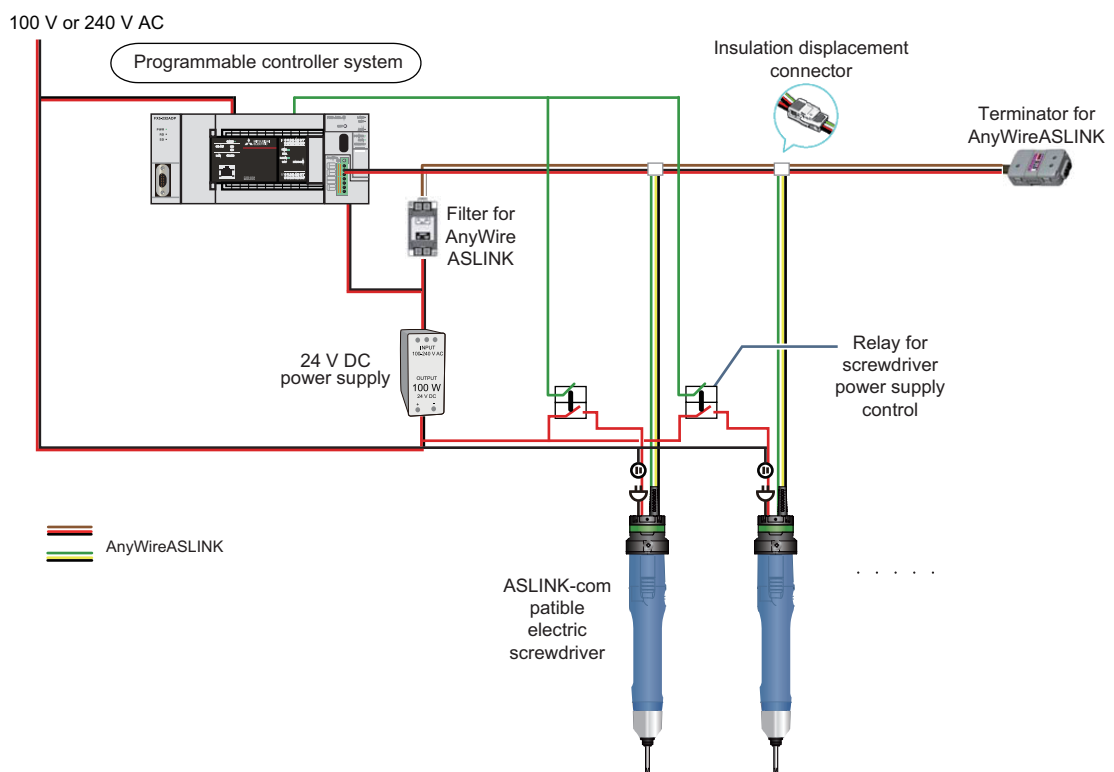
*2 When the high-torque screw is used

2.3 Connection method

NITTO KOHKI CO., LTD

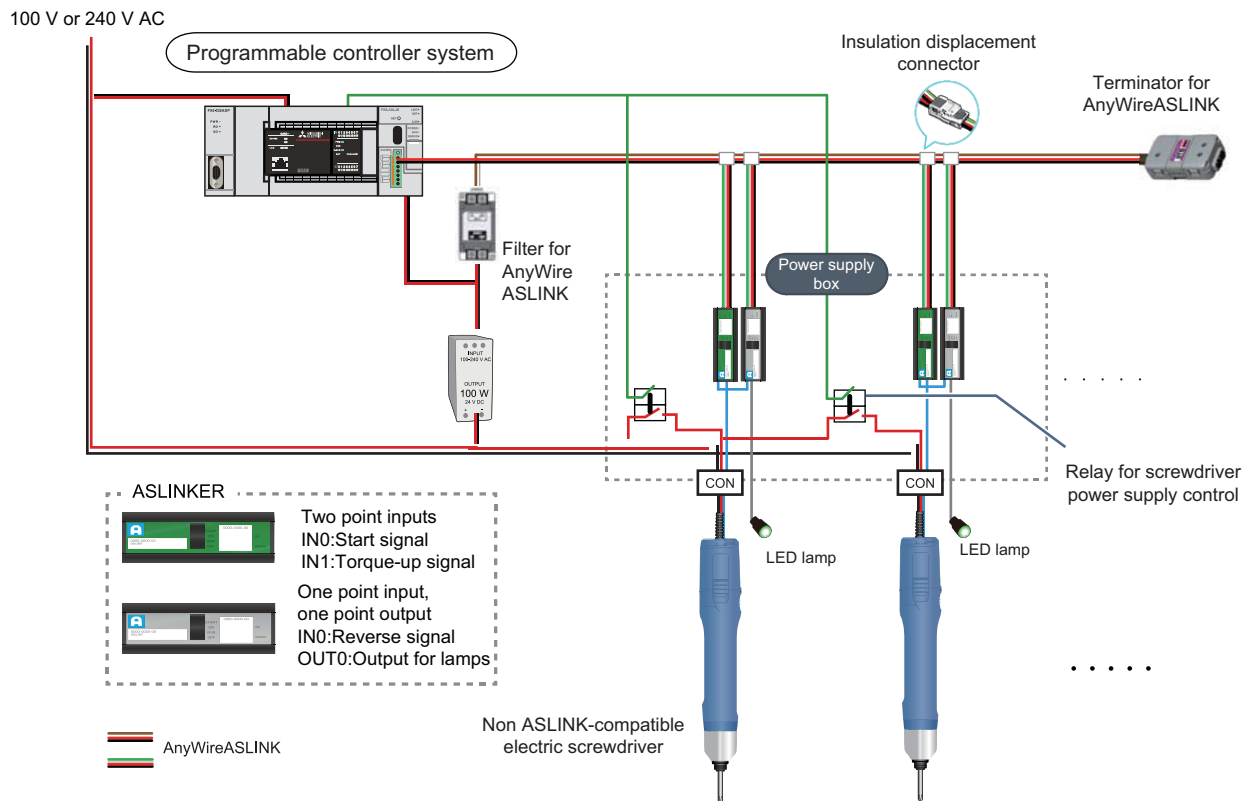
Electric screwdriver interlocking with other FA devices

1. Separate the power wires of electric screwdrivers via a plug and connect one side to the output terminal of the programmable controller system.
2. Connect the ASLINK cables from the electric screwdrivers with the cable from the AnyWireASLINK system master module of the programmable controller system and LP connectors.



Electric screwdrivers with screw tightening counter

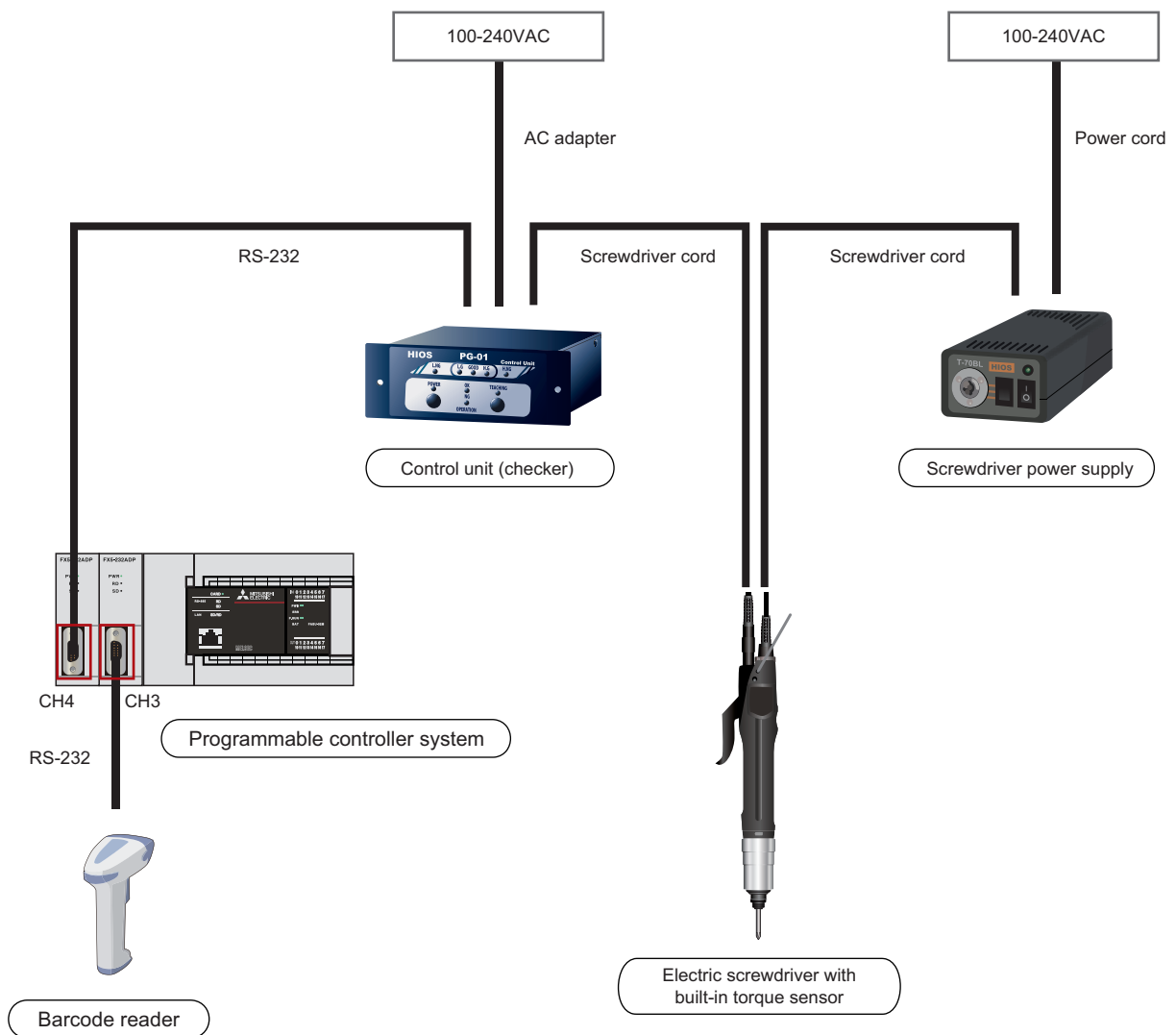
1. Connect the cable from the AnyWireASLINK system master module of the programmable controller system and the cable from ASLINKER with LP connectors.
2. Separate the connectors on the edges of the cables from the electric screwdrivers into power wires and signal wires.
3. Connect one side of the separated power wires to the output terminal of the programmable controller system.
4. Connect the separated signal wires to the ASLINKER input/output wires.



HIOS Inc.

Electric screwdriver with built-in torque sensor

1. Connect the electric screwdriver to the screwdriver power supply with the screwdriver cord attached to the electric screwdriver.
2. Connect the electric screwdriver to the control unit (checker) using the sensor cord attached to the electric screwdriver.
3. Connect the control unit (checker) to the RS-232C communication expansion adapter of the PLC system with the RS-232 cable included with the control unit (checker).



An additional RS-232 communication expansion adapter is necessary for the control unit (checker), other than for the barcode reader connection.

3 BARCODE READER

3.1 Recommended Product

DENSO WAVE INCORPORATED

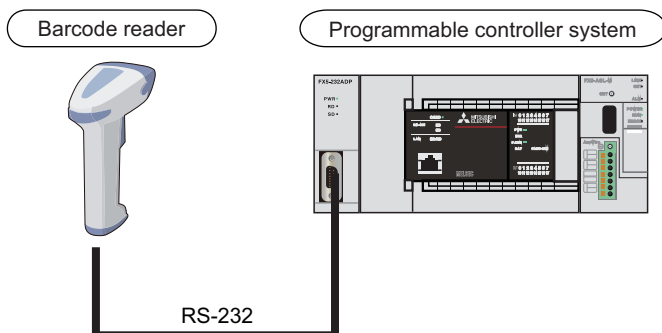
| Model | Details |
|--|--|
| <ul style="list-style-type: none"> • AT26Q-SM(R) • AT21Q-SM(R) (Body color: Black) | Wired type (RS-232) [Accessories] <ul style="list-style-type: none"> • Interface cable • AC adapter |
| <ul style="list-style-type: none"> • AT25Q-SM(R) • AT20Q-SM(R) (Body color: White) | |

Cognex Corporation

| Model | Details |
|-----------------|------------------------|
| DMR-8050-0100 | Wired type |
| DM100-PWR-00 | Dedicated power supply |
| DM8000-RS232-02 | RS-232 cable (5m) |

3.2 Connection method

Connect a barcode reader to the RS-232 communication extension adapter of the programmable controller system with the RS-232 interface cable provided with a barcode reader.



Point

- Handle only the connector when unplugging the DC power supply from the jack. Pulling on the cable risks damaging the internal conductors.
- Avoid unnecessary connection and disconnection. Excessive wear can lead to faulty connections.
- Use only the AC adapter provided.

Set the barcode reader according to the programmable controller system settings.

The following table lists the barcode reader settings at the programmable controller system side.

| Item | Settings |
|-------------|----------|
| Baud rate | 9600bps |
| Data length | 8 |
| Stop bit | 1 |
| Parity | None |
| Header | None |
| Terminator | None |

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DENSO WAVE INCORPORATED

According to the following procedure, configure the settings using the 2D code symbols on the User's Manual supplied with the barcode reader.

1. Scan the "Start setting" 2D code symbol in "Menu control (Starting/Ending the Setting Procedure and Reverting to Defaults)".



Start setting

2. Scan the "All defaults" 2D code symbol in "Menu control (Starting/Ending the Setting Procedure and Reverting to Defaults)".



All defaults

3. Scan the "Start setting" 2D code symbol in "Menu control (Starting/Ending the Setting Procedure and Reverting to Defaults)".



Start setting

4. Scan the "9600 bps" 2D code symbol in "Transmission speed".



9600 bps

5. Scan the "None" 2D code symbol in "Terminator".



None

6. Scan the "End setting" 2D code symbol in "Menu control (Starting/Ending the Setting Procedure and Reverting to Defaults)".



End setting

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Cognex Corporation

According to the following procedure, configure the settings using the 2D code symbols on the User's Manual supplied with the barcode reader.

1. Scan the "Reset Scanner to Factory Defaults" 2D code symbol in "Product Settings".



2. Scan the "Enable QR Code" 2D code symbol in "Symbology Settings".



3. Scan the "9600 BPS" 2D code symbol in "RS-232 Baud Rate".



4. Scan the "None" 2D code symbol in "RS-232 Parity Settings".



5. Scan the "Databit 8" 2D code symbol in "RS-232 Databit Settings".



6. Scan the "Stopbit 1" 2D code symbol in "RS-232 Stopbit Settings".



7. Power off and on the barcode reader to enable the setting.

4 POKAYOKE TERMINAL

4.1 Recommended Product

Anywire Corporation

| Model | Product type | Indication/ instruction method | Response/detection method | Number of I/ O points | | Transmission side (DP- DN side) consumption current (mA) |
|-------------------|--|--------------------------------------|--------------------------------|--------------------------|--------|---|
| | | | | Input | Output | |
| BL227XB-K02V-P | Standard compact type LED indication  | One color selection | Lever | 1 | 1 | 6 |
| BL227XB-K02VN-P | | | Push button | 1 | 1 | 6 |
| BL227XB-K02VL-P | | | Downward reflection | 1 | 1 | 6 |
| BL227XB-K06M-P | | RGB combination | Lever | 1 | 3 | 6 |
| BL227XB-K06MN-P | | | Push button | 1 | 3 | 6 |
| BL227XB-K06ML-P | | | Downward reflection | 1 | 3 | 6 |
| BL227PB-T07P02V-P | Standard compact type LED indication (short)  | One color selection | Transmission (light emission) | 0 | 1 | 2.5 |
| BL227XB-T07P02V-C | | | Transmission (light reception) | 1 | 1 | 2.5 |
| BL227PB-T07P06M-P | | RGB combination | Transmission (light emission) | 0 | 3 | 2.5 |
| BL227XB-T07P06M-C | | | Transmission (light reception) | 1 | 3 | 2.5 |
| BL227PB-T14P02V-P | Standard compact type LED indication (long)  | One color selection | Transmission (light emission) | 0 | 1 | 2.5 |
| BL227XB-T14P02V-C | | | Transmission (light reception) | 1 | 1 | 2.5 |
| BL227PB-T14P06M-P | | RGB combination | Transmission (light emission) | 0 | 3 | 2.5 |
| BL227XB-T14P06M-C | | | Transmission (light reception) | 1 | 3 | 2.5 |
| BL227XB-F2K04V-P | Standard compact type door open/ close (vertical metal arm) + LED indication  | One color selection Independent | Lever | 2 | 2 | 6 |
| BL227XB-F2K04VN-P | | | Push button | 2 | 2 | 6 |
| BL227XB-F2K04VL-P | | | Downward reflection | 2 | 2 | 6 |
| BL227XB-F2K08M-P | | RGB combination Independent | Lever | 2 | 4 | 6 |
| BL227XB-F2K08MN-P | | | Push button | 2 | 4 | 6 |
| BL227XB-F2K08ML-P | | | Downward reflection | 2 | 4 | 6 |
| BL227XB-R2K04V-P | Standard compact type door open/ close (horizontal metal arm) + LED indication  | One color selection Independent | Lever | 2 | 2 | 6 |
| BL227XB-R2K04VN-P | | | Push button | 2 | 2 | 6 |
| BL227XB-R2K04VL-P | | | Downward reflection | 2 | 2 | 6 |
| BL227XB-R2K08M-P | | RGB combination Independent | Lever | 2 | 4 | 6 |
| BL227XB-R2K08MN-P | | | Push button | 2 | 4 | 6 |
| BL227XB-R2K08ML-P | | | Downward reflection | 2 | 4 | 6 |

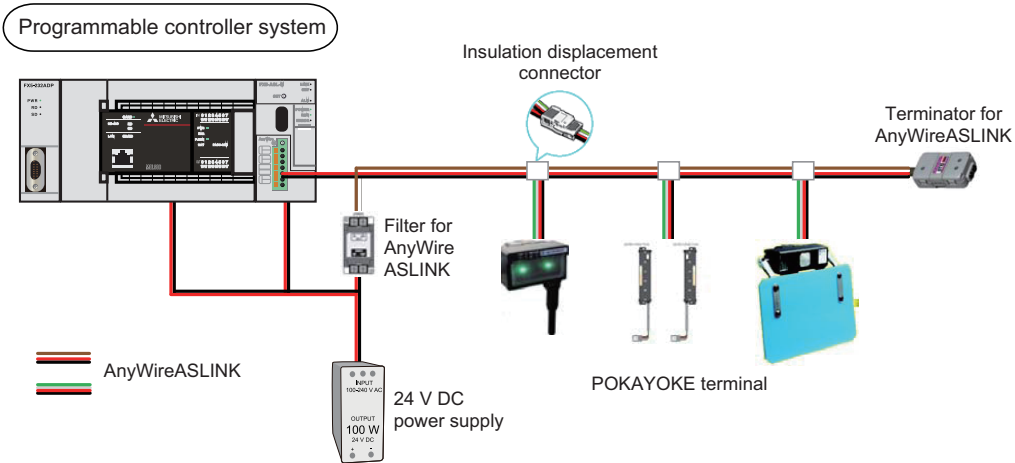
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| Model | Product type | Indication/ instruction method | Response/detection method | Number of I/ O points | | Transmission side (DP- DN side) consumption current (mA) |
|-------------------|---|--------------------------------------|------------------------------|--------------------------|--------|---|
| | | | | Input | Output | |
| BL227XB-F3K04V-P | Standard compact type door open/ close (vertical plastic arm) + LED indication  | One color selection Independent | Lever | 2 | 2 | 6 |
| BL227XB-F3K04VN-P | | | Push button | 2 | 2 | 6 |
| BL227XB-F3K04VL-P | | | Downward reflection | 2 | 2 | 6 |
| BL227XB-F3K08M-P | | RGB combination Independent | Lever | 2 | 4 | 6 |
| BL227XB-F3K08MN-P | | | Push button | 2 | 4 | 6 |
| BL227XB-F3K08ML-P | | | Downward reflection | 2 | 4 | 6 |
| BL227XB-F04V-P | Standard type door open/close (vertical metal arm) + LED indication  | One color selection Independent | Lever | 2 | 2 | 6 |
| BL227XB-F04VL-P | | | Downward reflection | 2 | 2 | 6 |
| B292XB-02VL | Mole type LED indication  | One color selection | Touch | 1 | 1 | 6 |
| B292XB-06ML | | RGB combination | Touch | 1 | 3 | 6 |
| BL2101XB-02VL-P | Surface-emission type LED indication  | One color selection | Touch | 1 | 1 | 3 |
| BL227XB-K71V-P | Standard compact type (7-segment one digit) + LED indication  | One color selection | Lever | 1 | 5 | 6 |
| BL227XB-K71VN-P | | | Push button | 1 | 5 | 6 |
| BL227XB-K71VL-P | | | Downward reflection | 1 | 5 | 6 |
| BL227XB-K71M-P | | RGB combination | Lever | 1 | 7 | 6 |
| BL227XB-K71MN-P | | | Push button | 1 | 7 | 6 |
| BL227XB-K71ML-P | | | Downward reflection | 1 | 7 | 6 |
| BL227XB-K72V-P | Standard compact type (7-segment two digit) + LED indication  | One color selection | Lever | 1 | 9 | 6 |
| BL227XB-K72VN-P | | | Push button | 1 | 9 | 6 |
| BL227XB-K72VL-P | | | Downward reflection | 1 | 9 | 6 |
| BL227XB-K72M-P | | RGB combination | Lever | 1 | 11 | 6 |
| BL227XB-K72MN-P | | | Push button | 1 | 11 | 6 |
| BL227XB-K72ML-P | | | Downward reflection | 1 | 11 | 6 |

4.2 Connection method

Anywire Corporation

The following figure shows the system configuration of POKAYOKE terminals in this application package.



For details on how to connect the POKAYOKE terminals, refer to the product manual supplied with the product used.

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5 TORQUE CHECKER

5.1 Recommended Product

NITTO KOHKI CO.,LTD.

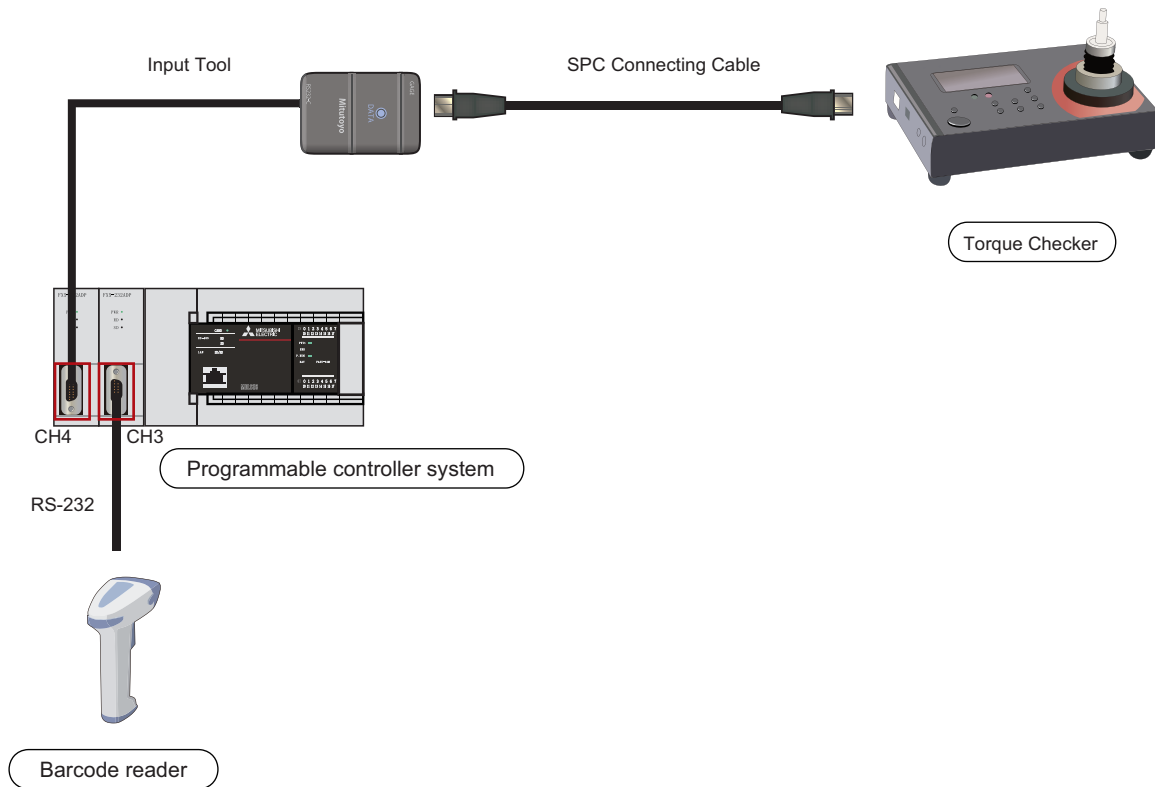
| Name | Model | Remarks |
|----------------|----------|---|
| Torque Checker | DLT1633A | <ul style="list-style-type: none">• In the settings of auto-reset function of the torque checker, "auto-reset time selection" must be set to other than "0.0C".• Please make the following settings with GX Works3. [Navigation(window)] ⇒ [Parameter] ⇒ [Module Information] ⇒ [ADP2: FX5-232AD] ⇒ [Basic Settings] ⇒ "Control Mode(RS-232C)" of [Advanced Settings] is set to "No Control Line". |

Mitutoyo Corporation

| Name | Model | Remarks |
|---------------------------|---------|--|
| Input Tool | IT-007R | Input the measured value of the torque checker to the PLC. |
| SPC Connecting Cable (1m) | 905338 | Connect the torque checker and the input tool. |
| SPC Connecting Cable (2m) | 905409 | |

5.2 Connection method

1. Connect the torque checker and the input tool with the SPC connection cable.
2. Connect the RS-232C cable on the input tool side to the RS-232C communication expansion adapter of the PLC system.



Point 

When connecting a barcode reader to the programmable controller system, an RS-232 communication expansion adapter must be added for the input tool separately from the RS-232 communication expansion adapter for connecting the barcode reader.

REVISIONS

| Version | Date of issue | Revision |
|---------|---------------|---|
| A | July 2018 | First edition |
| B | October 2018 | The connection method of each device has been added. |
| C | August 2019 | <ul style="list-style-type: none">• Recommended products of Pokayoke terminal has been added.• Recommended products of electric screwdriver (with built-in torque sensor) has been added.• Recommended products of torque checker has been added. |
| D | June 2020 | The setting information of the torque checker has been added. |

TRADEMARK

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In some cases, trademark symbols such as [™] or [®] are not specified in this bulletin.