

## Specifications

### Ratings / Characteristics

#### PNP Output

| Item                                | Through-beam   |   |
|-------------------------------------|--|---|
|                                     | F3W-D052C(P) (see note 1)  | F3W-D052D(P) (see note 1)   |
| Sensing distance                    | 3 m, switchable between LONG mode (1 to 3 m) and SHORT mode: (0.05 to 1 m), factory-set to SHORT mode  |   |
| Optical-axis pitch                  | 25 mm  |   |
| No. of optical axes                 | 5  |   |
| Detecting height                    | 100 mm   |   |
| Sensing object                      | Opaque, 35 mm dia. min.,   |   |
| Light source (wavelength)           | Infrared LED (860 nm)  |   |
| Power supply voltage                | 12 to 24 VDC±10% (ripple range (p-p): 10% max.)  |   |
| Power consumption                   | Emitter: 0.6 W max.,<br>Receiver: 0.7 W max.   |   |
| Control output                      | PNP open collector with 100 mA max. at 30 VDC<br>Residual voltage: 2.5 V max. at 100 mA<br>Dark ON or Light ON (selectable)                              |   |
| Picking instruction indicator input | Open collector with relay or transistor input<br>Indicator ON: Input voltage of 0 to 2 V<br>Indicator OFF: Open<br>(with leakage current of 0.1 mA max.) |   |
| Protection circuit                  | Reverse-connection protection, output short protection, and mutual interference interrupting function (set with frequency selector switch)               |   |
| Response time                       | Operate/Release: 10 ms max.  |   |
| Indicator                           | Receiver   | Operation indicator (orange), stability indicator (green), and 6 picking indicators (orange)      |
|                                     | Emitter  | Power indicator (green), different frequency indicator (green), and 6 picking indicators (orange) |
| Ambient temperature                 | Operating: -10° to 55°C<br>Storage: -25° to 70°C (with no icing or condensation)   |   |
| Ambient humidity                    | 35 to 85% (with no condensation)   |   |
| Insulation resistance               | 20 M min. (at 500 VDC)   |   |
| Dielectric strength                 | 1,000 VAC 50/60 Hz for 1 min   |   |
| Vibration resistance                | Destruction: 10 to 50 Hz, 1.5-mm double-amplitude for 2 hours each in X, Y and Z directions  |   |
| Shock resistance                    | Destruction: 500 m/s <sup>2</sup> , 3 times each in X, Y and Z directions  |   |
| Degree of protection                | IEC60529: IP62 (with the operation cover closed)   |   |
| Connection method                   | Pre-wired<br>Standard cable length: 5 m  | Connector (M12 5-pin connector)<br>Standard cable length: 2 m                                     |
| Weight (including package)          | Approx. 360 g  | Approx. 230 g   |
| Materials                           | Case, display window   | ABS resin   |
|                                     | Lens   | Acrylic resin   |
|                                     | Operation cover  | Nylon (PA6)   |
| Accessories                         | Instruction manual   |   |

Note: 1. The F3W-D052□P Emitters are provided with the external picking indicator output line shown in the following table.

| Item                      | F3W-D052CP, F3W-D052DP   |
|---------------------------|--|
| Connection method         | Pre-wired with connector (standard cable length: 300 mm)<br>Connector model: SMP-02V-NC (manufactured by Nihon Crimp Terminal, Ltd.) |
| Electrical specifications | Output current: 50 mA max.<br>Output voltage: Fixed at sensor power supply voltage   |

NPN Output

| Item                                | Through-beam   |   |
|-------------------------------------|--|---|
|                                     | F3W-D052A(P) (see note 1)  | F3W-D052B(P) (see note 1)   |
| Sensing distance                    | 3 m, switchable between LONG mode (1 to 3 m) and SHORT mode: (0.05 to 1 m), factory-set to SHORT mode  |   |
| Optical-axis pitch                  | 25 mm  |   |
| No. of optical axes                 | 5  |   |
| Detecting height                    | 100 mm   |   |
| Sensing object                      | Opaque, 35 mm dia. min.,   |   |
| Light source (wavelength)           | Infrared LED (860 nm)  |   |
| Power supply voltage                | 12 to 24 VDC±10% (ripple range (p-p): 10% max.)  |   |
| Power consumption                   | Emitter: 0.6 W max.,<br>Receiver: 0.7 W max.   |   |
| Control output                      | NPN open collector with 100 mA max. at 30 VDC<br>Residual voltage: 1 V max. at 100 mA<br>Dark ON or Light ON (selectable)                                |   |
| Picking instruction indicator input | Open collector with relay or transistor input<br>Indicator ON: Input voltage of 0 to 2 V<br>Indicator OFF: Open<br>(with leakage current of 0.1 mA max.) |   |
| Protection circuit                  | Reverse-connection protection, output short protection, and mutual interference interrupting function (set with frequency selector switch)               |   |
| Response time                       | Operate/Release: 10 ms max.  |   |
| Indicator                           | Receiver   | Operation indicator (orange), stability indicator (green), and 6 picking indicators (orange)      |
|                                     | Emitter  | Power indicator (green), different frequency indicator (green), and 6 picking indicators (orange) |
| Ambient temperature                 | Operating: -10° to 55°C<br>Storage: -25° to 70°C (with no icing or condensation)   |   |
| Ambient humidity                    | 35 to 85% (with no condensation)   |   |
| Insulation resistance               | 20 M min. (at 500 VDC)   |   |
| Dielectric strength                 | 1,000 VAC 50/60 Hz for 1 min   |   |
| Vibration resistance                | Destruction: 10 to 50 Hz, 1.5-mm double-amplitude for 2 hours each in X, Y and Z directions  |   |
| Shock resistance                    | Destruction: 500 m/s <sup>2</sup> , 3 times each in X, Y and Z directions  |   |
| Degree of protection                | IEC60529: IP62 (with the operation cover closed)   |   |
| Connection method                   | Pre-wired<br>Standard cable length: 5 m (see note 2)   | Connector (M12 5-pin connector)<br>Standard cable length: 2 m (see note 2)                        |
| Weight (including package)          | Approx. 360 g  | Approx. 230 g   |
| Materials                           | Case, display window   | ABS resin   |
|                                     | Lens   | Acrylic resin   |
|                                     | Operation cover  | Nylon (PA6)   |
| Accessories                         | Instruction manual   |   |

Note: 1 . The F3W-D052□P Emitters are provided with the external picking indicator output line shown in the following table.

| Item                      | F3W-D052AP, F3W-D052BP   |
|---------------------------|--|
| Connection method         | Pre-wired with connector (standard cable length: 300 mm)<br>Connector model: SMP-02V-NC (manufactured by Nihon Crimp Terminal, Ltd.) |
| Electrical specifications | Output current: 50 mA max.<br>Output voltage: Fixed at sensor power supply voltage   |

2 . The following cable lengths are also available.  
F3W-D052A(P): 2 m, 7 m  
F3W-D052B(P): 1 m, 3.5 m