Information

Discontinued Products

OMRON continuously updates its lineup of products. As a consequence, the production of older products that no longer meet market requirements, or which can be replaced by a next generation of products, will be discontinued. The following tables list the products that have been or will be discontinued.

Note: Refer to information in this and other relevant catalogs and manuals for information on the recommended replacement product.

Programmable Controllers

Name	Discontinued models	Recommended replacement
CJ Series	CJ1G-CPU44 CJ1G-CPU45	CJ1G-CPU44H CJ1G-CPU45H
	CJ1W-AD081	CJ1W-AD081-V1
	CJ1W-CLK21	CJ1W-CLK21-V1
	CJ1W-SCU21 CJ1W-SCU41	CJ1W-SCU21-V1 CJ1W-SCU41-V1
CPM1 Series	CPM1-20EDR	CPM1A-20EDR1
	CPM1-□0CDR-□	CPM1A-□0CDR-□-V1
CPM1A Series	CPM1A CPU Unit	CPM1A-V1
	CPM1A-20EDR	CPM1A-20EDR1
CPM2B Series	CPM2B-S001M-DRT	CPM2B-S001M-DRT-V1
CPM2C Series	CPM2C-CIF01	CPM2C-CIF01-V1
CQM1H/CQM1 Series	CQM1-CPU□	CQM1H-CPU□
	CQM1-LSE01/02	Ask your OMRON representative
	CQM1-SEN01	---
	CQM1-TU001	---
	CQM1H-CPU42	CQM1H-CPU51 + CQM1H-AVB41
	CQM1H-CPU43	CQM1H-CPU51 + CQM1H-PLB21
	CQM1H-CPU44	CQM1H-CPU51 + CQM1H-ABB21
CS Series	CS1D-LCB05D	CS1D-CPU65P CS1D-CPU67P
	CS1G-CPU□□ (E)V1 CS1H-CPU□□ (E)V1	CS1G-CPU□□H CS1H-CPU□□H
	CS1W-AD041 CS1W-AD081	CS1W-AD041-V1 CS1W-AD081-V1
	CS1W-CLK11	CS1W-CLK12-V1
	CS1W-CLK12 CS1W-CLK52	CS1W-CLK12-V1 CS1W-CLK52-V1
	CS1W-CLK21	CS1W-CLK21-V1
	CS1W-DRM21	CS1W-DRM21-V1
	CS1W-ETN11	CS1W-ETN21
	CS1W-FLN12	CS1W-FLN22
	CS1W-HCP22 CS1W-HCA22 CS1W-HIO01	CS1W-HCP22-V1 CS1W-HCA22-V1 CS1W-HIO01-V1
	CS1W-MC221 CS1W-MC421	CS1W-MC221-V1 CS1W-MC421-V1
	CS1W-PTS01	CS1W-PTS01-V1
	CS1W-SCB21 CS1W-SCB41 CS1W-SCU21	CS1W-SCB21-V1 CS1W-SCB41-V1 CS1W-SCU21-V1
Memory Cassette for Teaching Box	CVM1-MP702 CVM1-MP703	CVM1-MP702-V1 CVM1-MP703-V1
CVM1/CV500 Series	CVM1-PRS21-V1 CVM1-PRO01 CVM1-MP201-V1	CVM1-PRS21-V2 CVM1-PRO01-V1 CVM1-MP201-V2
Floppy Disk Drive	CV500-FDD01/02	---
Memory Card Adapter	CV500-MCA01	---
GPC CV-series System Memory Cassette	CV500-MP311(-E)	WS02-CXPC□-□V□
SYSNET Link Unit	CV500-SNT31	Ask your OMRON representative
CV500 Unit	CV500-VP213(-E) CV500-VP217(-E) CV500-VP223(-E) CV500-VP227(-E) CV500-FHD01(-E) CV500-FHD02(-E) CV500-HDD11-V1 CV500-MR261/-MP602 CV500-BC105 CV500-CN116 CV500-ISX01 CV500-ISP01/02 CV500-ISB01/02	---

Name	Discontinued models	Recommended replacement
MC Support Software	CV500-ZN3AT1-E CV500-ZN3DV1 CV500-ZN3PC1	WS02-MCTC1-JV□ WS02-MCTC1-EV□
C1000H/C2000H/C500 CPU Unit	C1000H-CPU01-V1 C1000H-CPU01-EV1 C1000H-CPU01-E2V1 C2000H-CPU01-V1 C2000H-CPU01-EV1 C2000H-CPU01-E2V1 C500-CPU11-V1/-E2V1 C500-CPUK1 3G2C3-CPU11-EV1	CS1G-CPU42H/43H CS1G-CPU44H/45H CVM1-CPU01-V2/EV2 CVM1-CPU11-V2/EV2 CVM1-CPU21
C120 Unit (Input/Output/ Dummy/Spacer)	C120-DUM01 C120-IA121/-IA222 C120-ID212 C120-OC223 C120-OD211/-OD212 C120-SP001	CJ Series
C200H Series	C200H-APS01/02	Ask your OMRON representative
	C200H-ETL01(-E)	---
	C200H-FIM01	---
	C200H-FIM02 FIMC2-SET02	CJ Series
	C200H-ID□□□-N C200H-OD□□□-N C200H-MD□□□-N	C200H-ID□□□ C200H-OD□□□ C200H-MD□□□
Microwave ID Sensor Unit/ ID Adapter	C200H-IDS21 C500-IDS21/-IDS22 C500-IDA22	CS1W-SCU21-V1 CS1W-SCB21/41-V1
C200HS Series CPU Unit	C200HS-CPU01(-E) C200HS-CPU03(-E) C200HS-CPU21(-E) C200HS-CPU23(-E) C200HS-CPU31(-E)	CS Series CJ Series C200HX/HG/HE
	C200HS-CPU01-(E)C C200HS-CPU21-(E)C C200HS-CPU33-(E)C	CS Series CJ Series C200HG-CPU43(-Z) C200HG-CPU43-(Z)E C200HW-PA204S C200HW-PD024
SYSNET Link Unit	C200HS-SNT32	Ask your OMRON representative
SYSMAC C200HX/HG/HE PC Card Unit Ethernet Set	C200HW-PCS01-V1 C200HW-PCS01-EV1	CS Series
	C200HW-PCS01-V2	CS Series
C200HX Series CPU Unit	C200HX-CPU34D C200HX-CPU64D	C200HX-CPU34 C200HX-CPU64
Open PLC	C200PC-CPU01-R C200PC-CPU15-G	---
	C200PC-CPU01-R-V1 C200PC-CPU15-G-V1, and peripheral devices	---
C-Series Optical Host Link Unit (for Large-size PLCs)	C500-LK101-(P)V1 C500-LK103(-P) 3G2A5-LK101-(P)EV1	C200H-LK101-PV1
GPC C Series Ladder-type System Memory Cassette	C500-MP303-EV2	SYSMAC Support Software
Voice Unit/Voice Memory Unit	C500-OV001 C500-MP501-H C500-MP501-T C500-MP503-T C500-MP504-T C200H-OV001 C200H-CN224	---
SYSNET Link Unit	C500-SNT31-V4	Ask your OMRON representative
C**□ Series	C□□H C□□K C□□P	CPM2A CPM1A
Logic I/O Package	FIT10-MF301	---
FIT10 Voice Package	FIT10-MF321	---
FIT10 Terminal Package	FIT10-MF331-V2	---
FIT10 NC Package	FIT10-MF341-V2	---

Name	Discontinued models	Recommended replacement
Memory Card for CS/CJ Series	HMC-EF171/-EF371	HMC-EF372
	HMC-EF172	HMC-EF372
	HMC-EF571	HMC-EF672
	HMC-EF861	HMC-EF372
Memory Card for CV/CVM1	HMC-EP161	HMC-EE151
Memory Card	HMC-ES251/551	HMC-ES252/552
Memory for P5R/V8/M5R	ROM-G/-GA/-F5 RAM-F	---
Memory	ROM-ID-B	ROM-IB ROM-JD-B
SP10/SP16/SP20	SP10-ETL01 SP16-ETL01 SP20-ETL01	---
H-PCF Optical Fiber Cable Tester Set/Master Fiber Set	S3200-CAT2700/2702	---
	S3200-CAT3200/3201 S3200-CAT3202/ S3200-CAT2000/2001H S3200-CAT2002/2822	---
H-PCF Optical Fiber Cable Tester Heat Unit	S3200-CAT2820/2821	---
H-PCH Optical Connector	S3200-COCF2511/2011	S3200-COCF2571/2071
	S3200-COCH62M S3200-COCF62M/62F	---
Optical Connector Assembly Tool	S3200-CAK1062	---
SYSNET Power Supply	S3200-CPS05	Ask your OMRON representative
SYSNET Optical Fiber Cable	S3200-FH-L-C22T-□□□	---
H-PCF Optical Fiber Cable Some models)	S3200-HBCB101/102/103 S3200-HBCB501/502 S3200-HCCB101N/102N S3200-HCCB501N/502N	S3200-HCCB101/102/103 S3200-HCCB501/502
H-PCF Cable for SYSNET (Without Connector)	S3200-HCLB101/102/103 S3200-HCLB501/502 S3200-HCLO101/102/103 S3200-HCLO501/502	S3200-CN102-□□-□□ S3200-CN-□□-□□
SYSNET Line Server	S3200-LSU03-V1/-01E	Ask your OMRON representative
SYSNET NSB	S3200-NSB03-V2/11-E	Ask your OMRON representative
SYSNET NSU	S3200-NSUA1-10/-00E	Ask your OMRON representative
SYSNET Bridge	S3200-NSUG4-10/-00E	Ask your OMRON representative
C500 Series and other Units	T1000H-LK203 T1000H-IP006-V1 T1000H-TLK01 3G2T4-ID218 3G2T4-OA122/222 3G2T4-OC221/223/224 3G2T4-OD214/412/413 3G2T8-CN150 3G2T9-IP005-V2 3G2T9-PRO30 C500-DA101-T T200H-CPU01 T200H-ID212 T200H-OA221 T200H-OC225 T200H-OD212 C200HS-TLK01	CVM1 Series CS Series
	3G2A5-LD211	---
	C500-LD211	---
Cassette Interface Unit	3G2A5-CMT01(-E)	---
Programming Console	3G2A6-PRO20-E	---
GPC C2000 Series Ladder-type System Memory Cassette	3G2C5-MP304-EV3	SYSMAC Support Software
SYSMAC LINK Support Board	3G8F4-SLK21 (for PC98)	3G8F7-SLK21 (for PCI bus) 3G8F5-SLK21 (for ISA bus)
Controller Link Support Board	3G8F5-CLK11(-E)	3G8F7-CLK12 (-E)
NSB for SYSNET	3G8F5-SNT31	Ask your OMRON representative
Controller Link Support Board	3G8F7-CLK21(-E) 3G8F7-CLK12(-E) 3G8F7-CLK52(-E)	3G8F7-CLK21- (E)V1 3G8F7-CLK12- (E)V1 3G8F7-CLK52- (E)V1

Note: The contents of the above table may differ slightly from similar information provided on the Internet.

Wiring Devices

Name	Discontinued models	Recommended replacement
CompoBus/S Slave	SRT1 Series Only SRT2-supporting models	SRT2 Series

Note: The contents of the above table may differ slightly from similar information provided on the Internet.

I/O Relay Terminals

Name	Discontinued models	Recommended replacement
G700 Remote Terminal	G700-EOD32-1 G700-SOC04(-C)	---
G730-□□□□C (Remote Sensor Terminal 4-point/8-point)	G730-ID04C(-A/-B) G730-ID08C(-B)	SRT2-ID08S/-ND08S
G730-M/N Master Module Unit/ G730 Harness Adapter for Master Module	G730-MID32-B G730-MOD32(-A/-B) G730-NID32(-B) G730-NOD32(-B) G730-Y10(-1)	---

Note: The contents of the above table may differ slightly from similar information provided on the Internet.

Connectors

Name	Discontinued models	Recommended replacement
FA Connectors	SC-4F4/-4F	SC-4F4D/-4FD
Servo Relay Units	XW2B-20J6-1	XW2B-20J6-1B
	XW2B-40J6-2	XW2B-40J6-2B
	XW2B-20J6-3	XW2B-20J6-3B

Programmable Terminals

Name	Discontinued models	Recommended replacement
NS Series Ladder Monitor for Programmable Terminal	NS-EXT01	NS-EXT01-V2
	NS-EXT01-HMC	NS-EXT01-V2HMC
	NS-EXT01-L03	NS-EXT01-V2L03
	NS-EXT01-L10	NS-EXT01-V2L10
NS Series Memory Expansion Board	NS-MF081 NS-MF161	---
Programmable Terminal NS Series	NS7-SV00(B) NS7-SV01(B)	NS8-TV10(B)-V1 NS8-TV11(B)-V1
	NS8-TV0□□-V1	NS8-TV1□□-V1
	NS10-TV00(B) NS10-TV01(B)	NS10-TV00(B)-V1 NS10-TV01(B)-V1
	NS12-TS00(B) NS12-TS01(B)	NS12-TS00(B)-V1 NS12-TS01(B)-V1
Programmable Terminal NT10S	NT10S-SF121(-E) NT10S-SF122(-E)	---
	NT10S-ZA□□□	---
Programmable Terminal NT11S	NT11S-SF121(B)	NT11-SF121(B)-EV1
	NT11S-ZA3AT-EV1	NT-ZJCAT1-EV4
Connecting Cable for NT Series	NT20M-CNP222/712	---
Key Sheet for NT20M	NT20M-CKF01	---
NT20M Expansion I/O Unit	NT20M-IF001	---
	NT20M-MD211	---
NS-Designer Version Software	NS-NSDC1-JV1	NS-NSDC1-V6
	NS-NSDC1-JV2 NS-NSDC1-EV2	NS-NSDC1-V6
	NS-NSDC1-V3	NS-NSDC1-V6
	NS-NSDC1-V4	NS-NSDC1-V6
NT30/620 System Installer	NT-ZS3AT-EV1 NT30-ZS3DV-V1 NT620-ZS3AT-EV1 NT620-ZS3AT-EMV1 NT620-ZS3PC-V1	NT-ZJCAT1-EV4 NT-ZJCMX1-V4
Programmable Terminal Korean-version NT30C/620C (with black casing only)	NT30C-ST141B-EK NT620C-ST141B-EK	NT31C-ST141-EKV1 NT631C-ST141-EKV1
Programmable Terminal NT31/NT31C	NT31-ST121(B)-(E)V2	NT31-ST122(B)-(E)V2
	NT31C-ST141(B)-(E)V2	NT31C-ST142(B)-(E)V2
Key Sheet for NT600M	NT600M-CKF01	---
Dust-proof Chemical-resistant Cover for NT600M	NT600M-KBA02	---
NT600M Communications Interface	NT600M-LPM31	---
NT600M Expansion I/O Unit	NT600M-MD211	---
Communication System ROM for NT600M	NT600M-SMR05	---
NT600MS System ROM (Host Link)	NT600MS-SMR31	---
Programmable Terminal NT600MV/NT610C	NT600MV-DT211 NT600MV-SMR06V	---
	NT610C-DT151(B)-V2	NT631C-ST152(B)-V2
NT610C Water- and Oil-resistant Kit	NT610C-KBA03	---
Programmable Terminal NT610C/NT610G	NT610C-SMR□□	---
	NT610G-DT211	NS8-TV10-V1
Image Memory Board for NT610G	NT610G-MF151/251 NT610G-MF551/161	---
System ROM for NT610G	NT610G-SMR01/02/03/08	---
	NT610G-SMR31/32/33/34	---

Name	Discontinued models	Recommended replacement
Programmable Terminal NT612G Series	NT612G-DT211(B)	NT620S-ST211(B) NS10-TV00(B)-V1 NS8-TV10-V1
Programmable Terminal NT625C Series	NT625C-ST152(B)	NT631C-ST152(B)-V2

Note: The contents of the above table may differ slightly from similar information provided on the Internet.

Software

Name	Discontinued models	Recommended replacement
Open Network Controller Optional Software Data Collection and Distribution Software	ITNC-DL1Q-EF	ITNC-DL1Q-ECD-V2
	ITNC-DL1Q-F	ITNC-DL1Q-CD-V2
Open Network Controller Optional Software Website and Mail Service Software	ITNC-WE1Q-EF	ITNC-RK1Q-ECD
FINS Gateway Version2 LAN Time	SFGW-RT-V2(E) SFGW-RT-HLV2(E)	SFGW-RT-2003(E)
	SFGW-SDK-V2(E)	SFGW-SDK-2003(E)
SYSMAC-CPT	WS01-CPTC1-J WS01-CPTF1-J WS01-CPTB1-E	CX-Programmer WS02-CXPC□
CX-Programmer	WS02-CXPC1-E-V3□ WS02-CXPC1-EUP-V3□	WS02-CXPC1-E-V□□ WS02-CXPC1-EUP-V□□
	WS02-CXPC1-JV3 WS02-CXPC2-JV3	WS02-CXPC1-JV□ WS02-CXPC2-JV□
	WS02-CXPC1-JV4	WS02-CXPC1-JV□
CX-Process	WS02-LCTC1-E□□	WS02-LCTC1-EV□□□
	WS02-LCTC1-J□	WS02-LCTC1-JV□□
	WS02-LCTC1-JV3	WS02-LCTC1-JV□
	WS02-LCTC1-EV3	WS02-LCTC1-EV□
MC Support Tool	WS02-MCTC1-J WS02-MCTC1-E	WS02-MCTC1-JV□ WS02-MCTC1-EV□
MC Support Software CX-Position	WS02-NCTC1-J WS02-NCTC1-E	WS02-NCTC1-JV□ WS02-NCTC1-EV□
Face Plate Auto-Builder for NS	WS02-NSFC1-J WS02-NSFC1-E	WS02-NSFC1-JV□ WS02-NSFC1-EV□

Note: The contents of the above table may differ slightly from similar information provided on the Internet.

Field Network Devices

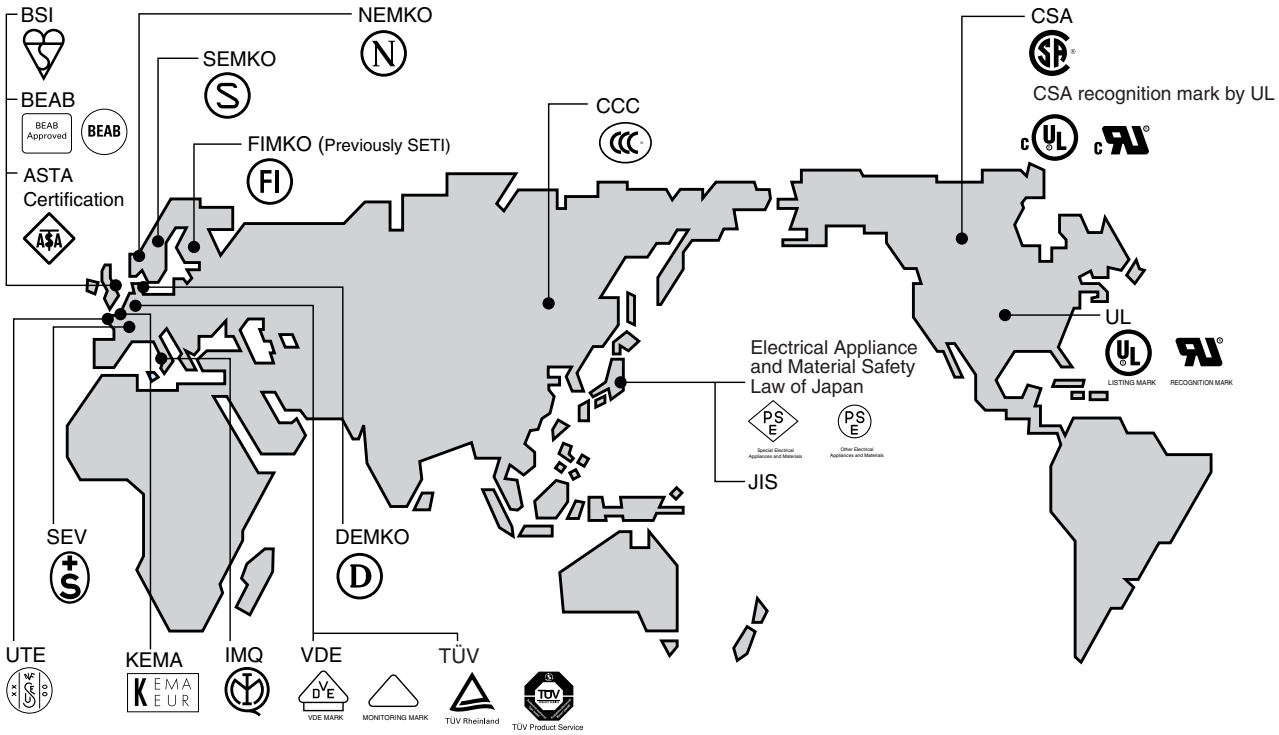
Name	Discontinued models	Recommended replacement
Remote Terminal	DRT1-ID16T(A) DRT1-ID16T(A)-1 DRT1-OD16T(A) DRT1-OD16T(A)-1 DRT1-MD16T(A) DRT1-MD16T(A)-1	DRT2-ID16TA DRT2-ID16TA-1 DRT2-OD16TA DRT2-OD16TA-1 DRT2-MD16TA DRT2-MD16TA-1
	DRT1-ID32ML DRT1-ID32ML-1 DRT1-OD32ML DRT1-OD32ML-1 DRT1-MD32ML DRT1-MD32ML-1	DRT2-ID32ML DRT2-ID32ML-1 DRT2-OD32ML DRT2-OD32ML-1 DRT2-MD32ML DRT2-MD32ML-1
Battery Unit	3G8B3-BA000	---
DeviceNet Configurator PC Card-type	3G8E2-DRM21-E	3G8E2-DRM21-EV1
DeviceNet Configurator	3G8F5-DRM21-E	3G8F7-DRM21-E + WS02-CFDC1-E

The contents of the above table may differ slightly from similar information provided on the Internet.

Standards

National Standards

Note: For detailed information about applicable standards, refer to the relevant catalog.



International Standards

International Standards consist of the IEC standards for electricity and the ISO standards for other areas.

IEC (International Electrotechnical Commission)

- The IEC is a standardization commission founded in 1908 to promote unification and coordination of international standards relating to electricity. It is headquartered in Geneva, Switzerland.
- Based on reports from member nations on the latest science technologies in those nations, IEC standards are issued as technological standards relating to electricity. Established international safety standards provided by various countries and accepted worldwide are based on IEC standards.
- Among the authoring committees for IEC standards is the CISPR (International Special Committee on Radio Interference). This committee is responsible to author standards for EMC (Electro-Magnetic Compatibility).
- In order to simplify approval procedures for electrical devices and promote smooth international trade, there is an international scheme called CB Scheme (Certification Body Scheme), which is authorized by IEC standards. Based on the CB Scheme, safety tests on electrical devices are conducted and certificates are issued if the devices are proved to meet IEC standards.

ISO (International Organization for Standardization)

The ISO is a standardization commission that officially started activities in 1947 to promote unification and coordination of international standards in all fields (such as machinery and management) except for electricity, which is covered by the IEC. The ISO issues ISO standards, and is headquartered in Geneva, Switzerland.

North America

UL (Underwriter's Laboratories Inc.)

LISTING MARK

RECOGNITION MARK

- A nonprofit organization established in 1894 by the American association of fire insurance companies.
  Underwriters Laboratories (abbreviated to UL hereafter) conducts approval testing on all kinds of electrical products. In many U.S. cities and states, UL approval is legally required on all electrical items sold. In order to obtain UL approval on an electrical product, all major internal components also require UL approval.
- UL offers two classifications of approvals, the listing mark and the recognition mark.
  A Listing Mark constitutes an approval of a complete and final product. Products display the Listing Mark shown at the left above.
  A Recognition Mark constitutes an approval of a product built into a device or machine. Products display the Listing Mark shown at the right above.

- Since October 1992, UL has been approved as a CO (council organization) and TO (test organization) by the SCC (Standard Council of Canada). This authorizes UL to conduct safety tests and certify products conforming to Canadian standards. The above marks are UL marks for products certifying that the products meet Canadian standards.
- The designs of the listing marks and recognition marks have been revised as shown below. These marks have been effective since November 1998. The previous marks are valid until November 2007.

LISTING MARKS

	Marks for US	Marks for Canada	Marks for US and Canada
Previous mark			
New mark			

RECOGNITION MARKS

	Marks for US	Marks for Canada	Marks for US and Canada
Previous mark			
New mark			

CSA (Canadian Standards Association)

- This association descended from a nonprofit, non-government standardization organization established in 1919. In addition to industrial standardization, the association now carries out safety testing on electrical products.
- Specification authoring: The Canadian Standards Association
- Product testing and certification: CSA International
- CSA approval is known as “certification,” and consequently, CSA-approved equipment is referred to as “certified equipment.” Products display the mark shown below.

Europe

EN (Europäische Norm = European Standard)

- Of the EN standards, EN6xxxx standards are based on IEC standards and EN55xxx standards are based on IEC-CISPR standards. Other EN5xxxx standards are unique European standards not found in IEC standards.
- The marks of the Certification Bodies based on the EN standards in individual countries are shown below.

VDE (Verband der Elektrotechnik Elektronik Informationstechnik e. V.), Germany

VDE MARK

MONITORING MARK

TÜV (Technischer Überwachungs Verein e. V.), Germany

TÜV Rheinland

TÜV Product Service

DEMKO (Danmarks Elektriske Materielkontrol), Denmark

NEMKO (Norges Elektriske Materiellkontroll), Norweign

FIMKO (Finlands Material Kontroll), Finland

BSI (British Standards Institution)
(applicable to industrial products), United Kingdom

BEAB (British Electrotechnical Approvals Board)
(applicable to home electronics products), United Kingdom

BEAB Approved

BEAB

ASTA (ASTA Certification Services)
(applicable to general products), United Kingdom

KEMA (Keuring van Electrotechnische Materialen Nederland B. V.), Netherlands

KEMA EUR

UTE (Union Technique De Electricite), France

IMQ (Istituto Italiano del Marchio di Qualita), Italy

SEMKO (Svenska Elektriska Materielkontroll Anstalten), Sweden

SEV (Schweizerischer Electrotechnischer Verein), Switzerland

EC (European Community) Directives

CE MARKING

- EC directives are officially announced to direct the establishment of laws and regulations for the member countries of the EU (European Union).
- Under one of the EC Directives called the New Approach Directive that covers the Machinery Directive, Low Voltage Directive, and EMC Directive, and other directives, a product must comply with all applicable directives to display the CE marking. Evaluation of compliance with the directives is based on EN standards released as Harmonized Standards in the Official Journal of the European Communities.

China

CCC (China Compulsory Certification) Mark

CCC MARK

- When China joined the WTO (World Trade Organization) in 2001, the certification system for export products and the certification system for nationally distributed products were combined into a new system called the China Compulsory Certification System. The new system was officially announced on 3 December 2001 and started operation on 1 May 2002. From 1 May 2003, importing to or selling products in China is prohibited for any products that have not been certified under the new system.
- Items for compulsory certification: 19 groups divided into totally 132 product categories are specified as initial items.
- Applicable standards: GB (Guojia Biaozhun) Chinese National Standards (Electrical standards are based on IEC standards.)
- Compulsory Certification Mark: Displaying the CCC Mark is required.

Shipping Standards

There are more than 20 maritime societies in the world that independently establish standards and undertake certification activities. There is also an international organization called the IACS (International Association of Classification Societies). At present, the IACS has 10 members and two associate members. The member societies of the IACS certify and register approximately 90% of the ships in the world.

The ship class is specified by the owner of the ship and the manufacturer undergoes certification according to the request of the owner. Certification for a ship class is closely related to maritime insurance. Only ships that are certified for a specific ship class will be handled by underwriters. Ships without a class will not be underwritten.

It is thus necessary for all automated devices on a ship to comply with the maritime standards of each country according to the request of the owner.

Although common requirements for results from test implemented by the various maritime societies is recognized between societies, there are differences in standards between societies that make mutual certification impossible. The required maritime standards must thus be meet, and to register with two or more ship classes requires certification in all of the classes.

Members of the IACS

- ABS (American Bureau of Shipping), USA
- BV (Bureau Veritas), France
- CCS (China Classification Society), China
- DNV (Det Norske Veritas), Norway
- GL (Germanischer Lloyd), Germany
- KR (Korean Register of Shipping), Korea
- LR (Lloyd's Register of Shipping), United Kingdom
- NK (Nippon Kaiji Kyokai), Japan
- RINA (Registro Italiano Navale), Italy
- RS (Russian Maritime Register of Shipping), Russia

Associate Members of the IACS

- CRS (Croatian Register of Shipping), Croatia
- IRS (Indian Register of Shipping), India

Other Maritime Societies

- CR (China Corporation Register of Shipping), China

Japan

Electrical Appliance and Material Safety Law of Japan

Special Electrical Appliances and Materials

Other Electrical Appliances and Materials

- Laws governing electrical appliances and materials were revised on 1 April 2001 with the Electrical Appliance and Material Safety Law and previous laws were abolished. New marks were also implemented with the new law. The law covers 112 special items and 340 other items.
- Paragraph 2 in the Ordinance Concerning Technical Requirements for Electrical Appliances and Materials establishes technical standards (IEC-J) in line with IEC standards.

JIS (Japanese Industrial Standards)

- National standards in Japan are established according to the Industrial Standardization Law. Particularly from 1995, many standards have been established in line with international IEC and ISO standards.

Enclosure Ratings (as of July 2002)

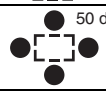
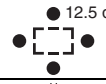
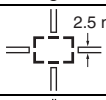
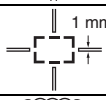
Note: The following test methods were used for IP-□□ standards. Confirm protection prior to application using the environment and operating conditions that will exist in the actually application.

IEC (International Electrotechnical Commission) Standards (IEC 529)

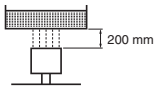
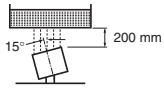
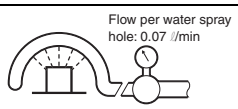
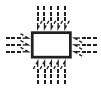
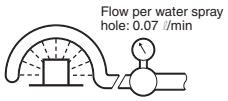
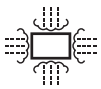
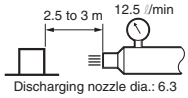
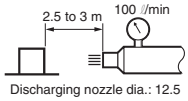
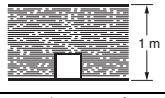
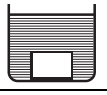
IP - □ □
1 2

Protection Specification Code
(International Protection) (IEC529)

1. Protection Against Solid Foreign Objects

Grade	Protection	
0		No protection
1		Full penetration of hard object with 50-mm diameter (e.g., hand) not allowed.
2		Full penetration of hard object with 12.5-mm diameter (e.g., finger) not allowed.
3		Full penetration of wire or hard object with 2.5-mm diameter not allowed.
4		Full penetration of wire or hard object with 1.0-mm diameter not allowed.
5		Ingress of dust to the extent that would interfere with normal operation or safety not allowed.
6		Totally protected against ingress of dust.

2. Protection Against Harmful Ingress of Water

Grade	Protection	Criteria	Examination method
0	No particular protection	No protection again ingress of water.	No test
1	Protection against water drops 	Protected against vertically falling drops of water.	Spray water downwards in vertical direction for 10 minutes usng a water-dripping test device. 
2	Protection against water drops 	Protected against vertically falling drops of water with enclosure tilted 15° from the vertical.	Tilt by 15° and spray water for 10 minutes (2.5 minutes in each direction) using a water-dripping test device. 
3	Protection against water spray 	Protected against sprays to 60° from the vertical.	Spray water up to 60° in both directions from the vertical axis for 10 minutes using the test device shown below. 
4	Protection against water splashes 	Protected against water splashed from all directions; limited ingress permitted.	Spray water from all directions for 10 minutes using the test device shown below. 
5	Protection against water jets 	Protected against adverse affect from low-pressure jets of water from all direction.	Spray water from all directions for one minute per m² of external surface area and for a total time of no less than 3 minutes using the test device shown below. 
6	Protection against water jets 	Protected against ingress of water strong jets of water from all directions.	Spray water from all directions for one minute per m² of external surface area and for a total time of no less than 3 minutes using the test device shown below. 
7	Protection against immersion under water 	Protected against the effects of immersion under water at the specified depth and for the specified period of time.	Submerge for 30 minutes at the depth of 1 m (if the device is 850 mm or less in height). 
8	Protection against prolonged immersion under water 	Protected against long periods of immersion under water.	Test according to the conditions agreed upon between the manufacturer and user.

JEM (Japan Electrical Manufacturers Association Standards) Standards (JEM 1030)

IP - □ □ □
1 2 3

3. Protection Against Oil

Grade	Protection	Criteria
F	Oil proof	Protected against improper operation due to oil drops or spray from any direction.
G	Oil resistant	Protected against penetration of oil drops or spray from any direction.

NEMA (National Electrical Manufactures Association)

Conversion from NEMA to IEC529 (Reverse conversion is not possible.)

NEMA250	IEC60529
1	IP10
2	IP11
3	IP54
3R	IP14
3S	IP54

NEMA250	IEC60529
4, 4X	IP56
5	IP52
6, 6P	IP67
12, 12K	IP52
13	IP54

Note: Based on the Appendix A of the NEMA Standard. Classification of the NEMA enclosure rating differs from that of the IEC529 in corrosion resistance, rust resistance, and watertightness.

Quality Management System (ISO9001) (July 2002)

Beyond simple product quality to a global enterprise-wide quality assurance system.

Quality Management System (ISO9001)

The Quality Management System (ISO9001) is an international standard for quality control and quality assurance established by the ISO (International Organization for Standardization). It sets forth the requirements for an enterprise-wide quality assurance system.

Quality Assurance Certification

For ISO9001 certification, considerations such as the structure of planning, design, and production, and the soundness of the quality assurance system are evaluated. An enterprise that conforms to the standards can receive a certificate of approval.

Internationally Accepted Standards

For overseas trade, including exports to EU markets, ISO9001 certification is internationally expected. Varying standards among countries complicate the smooth flow of products across borders, so ISO9001 is used to provide formal unified standards for participating EU countries.

Quality Assurance Considerations

One of OMRON's management principles is to maximize customer satisfaction.

Management Principles

- **Maximizing Customer Satisfaction**
  Maximizing customer satisfaction by offering superior products and services based on a Quality First approach.
- **Constant Challenges**
- **Shareholder Confidence**
- **Respect for the Individual**
- **Good Corporate Citizenship**
- **Highly Ethical Enterprise Activities**

These management principles determine the fundamental quality objectives as follows:

Fundamental Quality Objectives

- Achieving a level of quality that will provide customer satisfaction.
- Establishing a quality system based on ISO9001 and upgrading support.
- Maintaining quality assurance with the participation of all employees.

ISO9001 Certification Status

OMRON has been obtaining ISO9001 certification for all of its groups, and the following table shows the certification status. OMRON continues to put effort into a quality assurance system that will maintain its high standards of reliability worldwide.

Companies with ISO9001 Certification (Only Companies and Offices Related to Control Components Are Listed

Company/Office name	Date certified
OMRON CORPORATION IAB COMPANY FA Systems Div. H.Q. MISHIMA FACTORY	June 1994
OMRON CORPORATION IAB COMPANY Sensing Devices and Components Div. H.Q. AYABE FACTORY	December 1999
OMRON CORPORATION ECB COMPANY Electronic & Mechanical Components Division H.Q. Manufacturing Development Center	December 1992
OMRON CORPORATION AYABE FACTORY	October 1993
OMRON CORPORATION Automotive Electronic Components Division	March 2000
OMRON CORPORATION ECB COMPANY Semiconductor Division H.Q. MINAKUCHI FACTORY	April 1995
OMRON OKAYAMA CO.,LTD.	September 1994
OMRON ASO CO., LTD.	December 1994
OMRON TAKEO CO., LTD.	December 1993
OMRON IZUMO CO., LTD.	February 1994
OMRON KUMAMOTO CO., LTD.	April 1994
OMRON KURAYOSHI CO., LTD.	September 1993
OMRON SANYO CO., LTD.	July 1994
OMRON IIDA CO., LTD.	December 1995
OMRON ICHINOMIYA CO., LTD.	September 1993
OMRON (SHANGHAI) CO.,LTD. (CHINA)	December 1996
OTE ENGINEERING INC.	May 2000
OMRON MANUFACTURING OF THE NETHERLANDS B.V.	October 1993
OMRON ELECTRONICS MANUFACTURING OF GERMANY G.m.b.H.	December 1997
OMRON ELECTRONICS LTD. (UNITED KINGDOM)	October 1993
OMRON ELECTRONICS B.V. (NETHERLANDS)	January 1994
OMRON ELECTRONICS A.G. (SWITZERLAND)	April 2000
OMRON ELECTRONICS N.V./S.A. (BELGIUM)	September 1994
OMRON ELECTRONICS G.m.b.H. (GERMANY)	April 1996
OMRON EUROPE B.V. EUROPEAN LOGISTICS CENTER (NETHERLANDS)	June 1994
OMRON ELECTRONICS Ges.m.b.H. (AUSTRIA)	February 1999
OMRON ELECTRONICS Lda./S.A. (PORTUGAL/SPAIN)	August 1996
OMRON ELECTRONICS S.r.l. (ITALY)	April 1996
OMRON ELECTRONICS O.Y. (FINLAND)	February 1996
OMRON ELECTRONICS S.a.r.l. (FRANCE)	April 2001
OMRON ELECTRONICS LTD. (UNITED KINGDOM)	October 1997
OMRON ELECTRONICS PTY.LTD. (AUSTRALIA)	July 1996
OMRON ELECTRONICS CO.,LTD. (THAILAND)	May 2000
SHANGHAI OMRON AUTOMATION SYSTEM CO.,LTD.	April 2000
OMRON MANUFACTURING OF AMERICA, INC.	January 1997
OMRON MALAYSIA SDN. BHD.	April 1994
PT OMRON MANUFACTURING OF INDONESIA	May 1994
SHANGHAI OMRON CONTROL COMPONENTS CO.,LTD.	January 2002
OMRON ELECTRONIC COMPONENTS LTD. (SHENZHEN)	January 2002
OMRON ELECTRONIC COMPONENTS LTD. (UNITED KINGDOM)	August 1992
OMRON AUTOMOTIVE ELECTRONICS KOREA, CO.,LTD.	December 1999
OMRON DUALTEC AUTOMOTIVE ELECTRONICS INC. (CANADA)	May 1997
OMRON AUTOMOTIVE ELECTRONICS, INC. (USA)	May 1997

Environmental Management System (ISO14001) (July 2002)

Configuring a system that constantly reduces environment impact by utilizing environmentally friendly products and business activities.

Environmental Management System (ISO14001)

In contrast to ISO9001, which relates to the Quality Management System, ISO14001 deals with requirements for the Environmental Management System for enterprises and groups. Obtaining ISO14001 certification aims at reducing environment impact throughout the entire organization, and takes into consideration factors such as compliance with laws and regulations, disposal of waste materials, and saving energy.

In addition, it requires a commitment to preventing pollution and to continually improving the Environmental Management System and performance (with reductions in environmental impact).

Obtaining ISO14001 certification is becoming a condition for participation in business internationally, somewhat like an global business passport.

Considerations in Technological Development

OMRON is putting effort into developing technology for reducing environmental impact under the headings of the 4 R's: Reject, Reduce, Reuse, and Recycle.

- Reject (Not using materials that involve legal regulations or health issues)
- Reduce (Reducing environmental impact)
- Reuse (Reusing products, parts, and wrapping materials)
- Recycle (Reusing recyclable materials)

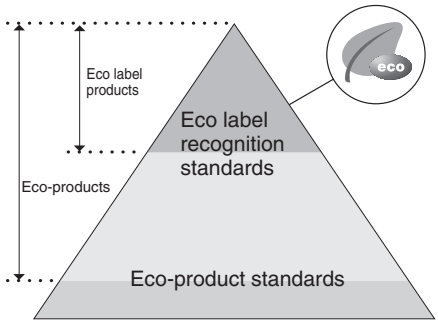
Technology for Lead-free Products

- **Lead-free Solder**
  From the standpoint of reliability and mass production, lead-free solder materials using Sn-Ag-Cu or Sn-Cn with trace elements added have been selected.
- **Construction Technology**
  The lead-free soldering temperature is approximately 30 degrees higher than that of existing technology. Therefore, equipment with little temperature fluctuation has been installed for reflow and flow processing. For hand soldering, special soldering guns have been installed, and equipment process control standards and operational standards have been provided.
- **Lead-free Plating**
  Plating that ensures product functionality and performance has been selected from among the possible Sn-Cu, pure Sn, and Sn reflow materials for relay, switch and connector terminal plating based on soldering reliability, whisker-prevention, long-term connection reliability, and heat resistance.

Eco-product Recognition Standards

In 1998, OMRON established an eco-product recognition system conforming to ISO14021. That system has since been revised as described below.

- Eco-products up to 2001
  Seventy-two products were recognized as eco-products under the following eco-label standards.
  - Products that reduced power consumption by 30% or more
  - Products that reduced resource consumption by 30% or more
  - Products that directly aimed at contributing to environmental considerations
- Eco-products from 2002 Onwards
  Products that reduced environmental impact as much as possible at every stage of the product cycle, including planning, development, and design.
- Products Recognized with Eco Labels from 2002 Onwards
  - From among the eco-products, these are products that met the established recognition standards. The categories of recycling, reuse, and rejection of environmentally damaging materials were newly added to the existing eco label standards.
  - Existing eco-products meet the eco label recognition standards.
- Relationship between Eco-products and Products Recognized with the Eco Label



Relationship between Eco-products and Products Recognized with the Eco Label

- OMRON's Eco Label

There are three types of eco labels: Type I, which is determined by third-party standards, such as Japan's Eco Mark or Germany's Blue Angel; Type II, which is a self-declared mark determined by OMRON's independent standards; and Type III, in which the environmental capacity is indicated in data sheets and other documents. OMRON's eco-product recognition system conforms to Type II.

OMRON Activities toward ISO14001 Certification

OMRON established a system in April 1995 to promote the ISO14000 Series. The following sites have been certified.

Companies with ISO14001 Certification (Only Sites Related to Control Components Are Listed)

Company/Office name	Certification organization	Date certified
OMRON CORPORATION MISHIMA FACTORY	BVQI	September 1997
OMRON CORPORATION AYABE FACTORY	BVQI	November 1996
OMRON CORPORATION MINAKUCHI FACTORY	BVQI	June 1997
OMRON IIDA CO., LTD.	JQA	October 1998
OMRON ICHINOMIYA CO., LTD.	BVQI	December 1996
OMRON TAKEO CO., LTD.	JACO	February 1998
OMRON SANYO CO., LTD.	JQA	January 1999
OMRON OKAYAMA CO., LTD.	BVQI	August 1997
OMRON IZUMO CO., LTD.	JACO	January 1998
OMRON ASO CO., LTD.	BVQI	September 1997
OMRON KURAYOSHI CO., LTD.	JACO	September 1997
OMRON KUMAMOTO CO., LTD.	JACO	August 1997
OMRON KYOTO TAIYO CO., LTD.	BVQI	March 1998
OMRON TAIYO CO., LTD.	BVQI	September 2000
SHANGHAI OMRON AUTOMATION SYSTEM CO.,LTD.	SCEMS	November 1998
OMRON MANUFACTURING OF THE NETHERLANDS B.V.	LRQA	November 1996
OMRON ELECTRONICS MANUFACTURING OF GERMANY G.m.b.H.	LRQA	April 1999
OMRON (SHANGHAI) CO.,LTD.	SCEMS	December 1998
OTE ENGINEERING INC.	SGS	February 1999
OMRON MANUFACTURING OF AMERICA, INC.	TÜV	May 1999
OMRON MALAYSIA SDN. BHD.	SIRIM	December 1998
PT OMRON MANUFACTURING OF INDONESIA	BVQI	August 1997
SHANGHAI OMRON CONTROL COMPONENTS CO.,LTD.	EIQA	February 1999
OMRON DUALTEC AUTOMOTIVE ELECTRONICS INC.	SGS	April 1999
OMRON AUTOMOTIVE ELECTRONICS, INC.	SGS	March 1999
OMRON AUTOMOTIVE ELECTRONICS KOREA, CO.,LTD.	KMA-QA	March 1999
OMRON ELECTRONICS COMPONENTS LTD.	BSI	February 1998