DeviceNet Wireless Communication

WD30

The DeviceNet wireless units, consisting of a DeviceNet wireless master station and a DeviceNet wireless slave station, allow wireless communication with DeviceNet slaves.

- Up to 3,200 I/O points can be communicated through a single Unit.
- Uses spread spectrum technology for superior noise resistance in manufacturing environments.
- Compact construction.
- Long-range communications have been achieved with a relay function (3 repeaters max.).
- Explicit message communication is supported.

Ordering Information

List of Models

Name	Number of I/O points (words used)	Model	Antenna style
DeviceNet Wireless Master	1,600 inputs max. (100 words) 1,600 outputs max. (100 words)	WD30-ME	Pencil antenna
		WD30-ME01	Magnetic base antenna
DeviceNet Wireless Slave	512 inputs max. (32 words) 512 outputs max. (32 words)	WD30-SE	Pencil antenna
		WD30-SE01	Magnetic base antenna
Magnetic Base Antenna (1)	---	WD30-AT001 (See note.)	---

Note: The WD30-AT001 Magnetic Base Antenna can be used with the WD30-ME, WD30-ME01, WD30-SE, and WD30-SE01.

Optional Accessories (Micro Connectors)

Name	Model	Specifications
Shielded T-branch Connector	DCN2-1	Connector with one branch
Cable with Shielded Connectors	DCA1-5CN□□W1	Cables with connectors on both ends
	DCA1-5CN□□F1	Cables with a connector socket on one end
Shielded Terminator	DRS2-1	Terminator with plug connector

Included Accessories

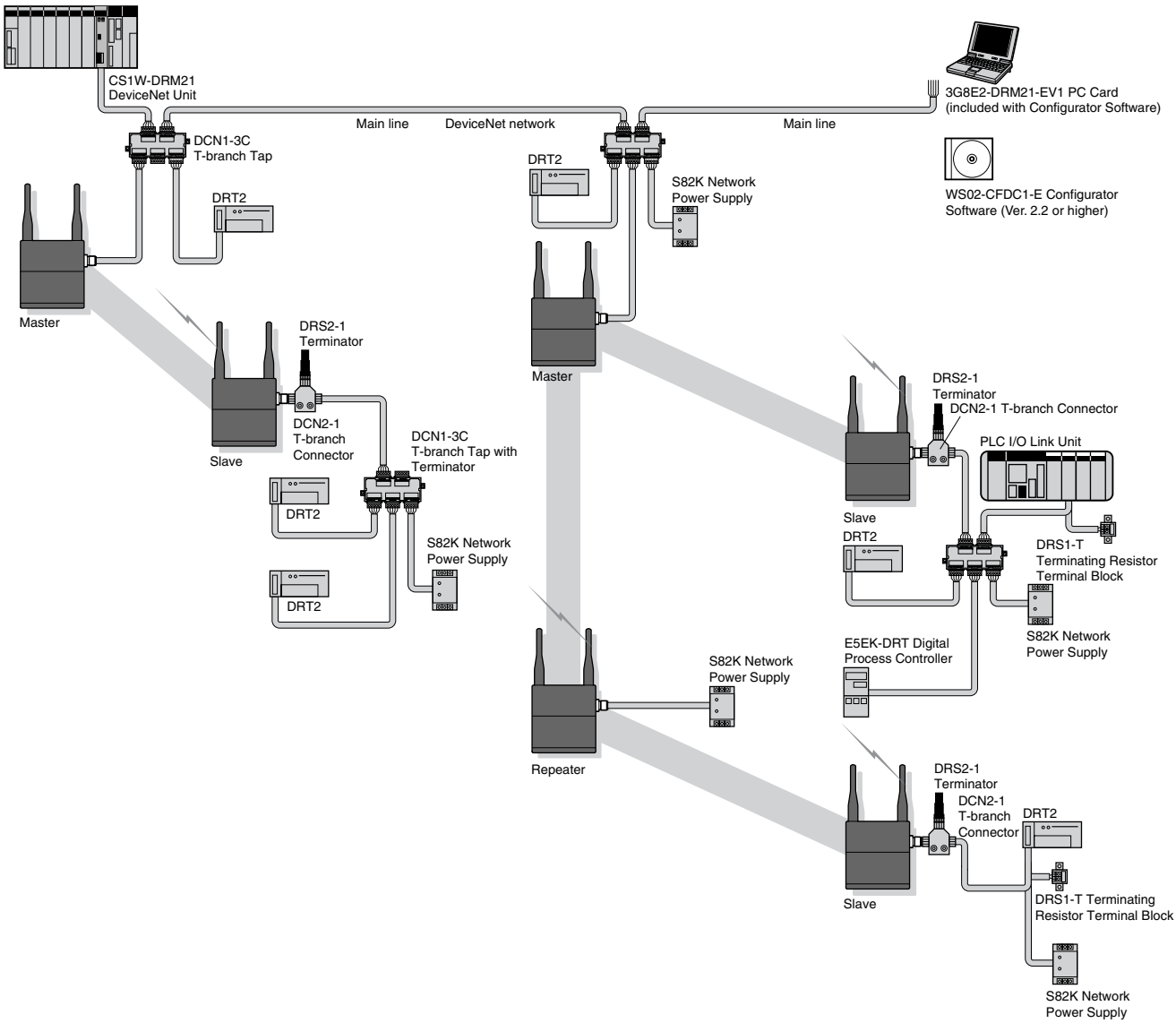
The following accessories are included with a DeviceNet Wireless Master or DeviceNet Wireless Slave.

- Two antennas
- DeviceNet Wireless Units Instruction Sheet
- Sticker
- Two M4 mounting bolts (with nuts, flat washers, and spring washers)

Optional Accessories (Configurator Software)

Name	Model
Configurator (PC Card)	3G8E2-DRM21-EV1
Configurator Software	WS02-CFDC1-E

System Configuration



Specifications

General Specifications

Item	Specifications
DeviceNet communications power supply voltage	11 to 25 V DC (Supplied from the DeviceNet network power supply.)
Current consumption (See note.)	350 mA max. (at startup), 120 mA average
Ambient temperature	Operating:–10° to 50°C Storage:–20° to 65°C
Ambient humidity	Operating:25% to 85% (with no condensation)
Weight	Approx. 200 g

Note: Select a power supply with excess capacity. (We recommend a minimum of 25 W.)

Wireless Interface Specifications

Item	Specifications
Wave type	Spread Spectrum (direct sequence; DS-SS)
Communication method	Simplex (half duplex)
Frequency band	2.4 GHz (2401 MHz to 2480.2 MHz)
Number of channels	34 channels (based on frequency division)
Antenna power	10 mW
Data transfer speed between wireless units	100 kbps
Transmission distance (See note 1.)	Indoors: 60 m (approx. 50 m with magnetic base antennas) Outdoors: 300 m (unobstructed)
Relay stations	3 repeaters max.
Max. number of sets in the same area (See note 1.)	10 sets max.
Max. number of wireless Slaves	64 max.

Note: 1. The actual transmission distance depends on many factors in the installation environment.
2. The wireless system is not suitable for applications requiring real-time control.

DeviceNet Interface Specifications (Summary)

Item	Specifications	
Communications functions (See note.)	Master/Slave connections	Remote I/O functions and Explicit message communications functions
Self-diagnostic functions	Unit	WDT error, hardware errors (such as memory and CAN errors), and setting errors
	DeviceNet communications	Duplicate node address errors, Bus OFF detection, and connection timeout
Device profiles	Communication control unit	Refer to Appendix A of the *WD30 DeviceNet Wireless Units Operation Manual* for various DeviceNet IDs (vendor, device type = communication adapter, product code, product revision, product name, serial number, status, and I/O unit IDs.)

Note: FINS message communications are not supported. Explicit messages must be handled in the ladder program. Refer to the *WD30 DeviceNet Wireless Units Operation Manual* for details.

I/O Points

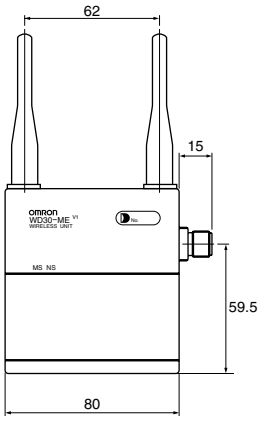
Name	Number of I/O points (words used)
DeviceNet Wireless Master	1,600 inputs max. (100 words) 1,600 outputs max. (100 words)
DeviceNet Wireless Slave	512 inputs max. (32 words) 512 outputs max. (32 words)

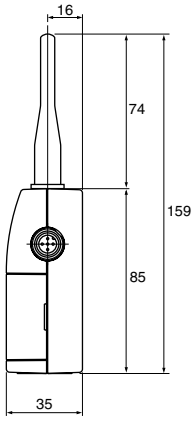
Note: Relay Stations can be used to create up to 3 levels and DeviceNet Slaves can be connected in each level. Terminators are required when Slaves are connected to a Relay Station or Slave Station. Refer to the *WD30 DeviceNet Wireless Units Operation Manual* for details on Terminator installation.

Dimensions

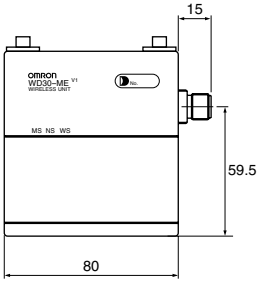
Note: All units are in millimeters unless otherwise indicated.

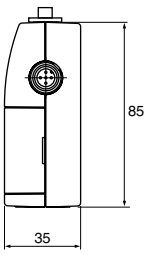
WD30-ME and WD30-SE DeviceNet Wireless Units



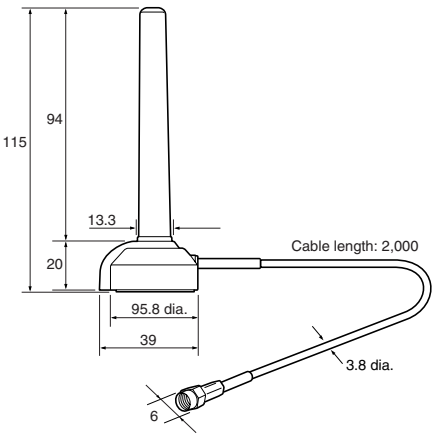


WD30-ME01 and WD30-SE01 DeviceNet Wireless Units





WD30-AT001 Magnetic Base Antenna (Included with the WD30-ME01 and WD30-SE01.)



Precautions

Refer to the *WD30 DeviceNet Wireless Units Datasheet* (Catalog No. M502-E1-□, M503-E1-□) or *WD30 DeviceNet Wireless Units Operation Manual* (Catalog No. M071-E1-□) for more detailed specifications.

Wireless I/O Terminal

WT30

Construct a Wireless System for ON/OFF Data Collection That Is Ideal for Monitoring Production Site Equipment

- Wireless Slave Station equipped with I/O.
- Height of 90 mm and DIN Rail mounting enables installation in control panels.
- Easily check wireless communications status from indicator display.
- I/O Slave Stations can also be used as Slave Stations in WD30 systems.

Ordering Information

List of Models

Wireless Unit model	Type	Specifications/No. of I/O points
WT30-M01-FLK	Serial master	RS-232C
WT30-SID16	I/O slaves	16 DC inputs (NPN/PNP)
WT30-SMD16		8 DC inputs (NPN/PNP) + 8 transistor outputs (NPN)
WT30-SMD16-1		8 DC inputs (NPN/PNP) + 8 transistor outputs (PNP)

Accessories

Antennas

Model	Type
WT30-AT001	Magnet-base Antenna (2 antennas per set)
WT30-AT002	Flat Diversity Antenna (1 antenna)
WT30-AT003	Pencil Antenna (2 antennas per set)

Communications Cables

Model	Length	Application
XW2Z-0100U-3	1 m	For personal computer
XW2Z-0200U-3	2 m	
XW2Z-0500U-3	5 m	
XW2Z-0200U-5	2 m	Cross cable for PLC
XW2Z-0500U-5	5 m	

Other

Model	Type
WT30-FT001	DIN Rail Mounting Bracket (for TH35-7.5)
WT30-FT002	DIN Rail Mounting Bracket (for TH35-15)
WT30-FT003	Surface Mounting Bracket (screw-mounting)
(2 brackets per set)	
WT30-FT011	Flat Diversity Antenna Mounting Brackets
(with magnets)	
WT30-CA2M	Antenna Extension Cable (1 cable, 2 m)

Applicable Countries

Wireless standards have been met for the following countries.

Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungry, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, UK, USA

Specifications

General Specifications

Item		WT30-M01-FLK Serial Master	WT30-SID16/SMD16/SMD16-1 I/O Slaves
Power supply (wireless communications power supply)	Rated voltage	24 V DC	
	Allowable voltage range	20.4 to 26.4 V DC	
	Power consumption	3 W max. (See note 1.)	
Error output/output power supply (for output circuits)	Rated voltage	---	24 V DC
	Allowable voltage range	---	20.4 to 26.4 V DC
Insulation resistance		20 MΩ min. (at 100 V DC) between the power supply and chassis	20 MΩ min. (at 100 V DC) between the power supply and all I/O and I/O power supply and between the power supply and chassis
Dielectric strength		1,500 V AC for 1 min between power supply and chassis	1,500 V AC for 1 min between the power supply and all I/O and I/O power supply and between the power supply and chassis
Noise immunity		IEC61000-4-4. 1 kV (power supply line)	
Vibration resistance (See note 2.)		JIS C0040 Frequency: 10 to 55 Hz; Amplitude of 0.35 mm or acceleration of 50 m/s², whichever is smaller (DIN Rail mounting: single amplitude of 0.1 mm or acceleration of 15 m/s²) 10 sweeps of 8 min each (i.e., 80 min in total) in X, Y, Z directions	
Shock resistance		Conforms to JIS C0041: 300 m/s2 3 times each in X, Y, and Z directions	
Ambient operating temperature		-10 to 55°C (with no condensation or icing) (with the Terminal mounted with the dust-proof label facing up)	Number of simultaneously ON I/O points 10 max.: -10 to 55°C (with no condensation or icing) 16 max.: -10 to 50°C (with no condensation or icing) (with the Terminal mounted with the dust-proof label facing up)
Ambient operating humidity		25% to 85% (with no condensation or icing)	
Ambient environment		No corrosive gases	
Storage temperature		-25 to 65°C (with no condensation or icing)	
Protective structure		IP20	
Terminal construction	Power supply and I/O	Screwless terminal block (Phoenix Contact FFKDS/V1-5.08 or equivalent)	
	Serial	D-sub, 9-pin (female) Inch screws (OMRON XM2F-0910-132 or equivalent), Master station only	---
Safety standards		UL: UL508 (Listing)	
Weight		330 g max.	

Note: 1. Provide a power supply of at least 15 W, considering the inrush current generated at startup.
2. Use the WT30-FT003 Surface Mounting Bracket when installing the WT30 in environments subject to vibration.

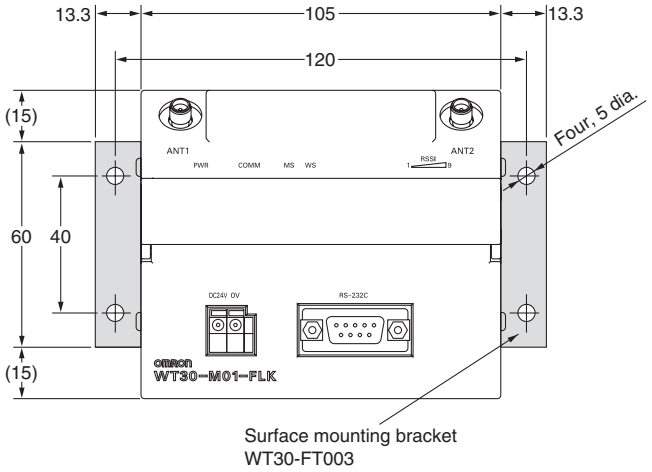
Wireless Interface Specifications

Item	Specifications
Wave type	Spread Spectrum (direct sequence; DS-SS)
Communication method	Simplex
Frequency band	2,401 to 2,480.2 MHz
Number of channels	67 channels (based on switching)
Transmitter output power	10 mW/MHz
Baud rate between wireless stations	100 kbps
Communications distance (See note.)	Indoors: 60 m min. (approx. 50 m min. with Magnet-base Antennas and Flat Diversity Antennas) Outdoors: Approx. 300 m min. (anticipated distances) (without using relay stations)
Error detection method	CRC-CCITT (16 bits)
Relay functions	One stage using I/O slave for the serial master configuration.
Number of stations per area (See note.)	10 sets max. (recommended)
Number of I/O Slaves connected	64 max.

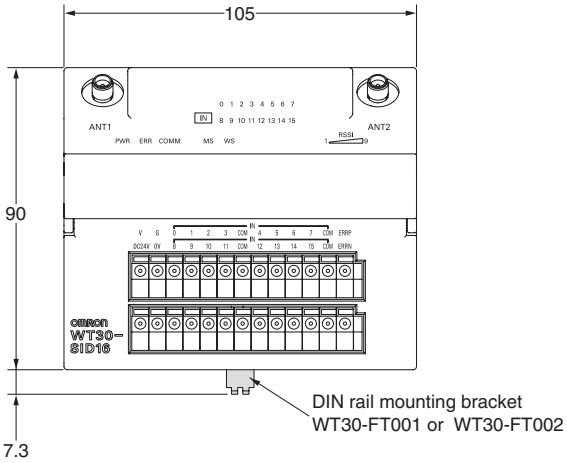
Note: Varies according to the installation environment.

Dimensions

WT30-M01-FLK

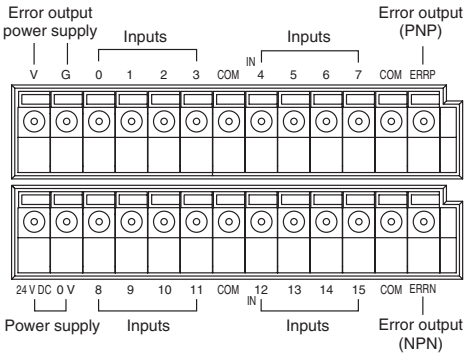


WT30-SID16/SMD16/SMD16-1



Wiring

WT30-SID16



WT30-SMD16/SMD16-1