ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *OMRON R88A-NCW152-DRT* at our website: *Click HERE*

R88A-NCW152-DRT DeviceNet Option Unit

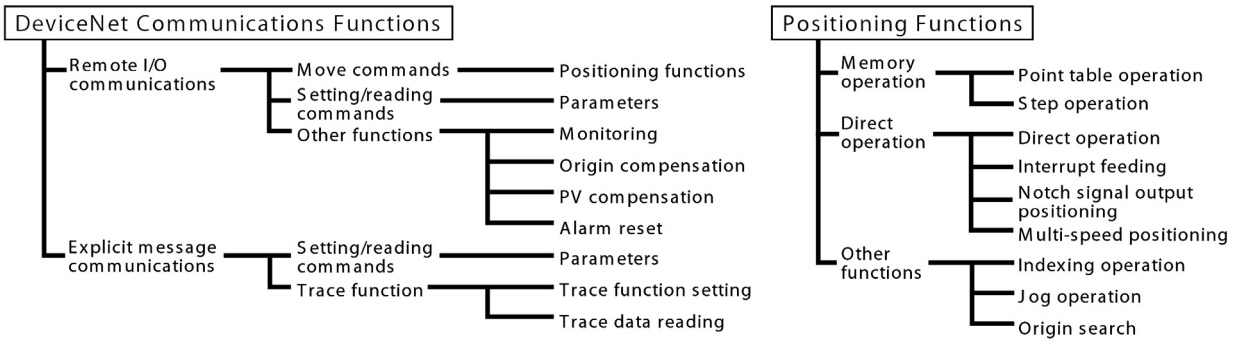
The DeviceNet Option Unit mounts to the side of Omron's W-Series Servo Drive and adds DeviceNet connectivity as well as on-board positioning capabilities to the Servo Drive. The Option Unit acts as a DeviceNet slave that can communicate positioning commands, drive parameters, positioning data, motor characteristics etc., between the W-Series servo and a DeviceNet master. Commands received via DeviceNet are output to the W-Series Servo Drive (software version 14 or later).



- Adds distributed motion control to W-Series servo via open DeviceNet network.
- Provides motion control of linear and rotary axes without a separate position controller.
- Improved diagnostics of motion system with Data Trace Function and drive status monitoring.

Features and Functions

Function Tree



■ DeviceNet Connectivity

Control up to 63 W-Series servos as DeviceNet slaves using a single DeviceNet Master. Send move commands or monitor drive activity by sending explicit messages or using remote I/O communications to the DeviceNet Option Unit. An Omron DeviceNet Configurator (version 2.2 or later) can be used to easily set or change parameters via the DeviceNet.

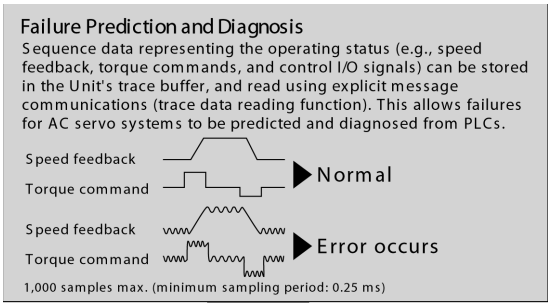
■ Motion Control of Both Linear and Rotary Axes

Option Unit's capabilities include point-to-point multi-speed positioning, interrupt feeding, indexing, jogging, speed control and origin search via pre-configured memory operation or direct operation from DeviceNet Master. Examples of linear axes are ball screw actuator and belt and pulley conveyor. A rotary axis example would be a circular indexing table.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ Data Tracing Function Collects Pertinent Data for Machine Analysis

Tracing allows the option unit to collect operating data such as torque, speed and I/O information (e.g. current limit and speed limit (detection) from the Servo Drive for analysis. This data can be used to provide early indication of mechanical component failure allowing the user to schedule maintenance repair on the machine to avoid costly lost production from unexpected downtime.



■ Monitor Servo I/O and Alarm Status

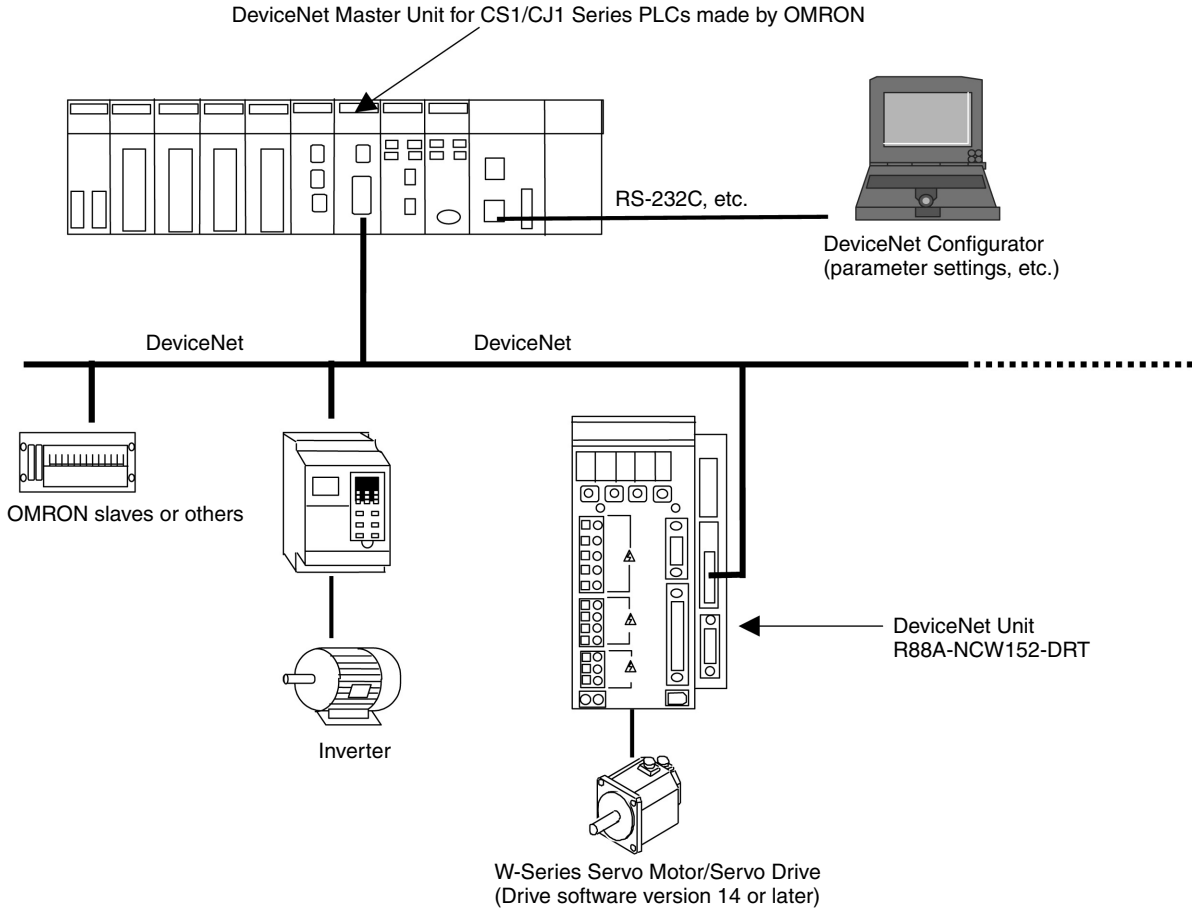
Remote I/O communications can be used to read signal I/O status or internal information displayed by the Servo Drive in monitor mode.

■ Field Installable on Existing W-Series Servo Drives

The DeviceNet Option Unit can be mounted to the side of a W-Series Drive in the field (See Note).

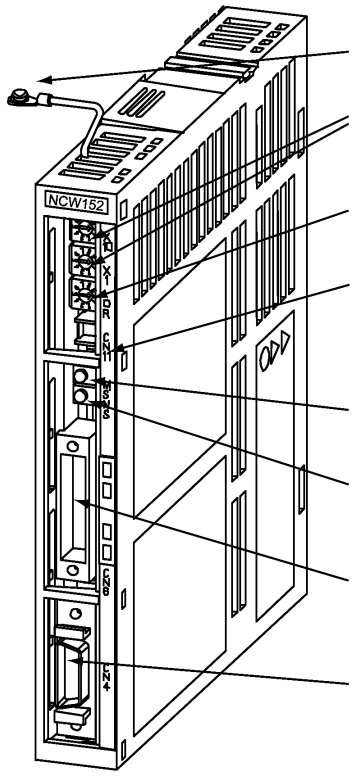
Note: Only W-Series Drives with software version 14 or later is compatible.

System Configuration



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Nomenclature



Ground line:
Connect to the terminal marked “G” on the Servo Drive

Rotary switches (x1, x10):
Used to set the DeviceNet node address

Rotary switches (DR):
Used to set the baud rate for DeviceNet

Connector for Setup Tool (CN11):
RS-232C connector for Setup Tool

LED (MS):
Module status LED indicator

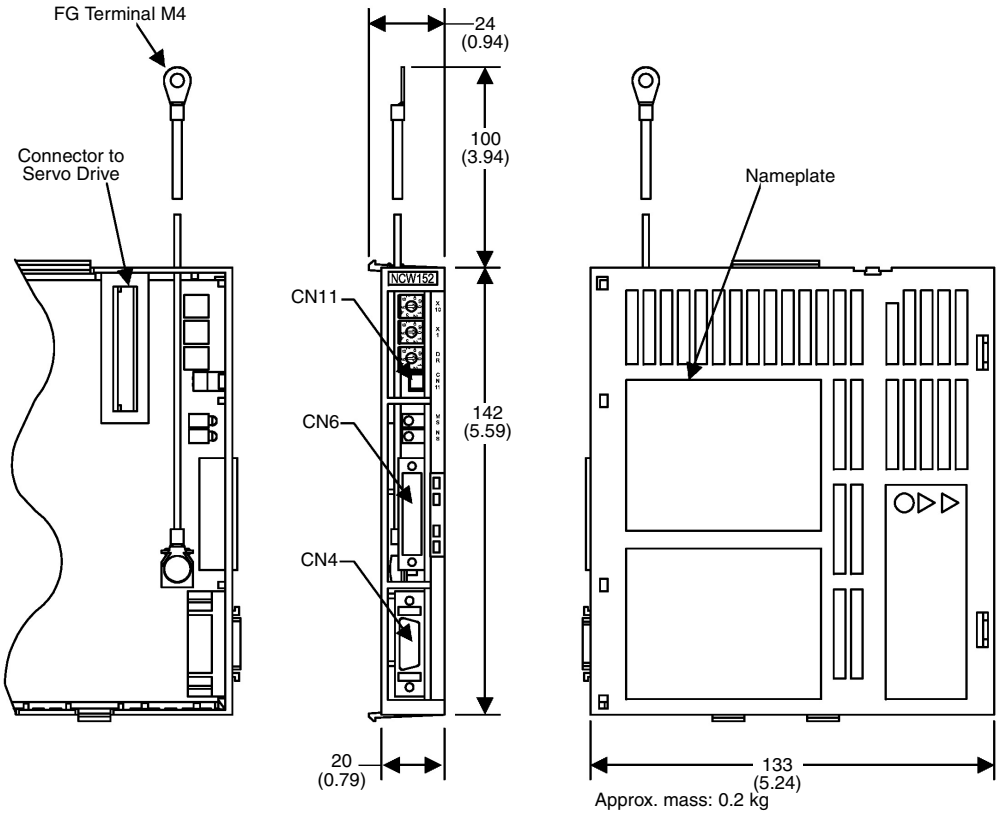
LED (NS):
DeviceNet network status LED indicator

Connector for DeviceNet communications (CN6):
for connection to any device that conforms to DeviceNet specifications

Connector for I/O signals (CN4):
for connection to external I/O signals and fully-closed encoder signal

Dimensions Unit: mm (inch)

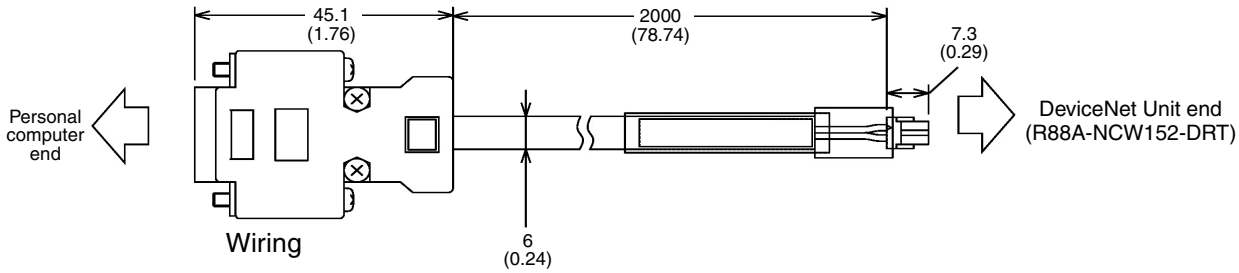
■ DeviceNet Option Unit

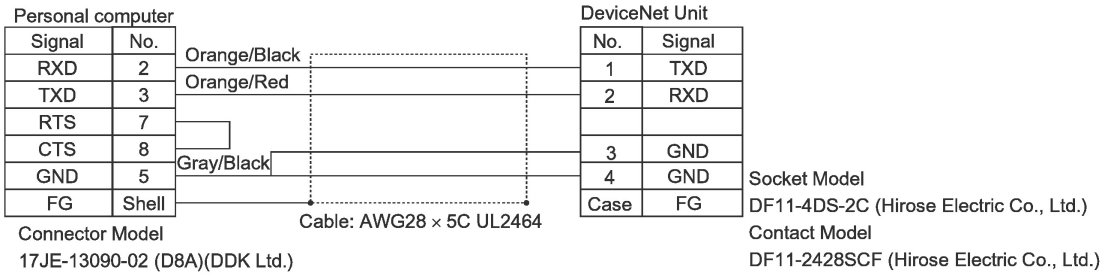


Approx. mass: 0.2 kg

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

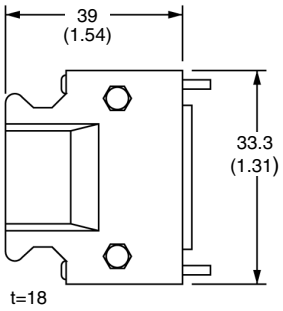
■ PC Configuration Cable





■ I/O Connector (R88A-CNU01R)

This connector connects to the I/O signals (CN4) of the DeviceNet Unit.



Connector Plug Model
10120-3000VE(20P) (Sumitomo 3M Ltd.)

Connector Case Model
10320-52A0-008 (Sumitomo 3M Ltd.)

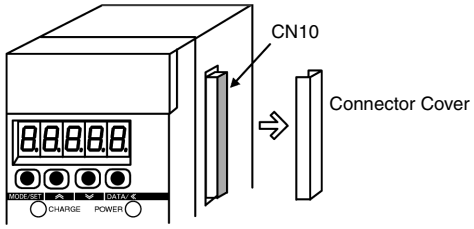
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Installation

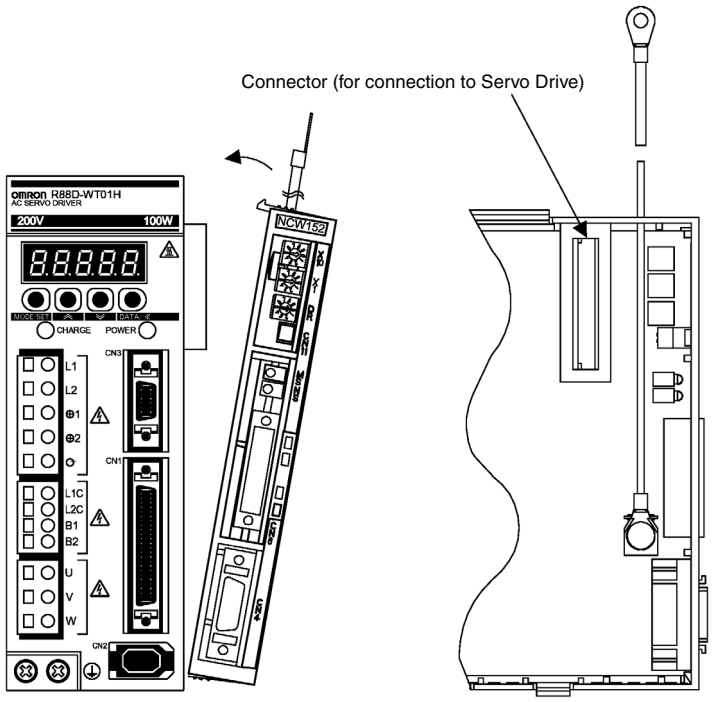
■ Mounting the DeviceNet Unit

By mounting DeviceNet Unit, the W-Series Servo Drive can be used in a DeviceNet network. Use the following procedure to ensure DeviceNet Units are mounted correctly

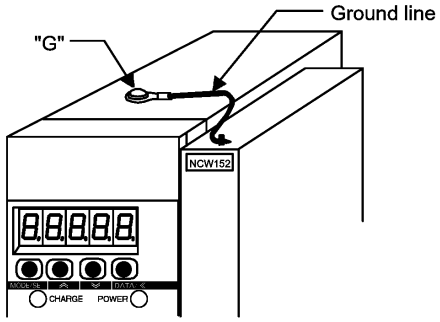
1. Remove the connector cover from the CN10 connector on the Servo Drive.



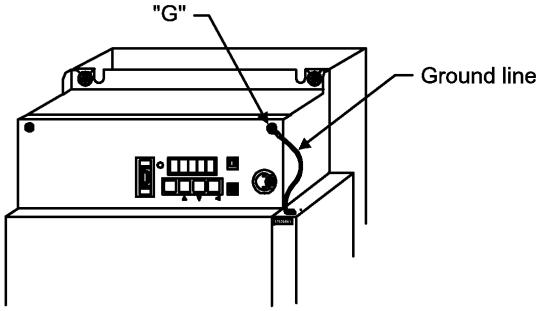
2. Mount the DeviceNet Unit on the Servo Drive.



3. For grounding, connect a ground line of the DeviceNet Unit to the point marked “G” on the Servo Drive.



For Servo Drive 30 W to 5.0 kW



For 6.0-kW Servo Drive

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Specifications

■ General Specifications

Item		Details
Applicable Servo Drive		R88D-WT□ (software version 14 or later) (See Note)
Installation Method		Mounted on the CN10 connector on the Servo Drive side
Basic Specifications	Power Supply Method	Supplied from the control power supply of the Servo Drive
	Power Consumption	1.3 W
	External Dimensions [mm]	20 × 142 × 128 (W × H × D)
	Approx. Mass [kg] (lb)	0.2 (0.441)
	Current Consumption	250 mA
Environment	Ambient Operating Temperature	0 to 55 °C
	Ambient Operating Humidity	90% RH or less (non-condensing)
	Ambient Atmosphere	Free from corrosive gasses
	Ambient Storage Temperature	-20 to 85 °C
	Ambient Storage Humidity	90%RH or less (non-condensing)
	Vibration Resistance	4.9 m/s^2
	Impact Resistance	Acceleration 19.6 m/s^2 or less (when the impact is applied three times in each X, Y, and Z direction)

Note: A DeviceNet Unit cannot be used with W-Series Servo Drive software version 8.

■ Performance Specifications

Item		Specifications
Model Number		R88A-NCW152-DRT
Number of Controlled Axes		1 axis/Unit
Control Method		Fully-closed/semi-closed control
DeviceNet Communications	Communications Method	Conform to DeviceNet: Remote I/O and Explicit Messages
Command System	Operation Specifications	Positioning via DeviceNet communications
	Command Input	DeviceNet communications Commands: move commands (positions and speeds) Reading and writing user parameters
Position control functions	Acceleration/Deceleration Method	One-step linear, two-step linear, asymmetric, exponential, or S-curve
	Acceleration/Deceleration Times	1 to 10,000 ms (time to maximum speed)
	Fully-closed Control (See Note 1)	Supported
	Software Limits	Supported
	Origin Searches	Search direction designation Applicable sensor designation Limit input reversal designation
	Backlash Compensation	0 to 32,767 steps
I/O Signals	CN1	Forward/reverse rotation drive prohibit, origin input signal (See Note 2)
	CN4	Phase-A, phase-B, and phase-Z inputs; emergency stop input, notch output
Built-in Functions	Latch Function for Position Data	The following can be latched: Position data for phase Z, origin input signal, and interrupt input signal.
	Protective Functions	Protection is provided for the following: User parameter corruption, user parameter setting errors, communications errors, etc.
	LED Indicators	MS: Module status NS: Network status
Positioning Unit		Steps
Speed Unit		× 1,000 steps/min

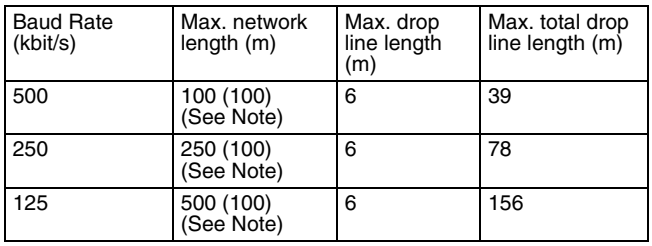
Note: **1.** An encoder is required on the load to perform fully-closed control.
2. Input signals for the Servo Drive to which the DeviceNet Unit is mounted.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ I/O Specifications

Item	Inputs	Outputs
Rated I/O Voltage	24 V DC ±1 V	30 V DC max.
Rated I/O Current	5 mA or more	50 mA max.
ON Response Time	2 ms or more	-
ON Voltage	Min.: +24 VIN-11	-
OFF Voltage	Max.: +24 VIN-1	-

■ DeviceNet Communications Specifications

Item	Specifications	
Communications Protocol	Conforms to DeviceNet	
Supported Connections (Communications)	Master-slave connections: Remote I/O and Explicit Message communications	
Connection Methods	Combination of multi-drop and T-branch connections (for trunk or drop lines)	
Baud Rate	Set on rotary switch (DR) to 125, 250, or 500 kbit/s.	
Node Address Settings	Set on rotary switches (×1 and ×10) to an address between 0 and 63.	
Communications Media	Special 5-wire cable (2 signal wires, 2 power supply wires, and 1 shield wire)	
Communications Distance		
Communications Power Supply	11 to 25 V DC	
Communications Power Supply Current Consumption	20 mA max.	
Maximum Number of Nodes	64 (DeviceNet Configurator is counted as 1 node when connected.)	
Maximum Number of Slaves	63	
Communications Cycle Time	DeviceNet processing time	1 ms or less to 4 ms
	From DeviceNet Module start command until command to Servo Drive	Min.: 8 ms Max.: 16 ms
	Explicit Message response time	Normal attributes: 1 ms or less to 4 ms Reading/writing servo parameter: 28 ms max.
Error Control	CRC errors	

Baud Rate (kbit/s)	Max. network length (m)	Max. drop line length (m)	Max. total drop line length (m)
500	100 (100) (See Note)	6	39
250	250 (100) (See Note)	6	78
125	500 (100) (See Note)	6	156

Note: Values in parentheses are for thin cable.

■ Parameters

Parameter Types

Parameters are classified depending on their purpose as follows:

- Unit parameters
- Origin search parameters
- Machine system and peripheral device parameters
- Speed, acceleration, and deceleration parameters
- Positioning parameters
- Multi-speed positioning parameters
- Notch output positioning parameters
- Point table parameters

Parameters are further classified according to the priority of the setting, as shown below.

Type	Meaning
A	Parameters that must be set even when using the DeviceNet Unit in standard mode.
B	Parameters that must be set when using the DeviceNet Unit in special mode.
C	Parameters whose settings hardly ever need to be changed.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Editing Parameters

Tools	Methods	Remarks
Setup Tool	Select Option Parameter List from the Parameter Menu to read all the DeviceNet Unit parameters. After the parameters have been displayed, select the parameters you want to edit, and click the Edit Button to edit the parameters.	All changed parameters are stored in RAM, so they are erased when the power is turned OFF. Use the Unit Reset Command to write the parameter data in RAM to the flash ROM.
Master Device or DeviceNet Configurator	You can edit using Explicit Message (Set_Attribute_Single) from the Master Device.	All changed parameters are stored in RAM, so they are erased when the power is turned OFF. Execute the Reset Service for the Identity Object to write the parameter data in RAM to the flash ROM.

Note: Parameters changed from each setting device are stored in RAM. To save parameters in flash ROM after adjustments have been completed, execute the Unit Reset Command in the Setup Tool or execute the Reset Service to the Identity Object via DeviceNet.

Effective Timing

Not all parameters edited from the Setup Tool or Master Device are effective immediately. Changed parameters are effective at one of the following two times.

Timing	Control or Processing
Power–up	The values of all parameters are made effective at the following times. When power is turned ON. When the Unit is reset from the Setup Tool or via commands.
Immediate	The values of changed parameters are made effective immediately. However, parameters will be stored in the Flash ROM at the following times. When the Unit is reset from the Setup Tool or via commands. When the Reset Service to the Identity Object is executed via DeviceNet.

■ Parameter Tables

The following tables list the parameters. If using the Setup Tool or reading/writing using a Remote I/O communications function, edit parameters using parameter No. If editing via DeviceNet Explicit Messages, edit using the object number and attribute number. Refer to manual I538-E3-1, section 6.10 Changing Parameters, or the host controller manual for details.

Unit Parameters

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#30	Pn810	Electronic Gear Ratio G1 (Numerator)	1 to 10,000,000	-	Power-up	1	B
	#31	Pn811	Electronic Gear Ratio G2 (Denominator)	1 to 10,000,000	-	Power-up	1	B

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Origin Search Parameters

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#10	Pn800	Origin Search Mode	0 to 6	-	Immediate	0	B
	#11	Pn801	Origin Search Function Selection	0 to 7	-	Power-up	1	B
	#12	Pn802	Origin Search High Speed	1 to 240,000	×1,000 steps/min	Immediate	10,000	B
	#13	Pn803	Origin Search Proximity Speed	1 to 240,000	×1,000 steps/min	Immediate	1,000	B
	#14	Pn804	Origin Search Compensation Speed	1 to 240,000	×1,000 steps/min	Immediate	500	B
	#15	Pn805	Origin Compensation Value	0 to 99,999,999	Steps	Immediate	0	B
	#16	Pn806	Zero Position Output Width	0 to 32,767	Steps	Immediate	100	B
	#17	Pn809	Absolute Position Setting	±99,999,999	Steps	Immediate	0	C
	#18	Pn80A	Origin Search Acceleration/ Deceleration Time	1 to 10,000	ms	Immediate	100	B

Note: **1.** "Steps" means "command unit." For command unit details, refer to manual I538-E3-1, section 5.3.1 Unit Parameters.
2. If you set the command unit to 0.001 mm, 1,000 steps/min. becomes mm/min.

Machine System and Peripheral Device Parameters

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#32	Pn812	Coordinate Type	0, 1	-	Immediate	0	C
	#33	Pn813	Command Unit/R	1 to 1,500,000	Steps	Immediate	360,000	C
	#34	Pn814	Backlash Compensation Value	0 to 32,767	Steps	Immediate	0	C
	#35	Pn815	Backlash Compensation Direction	0, 1	-	Immediate	0	C
	#36	Pn816	Positive Software Limit	±99,999,999	Steps	Immediate	99,999,999	B
	#37	Pn817	Negative Software Limit	±99,999,999	Steps	Immediate	–99,999,999	B
	#38	Pn818	Function Selection	0 to 3	-	Immediate	0	B
	#39	Pn819	Limit Input Signal Function Selection	0 to 3	-	Immediate	1	B
	#40	Pn81A	Limit Input Action Selection	0, 1	-	Immediate	1	B
	#41	Pn81B	Emergency Stop Function Selection	0 to 3	-	Immediate	1	B
	#42	Pn81C	Emergency Stop Action	0	-	Immediate	0	B

Note: **1.** "Steps" means "command unit." For command unit details, refer to manual I538-E3-1, section 5.3.1 Unit Parameters.
2. If you set the command unit to 0.001 mm. 1,000 steps/min. becomes mm/min.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Speed, Acceleration, and Deceleration Parameters

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#51	Pn821	Speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B
	#52	Pn822	Acceleration Time	1 to 10,000	ms	Immediate	100	B
	#53	Pn823	Deceleration Time	1 to 10,000	ms	Immediate	100	C
	#54	Pn824	Switch Speed	1 to 240,000	× 1,000 steps/min	Immediate	12,000	C
	#55	Pn825	Second Accelera-tion/Deceleration Time	1 to 10,000	ms	Immediate	200	B
	#56	Pn826	Acceleration/Decel-eration Type	0 to 3	-	Immediate	0	B
	#57	Pn827	Interrupt Feeding Speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B
	#58	Pn829	Filter Selection	0 to 3	-	Immediate	0	B
	#59	Pn830	JOG Unit Selection	0, 1	-	Immediate	0	B
	#60	Pn831	JOG Speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B
	#61	Pn832	JOG Acceleration Time	1 to 10,000	ms	Immediate	100	B
	#62	Pn833	JOG Deceleration Time	1 to 10,000	ms	Immediate	100	C
	#63	Pn834	JOG Switch Speed	1 to 240,000	× 1,000 steps/min	Immediate	12,000	C
	#64	Pn835	JOG Second Accel-eration/Deceleration Time	1 to 10,000	ms	Immediate	200	C
	#65	Pn836	JOG Acceleration/ Deceleration Type	0 to 3	-	Immediate	0	B
	#70	Pn840	Time Constant for Exponential Curve	4 to 1,000	ms	Immediate	25	C
	#71	Pn841	Bias Speed	0 to 240,000	× 1,000 steps/min	Immediate	0	C
	#72	Pn842	Time Constant of Moving Average	4 to 1,000	ms	Immediate	25	C
	#73	Pn843	Maximum Speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B
	#74	Pn844	Step Distance 1	0 to 99,999,999	Steps	Immediate	1	B
	#75	Pn845	Step Distance 2	0 to 99,999,999	Steps	Immediate	10	B
	#76	Pn846	Step Distance 3	0 to 99,999,999	Steps	Immediate	100	B
	#77	Pn847	Step Distance 4	0 to 99,999,999	Steps	Immediate	1,000	B

Note: **1.** “Steps” means “command unit.” For command unit details, refer to manual I538-E3-1, section 5.3.1 Unit Parameters.
2. If you set the command unit to 0.001 mm, 1,000 steps/min. becomes mm/min.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Positioning Parameters

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#90	Pn850	Positioning Completion Range	0 to 10,000	Steps	Immediate	5	A
	#91	Pn851	Positioning Monitor Time	0 to 65,535	ms	Immediate	0	A
	#92	Pn852	Positioning Near Range	0 to 32,767	Steps	Immediate	10	B
	#93	Pn853	Direction	0, 1	-	Immediate	0	B
	#94	Pn854	Interrupt Feeding Positioning Speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B
	#95	Pn855	Interrupt Feeding Distance	± 99,999,999	Steps	Immediate	0	B
	#96	Pn856	Interrupt Feeding Function Selection	0, 1	-	Power-up	0	B
	#100	Pn85A	Station	1 to 32,767	-	Immediate	1	B

Note: **1.** "Steps" means "command unit." For command unit details, refer to manual I538-E3-1 section 5.3.1 Unit Parameters.
2. If you set the command unit to 0.001 mm, 1,000 steps/min. becomes mm/min.

Multi-speed Positioning Parameters

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#111	Pn861	Speed Switch Point	0 to 16	-	Immediate	0	C
	#112	Pn862	Multi-speed Positioning Initial Speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#113	Pn863	Position 1 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#114	Pn864	Position 2 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#115	Pn865	Position 3 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#116	Pn866	Position 4 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#117	Pn867	Position 5 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#118	Pn868	Position 6 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#119	Pn869	Position 7 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#120	Pn86A	Position 8 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#121	Pn86B	Position 9 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#122	Pn86C	Position 10 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#123	Pn86D	Position 11 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#124	Pn86E	Position 12 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C

(This table continues on next page)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

(Multi-speed Positioning Parameters continued from previous page)

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#125	Pn86F	Position 13 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#126	Pn870	Position 14 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#127	Pn871	Position 15 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#128	Pn872	Position 16 for Multi-speed	0 to 99,999,999	Steps	Immediate	0	C
	#129	Pn873	Speed 1 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#130	Pn874	Speed 2 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#131	Pn875	Speed 3 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#132	Pn876	Speed 4 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#133	Pn877	Speed 5 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#134	Pn878	Speed 6 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#135	Pn879	Speed 7 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#136	Pn87A	Speed 8 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#137	Pn87B	Speed 9 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#138	Pn87C	Speed 10 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#139	Pn87D	Speed 11 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#140	Pn87E	Speed 12 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#141	Pn87F	Speed 13 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#142	Pn880	Speed 14 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#143	Pn881	Speed 15 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#144	Pn882	Speed 16 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#131	Pn875	Speed 3 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#132	Pn876	Speed 4 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#133	Pn877	Speed 5 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C
	#134	Pn878	Speed 6 for Multi-speed	1 to 240,000	× 1,000 steps/min	Immediate	24,000	C

Note: **1.** “Steps” means “command unit.” For command unit details, refer to manual I538-E3-1 section 5.3.1 Unit Parameters.
2. If you set the command unit to 0.001 mm, 1,000 steps/min. becomes mm/min.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Notch Output Parameters

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x64	#160	Pn890	Notch Signal Position Designation	0, 1	-	Immediate	0	C
	#161	Pn891	Notch Signal	0 to 3	-	Immediate	0	C
	#162	Pn892	Negative Direction Notch 1	± 99,999,999	Steps	Immediate	0	C
	#163	Pn893	Positive Direction Notch 1	± 99,999,999	Steps	Immediate	0	C
	#164	Pn894	Negative Direction Notch 2	± 99,999,999	Steps	Immediate	0	C
	#165	Pn895	Positive Direction Notch 2	± 99,999,999	Steps	Immediate	0	C

Note: **1.** "Steps" means "command unit." For command unit details, refer to manual I538-E3-1 section 5.3.1 Unit Parameters.
2. If you set the command unit to 0.001 mm, 1,000 steps/min. becomes mm/min.

Point Table Parameter

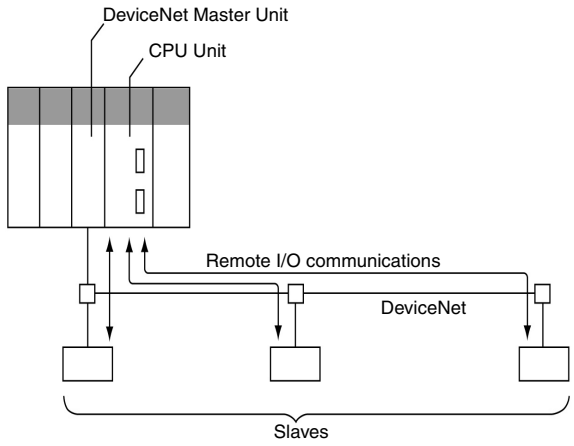
The table of point table parameters for target positions and speeds used when the point table operation is commanded is shown below.

Object	Attribute	No.	Name	Range	Units	Effective Timing	Default Value	Type
0x65	#50	Pn900	Position_1	± 99,999,999	Steps	Immediate	0	B
	#51	Pn901	Position_2	± 99,999,999	Steps	Immediate	0	B
	:	:	:	:	:	:	:	:
	#99	Pn931	Position_50	± 99,999,999	Steps	Immediate	0	B
	#150	Pn940	Speed_1	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B
	#151	Pn941	Speed_2	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B
	:	:	:	:	:	:	:	:
	#199	Pn971	Speed_50	1 to 240,000	× 1,000 steps/min	Immediate	24,000	B

Note: **1.** "Steps" means "command unit." For command unit details refer to manual I538-E3-1 section 5.3.1 Unit Parameters.
2. If you set the command unit to 0.001 mm, 1,000 steps/min. becomes mm/min.

■ Remote I/O Communications

Remote I/O communications function enable automatic exchange of I/O data between slaves and a CPU of the PLC under which a DeviceNet Master Unit is mounted without special programming in the PLC.



Each slave is allocated words in the I/O Memory in the CPU Unit under which the DeviceNet Master is mounted. There are two methods of allocation: Free and fixed.

• User (I/O) Allocations:

The user can allocate desired words for Slave I/O in the DeviceNet I/O Areas (Input Area, Output Area) in the I/O Memory. With the Omron CS1CJ1-series DeviceNet Master Units, the settings can be made without a DeviceNet Configurator.

• Fixed I/O Allocations:

Slave I/O is allocated in the DeviceNet I/O Areas (Input Area, Output Area) in the I/O Memory in the same order as the slave node addresses.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ Move Commands for Remote I/O Communications

This section explains move commands for Remote I/O communications.

Commands

Details on commands for move commands are shown below.

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	0	ALRST	STOP	0	0	SVON	C_STRT
1	Response type				Command code			
2	HOME	PTBL	STN	STEP	JOG	0	HOLD	CANCEL
3	0	0	0	0	0	0	DIR	INC
4	Command data							
5								
6								
7								

General Command Status

Command bits

Responses

The responses for move commands are shown below.

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	0	READY	PWRON	STOP_R	ALRM	WARN	SVON_R	C_STRT_R
1	Response type				Command code			
2	HOME_R	PTBL_R	STN_R	STEP_R	JOG_R	0	HOLD_R	PRGS
3	POT	NOT	INPOS	NEAR	HOME_P	0	DIR_R	INC_R
4	Response data							
5								
6								
7								

General status

Status

■ Set/Read Commands for Remote I/O Communications

This section explains set/read commands for Remote I/O communications.

Commands

Details on bytes 1 to 7 of the commands for set/read commands (MOD = 1) are shown below. The response type does need to be specified for set/read commands.

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	0	ALRST	STOP	0	0	SVON	C_STRT
1	0				Command code			
2	Command number							
3								
4	Command data							
5								
6								
7								

General Command Bit

Responses

Details on bytes 1 to 7 of the responses for set/read commands (MOD = 1) are shown below.

Byte	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
0	1	READY	PWRON	ESTP_R	ALRM	WARN	SVON_R	C_STRT_R
1	0				Command code			
2	Command number							
3								
4	Response data							
5								
6								
7								

General Status

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ Explicit Message Communications

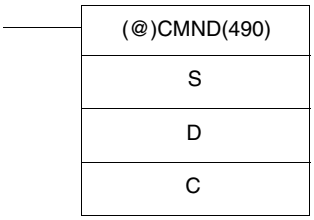
Explicit Message communications function use Explicit Messages defined for DeviceNet to send and receive service requests. With a DeviceNet to send and receive service requests. With a DeviceNet Unit, it is possible to receive service requests using Explicit Messages from PCs with Omron Master Units or from DeviceNet masters by other vendors.

■ Sending Explicit Messages Using the CMND Instruction

This section explains how to use the CMND (command setting) instruction to send Explicit Messages, including the timing of message execution and responses.

CMND

With the CS/CJ-Series DeviceNet Master Unit, CMND instructions can be used in the CPUs ladder program to send Explicit Messages. The Explicit Message command data is sent with FINS command 2801 Hex attached at the beginning. The Explicit Message response is received following the FINS command code 2801 Hex and FINS completion code.



S: First Command Word at Local Node

Specify the beginning word for the command data to be transferred to the Devicenet Master Unit. Preset in consecutive words the data to be transferred, as shown below.

Word	Bits	
	15 to 8	7 to 0
S	Command code (set Explicit Message FINS command 2801)	
S + 1	Node address of slave or master to which message is to be sent: 0 to 3F HEX (0 to 63)	Explicit Message service code Write: 10: Read: 0E
S + 2	Class ID code (sets the DeviceNet class code for the function)	
S + 3	Instance ID code (sets the DeviceNet instance code for the function)	
S + 4	Attribute ID code (sets the DeviceNet attribute code for the function	Attached data (for write)
---	Attached data (for write)	

D: First Response Word at Local Node

Specify the beginning word of the area for storing responses to messages.

C: First Control Data Word

Specify the beginning word for storing the control data required for message communications. Preset in consecutive words the required data, as shown below. this data is required by the DeviceNet Master Unit.

Word	Bits		
	15	14 to 8	7 to 0
C	Number of command data bytes (See Note 1): 0000 to 021E Hex (0 to 542 bytes)		
C + 1	Number of response data bytes (See Note 2): 0000 to 021E Hex (0 to 542 bytes)		
C + 2	Destination network address: 0000 to 007F Hex (0 to 127), 0000 Hex (local network)		
C + 3	Destination node address: 00 to 3F Hex (0 to 63)		Destination unit address: 10 to 1F Hex
C + 4	Response (See Note 5)	Communications port No.: 00 to 07	Number of retries (See Note 3): 00 to 0F Hex (0 to 15 times)
C + 5	Response monitor time (See Note 4): 0000 Hex (2 s). 0001 to FFFF Hex (0.1 to 6.553.5 s (Unit: 0.1 s)		

Note:
1. Set the number of words from the beginning word S.
2. Set the number of words from the beginning word D.
3. Set the number of retries when there is an error response.
4. For Explicit Messages, this must be set to at least 2 s.
5. Set bit 15 of word C + 4 to 0 (response returned) or 1 (response). For Explicit messages, this bit must be set to 0 (response returned).

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

■ Tracing Data

The data trace function allows a host controller to read I/O information and operating data collected in the Servo Drive's memory via the DeviceNet.

By implementing trace settings, data is collected in the Servo Drive's memory.

Then, by implementing trace data reading, the collected data can be read from a host controller by means of Explicit Messages.

The following table provides an outline of the data trace function.

Item	Contents
Trace targets	Data trace: 2 items max. I/O trace: 2 items max.
Trace data targets	Torque commands, speed feedback, command pulse rate, position deviation
I/O data trace targets	/ALM, INP1, VCMP, TGON, READY, CLIMT, VLIMT, BKIR, /WARN, INP2, ALO1, ALO2, ALO3
Number of trace points	1,000 points each
Sampling cycle	250 μs to 8,191,750 μs (Up to approximately 8 seconds can be set in units of 250 μs.)

Note: **1.** It takes approximately one minute from the beginning of the tracing until the end.
2. Trace parameters are not saved when the Unit is reset. When the power is turned OFF, the default values are restored.
3. The LED indicators on the front panel of the Servo Drive are not lit while tracing is being executed.

Trace Settings

Object	Attribute	Access	Name	Data Type	Contents
0x67	#10	Get/Set	Data Trace1	UINT	Selection of target for data trace 1
	#11	Get/Set	Data Trace2	UINT	Selection of target for data trace 2
	#12	Get/Set	I/O Trace1	UINT	Selection of target for I/O trace 1
	#13	Get/Set	I/O Trace2	UINT	Selection of target for I/O trace 2
	#14	Get/Set	Sampling Cycle	DINT	Sampling cycle setting
	#15	Get/Set	Trigger Target	UINT	Trigger target setting
	#16	Get/Set	Trigger Level	UINT	Trigger level setting
	#17	Get/Set	Edge Type	UINT	Edge type setting
	#18	Get/Set	Pre-Trigger	UINT	Pre-trigger data setting
	#19	Get/Set	Start Trace	UINT	Data trace command
	#20	Get	Trace Status	UINT	Data trace status

Data Trace Selection

Set Value	Trace Target	Unit
0000 Hex	Torque command	%
0001 Hex	Feedback speed	r/min.
0003 Hex	Command pulse rate	r/min.
0004 Hex	Position deviation	Steps

I/O Trace Selection

Set Value	Trace Target	Contents
0080 Hex	/ALM	Alarm
0081 Hex	INP1	Positioning Completion 1
0082 Hex	VCMP	Speed Conformity
0083 Hex	TGON	Rotation Direction
0084 Hex	READY	Servo Ready
0085 Hex	CLIMT	Current Limit Detection
0086 Hex	VLIMT	Speed Limit Detection
0087 Hex	BKIR	Brake Interlock
0088 Hex	/WARN	Warning
0089 Hex	INP2	Positioning Completion 2
008B Hex	ALO1	Alarm Code Output 1
008C Hex	ALO2	Alarm Code Output 2
008D Hex	ALO3	Alarm Code Output 3

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Trigger Target Selection

Set the target for activating the trigger. The objects that can be selected are the four targets set for Data Trace1, Data Trace 2, I/O Trace 1, and I/O Trace 2, as well as “no trigger.” When “no trigger” is set, the trigger is activated when tracing begins, and the Trigger Level, Trigger Edge, and Pre-trigger Data Amount settings are disabled.

Set Value	Contents
0000 Hex	No trigger target
0001 Hex	Data set for Data Trace 1
0002 Hex	Data set for Data Trace 2
0003 Hex	I/O data set for I/O Trace 1
0004 Hex	I/O data set for I/O Trace 2

Ordering Information

Description	Part Number
DeviceNet Option Unit for W-Series Servo Amplifiers	**R88A-NCW152-DRT**
External I/O Connector	**R88A-CNU01R**
2 meter PC Configuration Guide	**R88A-CCW002P4**
Operation Manual	**I538-E3-1**
NCW Setup Tool (download from OEI website)	**-----**

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters into inches, divide by 25.4

OMRON

OMRON ELECTRONICS LLC
One East Commerce Drive
Schaumburg, IL 60173
847-843-7900
For US technical support or other inquiries:
800-556-6766

OMRON CANADA, INC.
885 Milner Avenue
Toronto, Ontario M1B 5V8
416-286-6465

OMRON ON-LINE
Global - http://www.omron.com
USA - http://www.omron.com/oei
Canada - http://www.omron.com/oci

Cat. No. DS13P1 10/02 Specifications subject to change without notice Printed in USA

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP