

Programmable Terminal

NV Series

Compact and Simple, Extremely High Cost Performance



» A Lineup of 14 Models That Redefine "Compact"

realrzing

The Best PT for Package PLCs — NV

The NV Series of compact Programmable Terminals meet the basic needs for enhanced visibility, simplicity, and cost, and they go even further to provide superior PLC compatibility, easy operation, and cost performance.





Visibility **Beautiful, Easy-to-understand Displays**

Instantly know the system status

It is obvious in three color LED backlight

The monochrome models provide three backlight colors to perform status displays.For example, use green for normal operation, orange for user controls, and red for errors so that the operating status can be seen at a glance.

OHMAEER TEMP

NV W-MG

USY
7626
762

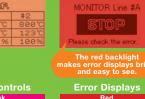
Teaching Scr. BUSY

STOP

Pos.DATA 197620

EXEC





Easy Visual Recognition True Type Fonts for Flexible Screen Designs

You can use True Type fonts in a wide range of sizes from 10 to 240 dots to flexibly design beautiful screens.

True Type Fonts You can select the best Windows® screen images or emphasize screen

MSGoth, MSPGoth, MS Serif Arial Courier New Any size of many Windows Fonts Can be Used



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Value **Easy Designing**

The slim design of NV-series PTs requires very little installation space.

Vertical Installation

The PT can be installed vertically to enable more applications. This enables more flexible designs.



Variation A Lineup of 14 Models That Form a New Standard for Small PTs

NV3W Display colors Display colors Monochrome, 2 grayscale levels Monochrome, 2 grayscale levels 128 × 64 dots 128 × 64 dots Backlight Backlight : LEDs, 3 colors (white, pink, and red) LEDs, 3 colors (green, orange, and red) **Monochrome STN** A 5-V model is available that can be powered from an OMRON PLC





The lineup includes compact and horizontal models from 3.1-inch to 4.6-inch and QVGA models. Select the size and price that are best for each system.



stands for the three benefits

- Easy design work and superior PLC compatibility
- Beautiful, easy-to-understand displays
- Variation | A lineup of ten 3-inch models for easy selection

Global Application Multi-language Support and Safety Standard Compliance

You can switch parts labels and languages. Record up to sixteen character strings in different languages and change all labels at the same time. Switching the language during operation is also very easy. International safety standards have also been met so that you can easily export equipment or transport equipment overseas.





Handle Devices from Various Manufacturers **Global Multivendor Support**

You can connect the PT to OMRON or Mitsubishi Electric PLCs or to PLCs from many other global manufacturers. This lets you connect the NV-series PTs without changing the PLC. You can easily use a different PLC manufacturer for each project.

> OMRON, Mitsubishi Electric, Keyence, Hitachi, Allen-Bradley, Siemens, etc.



Easy Connection to External Devices for Easy Maintenance

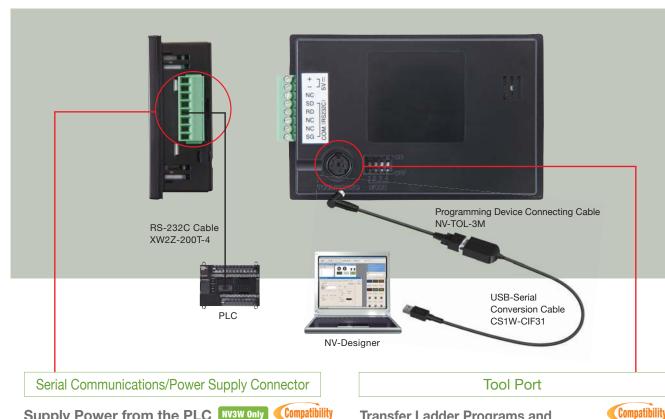


Battery-free Operation

Internal Storage of Required Data in the PT An NV-series PT can be operated without a battery. No maintenance battery is required.

Data Backed Up	without a Batte
 NV Configuration Base Screens Keyboard Screens 	 Recipes Write Addre Flow Display

erv ess Data ay Data



Compatibilit Supply Power from the PLC **NV3W Only**

With 5-V NV3W models, 5-V can be supplied from the PLC via the PLC Connecting Cable. This reduces wiring work and eliminates the need for a special power supply for the PT.

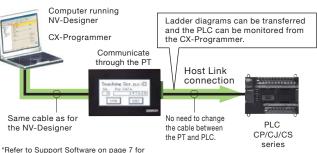
Supplying 5-V from the PLC



*An XW2Z-200T-4 PLC Connecting Cable is required to supply power from the PLC. *With 24-V PTs, power must be supplied from an external power supply.

Transfer Ladder Programs and PT Screens without Changing the Cable

Ladder programs can be transferred, debugged, or monitored for an OMRON PLC from the CX-Programmer running on a computer connected to the NV-series PT while communicating through the NV-series PT.

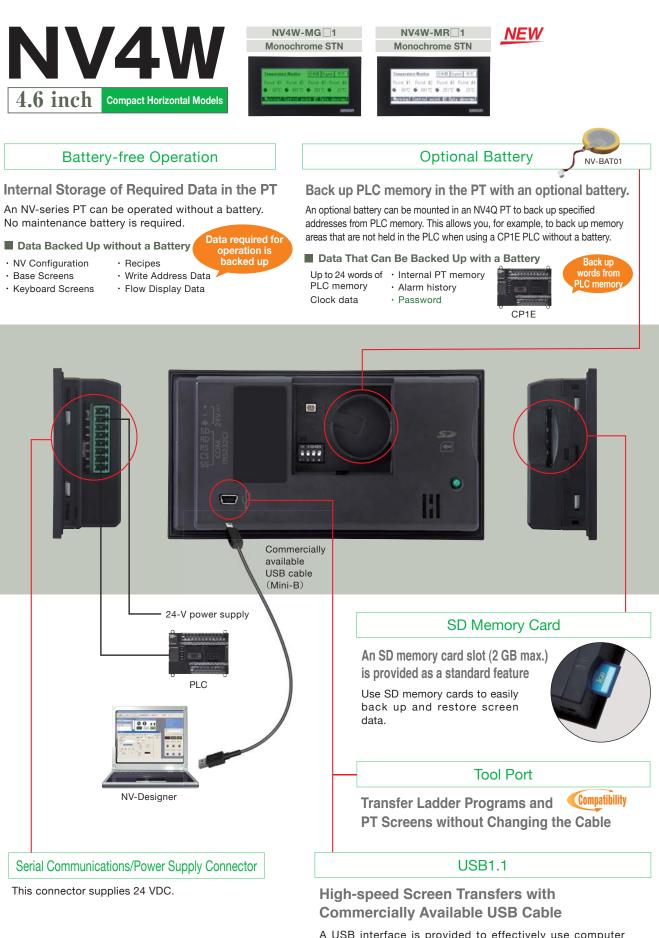


applicable versions of the CX-One





Battery-free Operation Recipes Write Address Data Flow Display Data



software environments.Screens that are created on the computer can be quickly transferred to the PT using a commercially available USB cable (Mini-B).





Battery-free Operation

Internal Storage of Required Data in the PT

An NV-series PT can be operated without a battery. No maintenance battery is required.

- Data required for Data Backed Up without a Battery
- operation is backed up NV Configuration Recipes
- · Base Screens
- · Keyboard Screens
- Write Address Data
 - · Flow Display Data

Optional Battery Back up PLC memory in the PT with an optional battery.

An optional battery can be mounted in an NV3Q PT to back up specified addresses from PLC memory. This allows you, for example, to back up memory areas that are not held in the PLC when using a CP1E PLC without a battery.

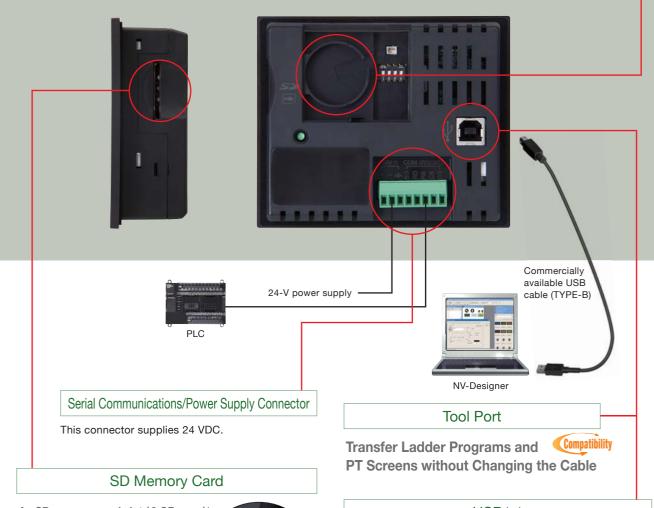
- Data That Can Be Backed Up with a Battery
- Up to 24 words of Internal PT memory
- PLC memory · Alarm history Clock data Password

CP1E

NV-BAT01

ords from

C memor



An SD memory card slot (2 GB max.)* is provided as a standard feature

Use SD memory cards to easily back up and restore screen data.

*The capacity of the SD memory card is 32 MB to 1 GB for PT system program version 1.0 🗆 .



USB1.1

High-speed Screen Transfers with Commercially Available USB Cable

A USB interface is provided to effectively use computer software environments.Screens that are created on the computer can be quickly transferred to the PT using a commercially available USB cable (TYPE-B).

Programmable Terminals NV-Series

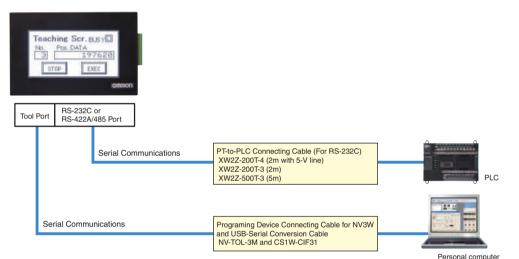
Compact and Simple, Extremely High Cost Performance

- The lineup includes compact and horizontal models from 3.1-inch to 4.6-inch and QVGA models.
- Trur Type Fonts for Flexible Screen Designs.
- Space-saving Installation.
- Multi-language Support and Safety Standard Compliance.

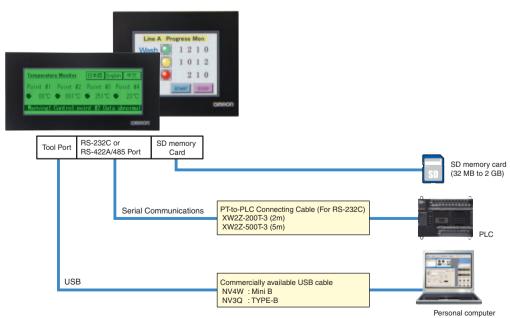


System Configuration

NV3W



NV4W/NV3Q



Ordering Information

International Standards

- The standards are abbreviated as follows: U: UL, U1: UL (Class I Division 2 Products for Hazardous Locations),
 C: CSA, UC: cULus, UC1: cULus (Class I Division 2 Products for Hazardous Locations), CU: cUL, N: NK, L: Lloyd, and CE: EC Directives.
- Contact your OMRON representative for further details and applicable conditions for these standards.

Programmable Terminals

Desident manual	Specifications				Madal	Otensilende			
Product name	Screen size	Number of dot	Communications	Power supply voltage	Backlight	Model	Standards		
			RS-232C	5 VDC	LEDs, 3 colors (green, orange,	NV3W-MG20L			
	3.1-in, STN monochrome		RS-232C	24 VDC		NV3W-MG20	UC, CE		
NV3W			RS-422A/485	24 VDC	and red)	NV3W-MG40			
11 1 3 10			RS-232C	5 VDC	LEDs, 3 colors	NV3W-MR20L			
	3.1-in, STN monochrome			$128\times 64 \ dots$	RS-232C	24 VDC	(white, pink, and	NV3W-MR20	UC, CE
			RS-422A/485	24 VDC	red)	NV3W-MR40			
	4.6-in, STN	N coo too to	RS-232C	24 VDC	LEDs, 3 colors (green, orange, and red) LEDs, 3 colors (white, pink, and red)	NV4W-MG21 <u>NEV</u>	110.05		
NIV 4144	monochrome	$320 \times 120 \text{ dots}$	RS-422A/485	24 VDC			NV4W-MG41 <u>NEV</u>	UC, CE	
NV4W	4.6-in, STN		RS-232C	24 VDC		NV4W-MR21 <u>NEV</u>			
	monochrome	$320 \times 120 \text{ dots}$	RS-422A/485	24 VDC		NV4W-MR41 <u>NEV</u>	UC, CE		
	3.6-in STN	6.6-in, STN 320 × 240 dots nonochrome (QVGA)	RS-232C	24 VDC	LEDs, 3 colors (white, pink, and red)	NV3Q-MR21			
NV3Q	,		RS-422A/485	24 VDC		NV3Q-MR41	UC, CE		
NV J GR	3.6-in, STN	.6-in, STN 320 × 240 dots	RS-232C	24 VDC		NV3Q-SW21			
	color (QVGA)	(QVGA)	RS-422A/485	24 VDC	White LED	NV3Q-SW41	UC, CE		

Programming Devices

Product name	Specifications	Number of licenses	Media	Model	Standards
FA Integrated Tool Package CX-One Lite Ver.4.□	CX-One Lite is a subset of the complete CX-One package that provides only the Support Software required for micro PLC applications. *1 CX-One Lite runs on the following OS. OS: Windows XP (Service Pack 3 or higher), Vista or 7 Note: Except for Windows XP 64-bit version CX-One Lite Ver. 4. includes NV-Designer Ver.1.	1 license	CD	CXONE-LT01C-V4 <u>NEW</u>	_
FA Integrated Tool Package CX-One Ver. 4.□	CX-One is a comprehensive software package that integrates the Support Software for OMRON PLCs and components. *2 CX-One runs on the following OS. OS: Windows XP (Service Pack 3 or higher), Vista or 7 Note: Except for Windows XP 64-bit version CX-One Ver. 4.□ includes NV-Designer Ver.1.□.	1 license *3	DVD *4	CXONE-AL01D-V4 <u>NEW</u>	_

Note: NV-Designer version 1.0 or higher is required to use the NV3W and NV3Q.

NV-Designer version 1.1 or higher is required to use the NV4W.

*1. CX-One Lite Ver.4. provides the following Support Software : Micro PLC Edition CX-Programmer Ver.9. CX-Integrator Ver.2., Switch Box Utility Ver.1. CX-Simulator Ver.1. CX-Drive Ver.2. , CX-Designer Ver.3. NV-Designer Ver.1. , CX-Thermo Ver.4. CX-ConfiguratorFDT Ver.1. Network Configurator Ver.3. , and CX-Server Ver.4.
*2. For details, refer to the CX-One Catalog (Cat. No : R134).
*2. Multi licences are queliable for the CX One (2, 0, 20 or 60 licences).

*3. Multi licenses are available for the CX-One (3, 10, 30 or 50 licenses).

*4. The CX-One is also available on CD (CXONE-AL_C-V4).

Options (Sold separately)

Product name		Specifications	Model	Standards	
PT-to-PLC Connecting Cable		For the NV3W with 5-V power (NV3W-MG20L/MR20L only)	Length: 2m	XW2Z-200T-4 *1	
		For the NV3W, NV4W, and NV3Q	Length: 2m	XW2Z-200T-3	-
		For the NV3W, NV4W, and NV3Q	Length: 5m	XW2Z-500T-3	
		For the NV3W	Length: 3m	NV-TOL-3M	-
Programming Device Connecting Cable *2	USB-Serial Conversion Cable	For the NV3W Use this Cable together with the NV-TOL-3M to connect to a USB connector on the computer. Note : The enclosed USB driver must be installed.	Length: 0.5m	CS1W-CIF31	N
Waterproof Packings		For the NV3W, contains 10 packings. One Packing is prostandard feature.	NV3W-RP001	-	
		For the NV4W, contains 10 packings. One Packing is prostandard feature.	NV4W-RP001 <u>NEW</u>	-	
		For the NV3Q, contains 10 packings. One Packing is provided on the PT as a standard feature.		NV3Q-RP001	-
Battery *3		For the NV4W and NV3Q		NV-BAT01	-
Display Protective Sheets		For the NV3W, contains 10 sheets	NV3W-KBA04	-	
		For the NV4W, contains 10 sheets	NV4W-KBA04 NEW	_	
		For the NV3Q, contains 10 sheets	NV3Q-KBA04	-	
Attachment		NP3 Series to NV3Q Series		NV3Q-ATT02	-

*1. If the XW2Z-200T-4 Cable is used with the NV3W, 5 V can be supplied from the CS/CJ/CP-series PLCs instead of from an external power supply. Refer to the NV-series PT Setup Manual (Cat.No V103) for details.
*2. For NV3Q, use commercially available USB cable (TYPE-B). For NV4W, use commercially available USB cable (Mini B).
*3. Cannot be used for the NV3W.

NV-series

Specifications

General Specifications

Item	Specifications						
Model	NV3W-M20/M40	NV3W-M20L	NV4W-M21/M41	NV3Q-MR 1	NV3Q-SW□1		
Rated power supply	24 VDC	5 VDC	24 VDC				
Operating voltage range	21.6 to 26.4 VDC	4.5 to 5.5 VDC	21.6 to 26.4 VDC				
Current consumption	2 W max. (80 mA max.)	1 W max. (200 mA max.)	1.7 W max. (70 mA max.)	2.4 W max. (100 mA max.)	3.6 W max. (150 mA max		
Ambient operating temperature	0 to 50 °C						
Ambient operating humidity	20% to 85% (with no conc	20% to 85% (with no condensation)					
Ambient storage temperature	-20 to 60 °C						
Ambient storage humidity	10% to 85% (with no condensation)						
Dielectric strength	Between the power supply terminals and the case 500 VAC for 1 min with a cutoff current of 10 mA (at initial state)						
Insulation resistance	Between the power supply terminals and the case 100 M Ω (at 500 VDC) (at initial state)						
Vibration resistance	10 to 55 Hz with 0.75-amp Y, and Z directions, 1 swe	litude for 10 min each in X, ep per min	5 to 9 Hz, 3.5-mm single amplitude, 9 to 150 Hz, 9.8 m/s ² , 10 times each in X, Y, and Z directions (1 octave/min)	z, 10 to 55 Hz with 0.75-amplitude for 10 min each in X h in X and Z directions 1 sweep per min			
Shock resistance	98m/s ² 4 times each in X, Y, and Z directions 147m/s ² 3 times each in X, Y, and Z directions 98m/s ² 4 times each in X, Y, and Z directions						
Noise immunity	1,000 Vp-p with pulse widths of 50 ns and 1 µs between power supply terminals (via simulator)						
Resistance to environment	For NV3W and NV3Q IP65 (at initial state), For NV4W IP67 (at initial state) Dust proof and drip proof only from the front of the panel (using Waterproof Packing at the contact surface with the panel) Replace the Waterproof Packing each time you reinstall the PT.						
Battery life expectancy		-	Battery life expectancy: 5 y	∕r (at 25 °C) *	Battery life expectancy: 3 yr (at 25 °C) *		
Safety standards	UL 508 and EC Directives						
Weight	160 g max.		240 g max.				

* The SRAM (internal RAM) is backed up by the battery. If backing up the data is required, purchase the NV-BAT01 Battery separately.

Performance Specifications

Item		Specifications				
Model		NV3W-MG (L)/MR (L)	NV4W-M21/M41	NV3Q-MR 1/ SW 1		
Display device		STN monochrome LCD		NV3Q-MR: STN monochrome LCD NV3Q-SW: STN color LCD		
Number of dots 128×64 dots (H \times V)			$320 \times 120 \text{ dots } (\text{H} \times \text{V})$	$320 \times 240 \text{ dots } (\text{H} \times \text{V})$		
Effective dis	display size 70 × 35 mm (H × V) 109 × 41 mm (H × V) 71 × 53 mm (H × V)			$71 \times 53 \text{ mm} (\text{H} \times \text{V})$		
Service Life	1	50,000 hours min. *1				
Backlights		NV3W-MG : LED backlights, 3 colors (green, orange, and red) NV3W-MR : LED backlights, 3 colors (white, pink, and red)	NV4W-MG : LED backlights, 3 colors (green, orange, and red) NV3Q-MR: LED backlights, 3 colors (white, pink, and red) NV4W-MR : LED backlights, 3 colors (white, pink, and red) NV3Q-SW: LED backlight, 1 colors			
	Method	Analog resistance membrane	1	1		
	Operating force	0.5 N max.	0.8 N max.			
Touch switches		100 million operations min. (at 25 °C)				
SWITCHES	Switches	50 max. per screen *2	100 max. per screen *2			
	Size	8 dots × 8 dots min. *3	×8 dots min. *3			
External memory - SD memory card (32 MB to 2 GB) *4 Manufacturers for which operation has been confirmed: Panasonic SD standard *5		n confirmed: Panasonic				
Host		NV3W-M□20(L) : RS-232C (not isolated), Transmission distance: 15 m, Connector : 8-pin NV3W-M□40 : RS-422A/485 (not isolated), Transmission distance: 500 m, Connector : 8-pin	NV4W-M[21: RS-232C (not isolated), Transmission distance: 15 m, Connector:8-pin NV4W-M[41: RS-422A/485 (not isolated), Transmission distance: 500 m,Connector: 8-pin	NV3Q-021 : RS-232C (not isolated), Transmission distance: 15 m, Connector: 8-pin NV3Q-0241 : RS-422A/485 (not isolated), Transmission distance: 500 m, Connector: 8-pin		
Support Software	Tool Port	RS-232C (not isolated) via Mini DIN 5-pin connector	_	-		
communic ations	USB port	-	USB 1.1 Mini-B, Transmission distance: 5 m max.	USB 1.1 TYPE-B, Transmission distance: 5 m max.		
Applicable Support Software		NV-Designer version 1.0 or higher (Included with CX-One version 3.2 or in CX-One Lite version 4.0.)	NV-Designer version 1.1 or higher (Included with CX-One version 4.03 or in CX-One Lite version 4.03.)	NV-Designer version 1.0 or higher (Included with CX-One version 3.2 or in CX-One Lite version 4.0.)		

*1. This is the estimated time before brightness is reduced by half at room temperature and humidity. It is not a guaranteed value.
 *2. The estimate applies to operation when only custom switches are placed on the screen.

***3.** This value does not include 1-dot box of frame line.

*4. The capacity of the SD memory card is 32 MB to 1 GB for PT system program version 1.0 .

*5. SD memory cards are shipped pre-formatted from the factory, so there is normally no need to format them. If an SD memory card is formatted with the standard formatting utility provided with a personal computer, its file system will not conform to the SD memory card standard. Always use the formatting software provided by SD memory card makers.

NV-series

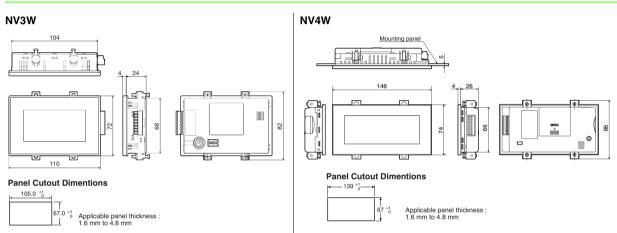
(Unit: mm)

Applicable PLCs

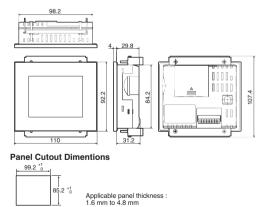
Company	Series	Company	Series
OMRON	CP Series	Mitsubishi Electric	FX Series
OMRON	CJ Series	Mitsubishi Electric	Q Series
OMRON	CS Series	Mitsubishi Electric	A Series
OMRON	C Series	Panasonic Electric Works	FP Series
OMRON	CVM1/CV Series	Toshiba Machine	TC mini Series
OMRON	Temperature Controllers EJ1 Series	Keyence	KV Series
Yokogawa Electric	FA-M3 Series	Allen-Bradley Models that support DF protocol	MicroLogix
Hitachi	EH-150EHV Series	Allen-Bradley Models that support DF protocol	SLC-500 Series
Hitachi	EH150 Series	Siemens	S7-200 Series
Hitachi	MICRO-EH Series	LG	MASTER-K Series
Hitachi	Web Controller	Modbus	Models that support RTU protocol

Note: Refer to "NV Series Programmable Terminals Host Connection Manual (Cat.No V105)" which is included in NV-Designer for information on combination use with each PLC Series.

Dimensions



NV3Q



Related Manuals

Cat. No	Model	Name
V103	NV3W, NV4W, NV3Q	NV Series Programmable Terminals Setup Manual
V104	NV3W, NV4W, NV3Q, NV-Designer	NV Series Programmable Terminals Programmig Manual
V105	NV3W, NV4W, NV3Q	NV Series Programmable Terminals Host Connection Manual

Read and Understand this Catalog

Please read and understand this catalog before purchasing the product. Please consult your OMRON representative if you have any questions or comments.

Warranty and Limitations of Liability

WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted. IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of the product in the customer's application or use of the product.

Take all necessary steps to determine the suitability of the product for the systems, machines, and equipment with which it will be used.

Know and observe all prohibitions of use applicable to this product.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons. Consult with your OMRON representative at any time to confirm actual specifications of purchased product.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

Note: Do not use this document to operate the Unit.

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Singapore 119967 Tel: (65) 6835-3011/Fax: (65) 6835-2711 PuDong New Area, Shanghai, 200120, China Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200 © OMRON Corporation 2009 All Rights Reserved. In the interest of product improvement, specifications are subject to change without notice.

Cat. No. V410-E1-02



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;

- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);

- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;

- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком):

- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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