

**Easy to use settings and compact controller,
developed with the leading company in safety solutions**



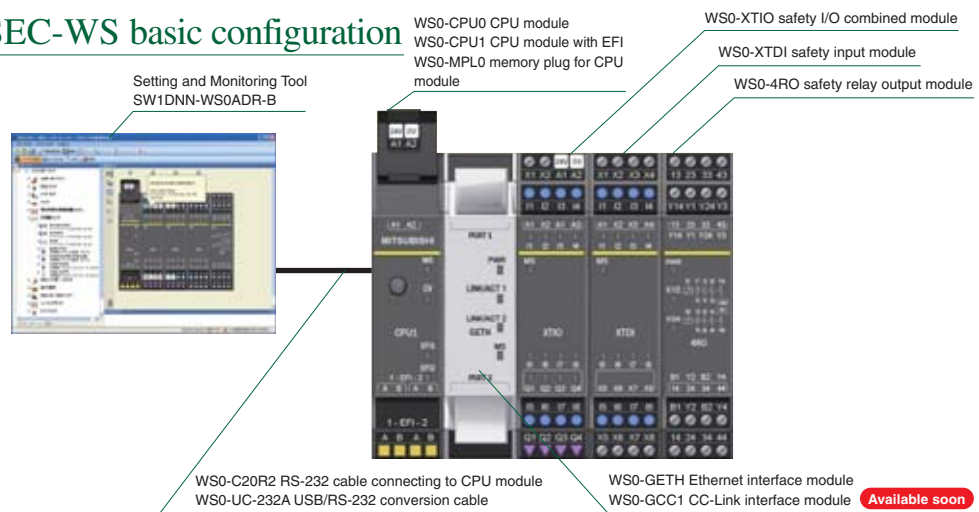
Best suited for small and medium safety systems!

A compact new solution featuring easy to use settings.

MELSEC-WS series-a new safety controller

This compact new safety controller complies with ISO13849-1 PLe and IEC61508 SIL3 safety standards. The most suitable application of MELSEC-WS is to ensure safe operation of stand-alone machines or systems. To meet your system configuration, it allows you to have additional I/O points of up to 144. Also, you can easily make settings and create logic by using the Setting and Monitoring Tool exclusively provided for the controller.

MELSEC-WS basic configuration



Model nickname	Full model name	Description
WS0-CPU0	WS0-CPU000200	Program size: 255 FBs, Scan cycle: from 4 ms, Interface: RS-232
WS0-CPU1	WS0-CPU130202	EFI-equipped-EFI is the communication interface for setting and monitoring SICK's safety products. Program size: 255 FBs, Scan cycle: from 4 ms, Interface: RS-232
WS0-MPL0	WS0-MPL000201	Memory plug for storing CPU parameters and programs (required)
WS0-XTDI	WS0-XTDI80202	Safety input: 8-point single or 4-point dual-channel with spring clamp terminal block
WS0-XTIO	WS0-XTIO84202	Safety input: 8-point single or 4-point dual-channel, Safety output: 4-point single or 2-point dual-channel Output current: 2 A/point maximum, Spring clamp terminal block, Fast shut off response of 8 ms
WS0-4RO	WS0-4RO4002	Safety output: 2-point safety relay output-4-output 2 EDM contacts and 2 diagnostic outputs, Rated load current: 6 A/point maximum
WS0-C20R2	WS0-C20R2	RS-232 cable between PC and CPU module
WS0-UC-232A	WS0-UC-232A	USB/RS-232 conversion cable
WS0-GETH	WS0-GETH00200	Connecting to Ethernet communication (non-safe communication)
WS0-GCC1	WS0-GCC100202	Connecting to CC-Link communication (non-safe communication) Available soon
WS0-TBS4	WS0-TBS4	Screw-in replacement terminal block-4 terminal blocks included
WS0-TBC4	WS0-TBC4	Spring clamp replacement terminal block-4 terminal blocks included
SW1DNN-WS0ADR-B	SW1DNN-WS0ADR-B	MELSEC-WS Setting and Monitoring Tool

Powered by
SICK

The MELSEC-WS series is jointly developed and manufactured by Mitsubishi Electric and SICK

SICK, a German company, is a supplier of safety solutions. SICK designs and manufactures a broad range of safety products including industrial-use sensors and automatic identification systems.

*The specifications and warranty terms of MELSEC-WS are different from MELSEC-Q/QS, see the specification (page 4-5) and warranty terms (page 6).

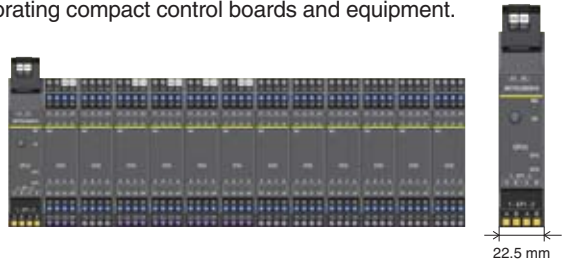
Intuitively understandable setting operations, plus flexible expandability.

The compact profile includes full cutting-edge safety technologies.

MS Feature:1

To meet today's needs - compact safety controller with flexible expandability

- The module is 22.5 mm wide. This compact size is best suited for incorporating compact control boards and equipment.
- Maximum expandable modules include 12 safety input/I/O modules, 4 safety relay output modules, and 2 network modules.
- At the maximum configuration of safety input and I/O modules, I/O points are 96 for single input and 48 for single output-totaling 144.



MS Feature:2

The original Setting and Monitoring Tool makes intuitively configuration

Configuration

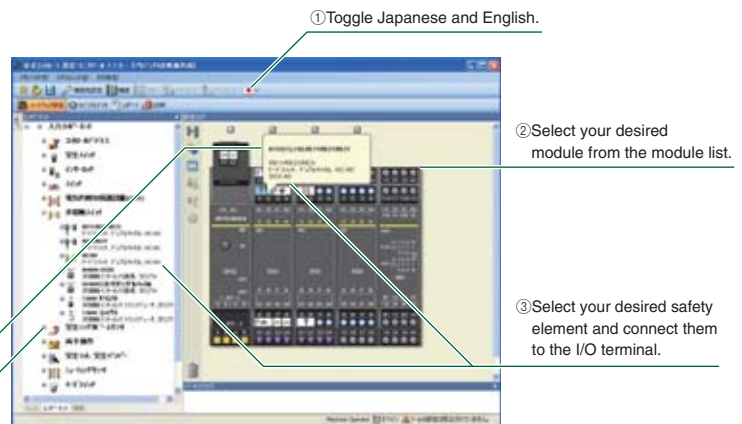
Use the various equipments to set your hardware configuration easily and quickly.

What are elements?

Connecting parameters of major safety equipment, such as Emergency stop and Safety door switches and Light curtain, are expressed by an icon. Make settings simply by drag-and-drop decision.

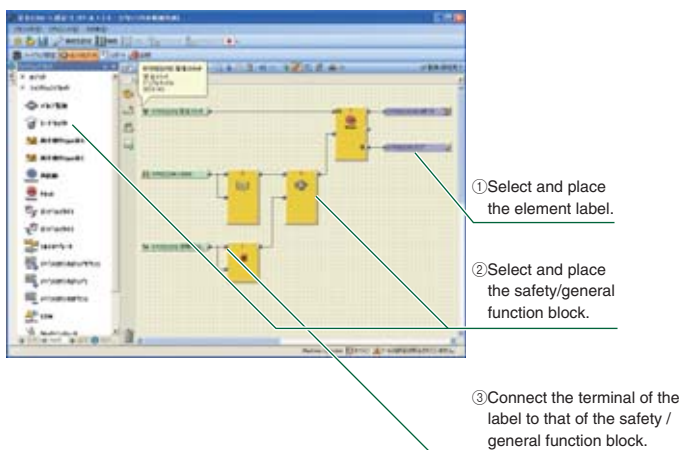
*Elements for Safety devices of Mitsubishi's partners are also available. Please contact your local Mitsubishi representative.

- ④ Major parameters are set into the icons. You can change the parameters if desired.
- ⑤ Register new elements for safety equipments.



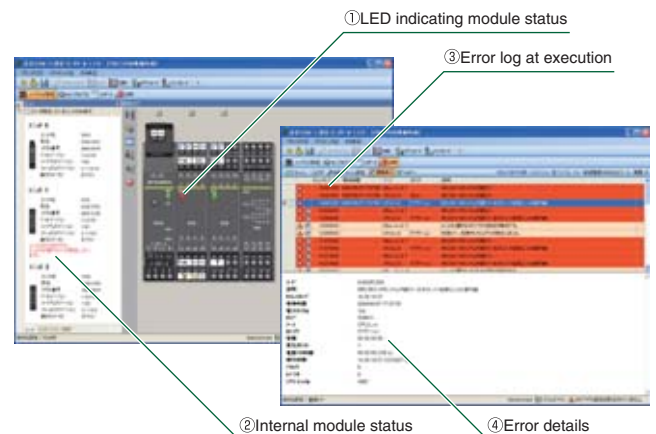
Logic Editor

Elements you connect to the I/O terminal are automatically labeled, enabling you to create logic easily using labels and function blocks.



Diagnosis

You can monitor the internal status of modules and error logs.



MS Feature:3

Fast shut off with a response of 8 ms

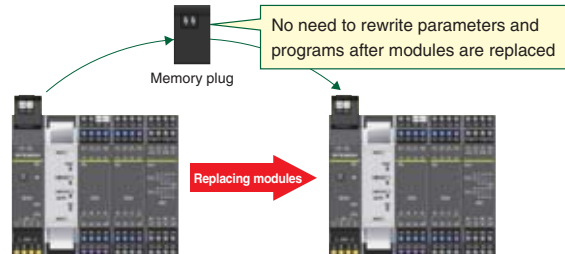
Fast shut off lets the safety I/O module shut off safety output not via the CPU module, speeding up response to 8 ms. Shorten safety distances in your safety systems.



MS Feature:4

Easy CPU module replacement

Save parameters and programs from the Setting and Monitoring Tool to the memory plug at CPU module - avoiding rewriting parameters and programs after replacing the CPU module.



MS Feature:5

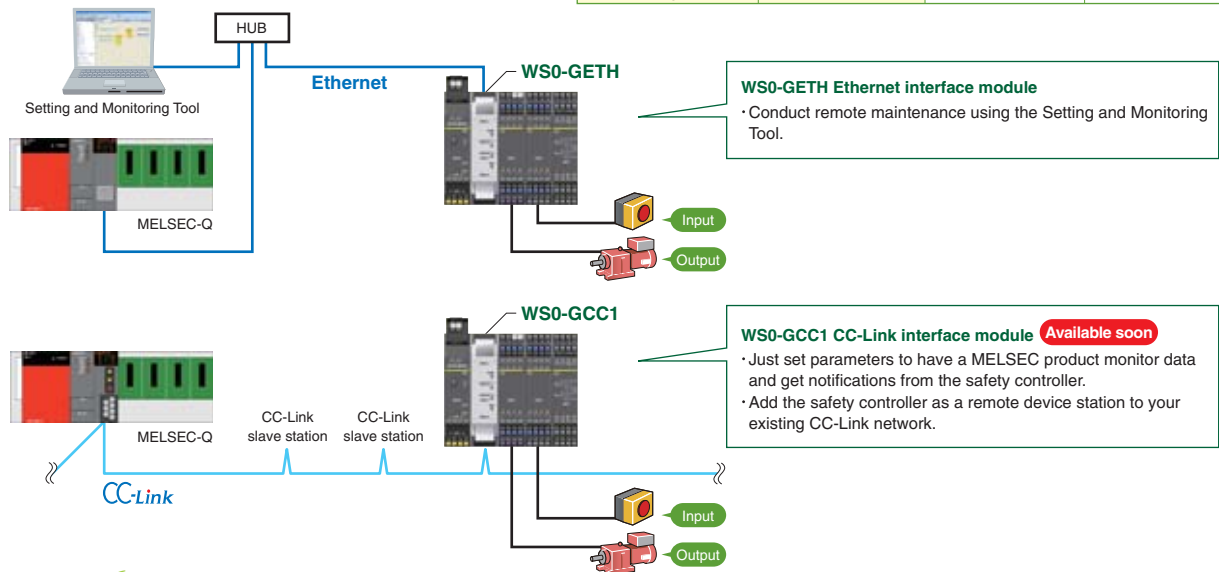
Connecting with various equipments via network

The MELSEC-WS uses the network interface module to communicate with PCs and MELSEC programmable controllers so they can monitor data such as CPU logic results, I/O signal status, and module status and get notifications^{*1} such as a machine startup and stops from the MELSEC-WS.

*1 This is not safety-guaranteed data for Ethernet and CC-Link because they are not a safety network.

<Functions available with network interface>

		WS0-GETH	WS0-GCC1
Connected to a PLC or PC	Monitoring data	○	○
	Notification data	○	○
Connected to the Setting and Monitoring Tool	Connection via network	○	—



MS Feature:6

Enhanced by the distinctive technologies of SICK-the leading company of safety solutions

Through the EFI interface on the WS0-CPU1 CPU module, the MELSEC-WS safety controller enables you to retrieve safety data, make settings, and conduct diagnostics on SICK's safety products.

■EFI: SICK original network Interface between WS0-CPU1 and SICK's safety products

Supported equipment ●C4000 light curtain ●M4000 light barrier ●S3000/S300 laser scanner

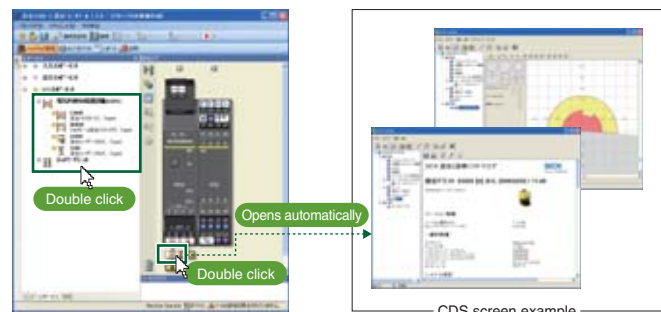
Features ●Up to 4 safety products can be daisy-chain-connected per EFI port

●Retrieve safety data, make settings, and conduct diagnostics on SICK's safety products

CDS diagnostics software used exclusively for such SICK safety products as light curtains and laser scanners is included into the Setting and Monitoring Tool. Note that CDS is a product of SICK not covered under the Mitsubishi Electric warranty. Contact SICK for CDS information as follows:

SICK URL▶<http://www.sick.com>

*The Setting and Monitoring Tool is all you need to connect the MELSEC-WS and build a safety system with SICK's safety products. CDS enables you to use expansion functions such as SICK's safety product diagnostics.



General Specifications

Item	Specifications					
Operating ambient temperature	-25 to 55°C*4					
Storage ambient temperature	-25 to 70°C*4					
Operating ambient humidity	10 to 95 % RH, non-condensing*4					
Storage ambient humidity	10 to 95 % RH, non-condensing*4					
Vibration resistance	Conforms to IEC 61131-2	Frequency range	Constant acceleration	Half amplitude	Sweep count	
		Under intermittent vibration	5 to 8.4 Hz	—	3.5 mm	10 times each in X, Y, Z directions
			8.4 to 150 Hz	9.8 m/s ²	—	
		Under continuous vibration	5 to 8.4 Hz	—	1.75 mm	
		8.4 to 150 Hz	4.9 m/s ²	—		
Shock resistance	Conforms to IEC 61131-2 (147 m/s ² , 3 times each in X, Y, Z directions)					
Operating ambience	No corrosive gases					
Operating altitude*1	2,000 m or less					
Installation location	Inside control panel					
Overvoltage category*2	II or less					
Pollution degree*3	2 or less					
Equipment category	Class III					

CPU module specifications

Item	Specifications		
	WS0-CPU0	WS0-CPU1	
Category	Category 4 (EN/ISO 13849-1) Category 4 (EN 954-1)		
Safety Integrity Level (SIL)	SIL3 (IEC 61508) SILCL3 (IEC 62061)		
Performance level (PL)	PLe (EN/ISO 13849-1)		
PfHd	1.07×10 ⁻⁹ 1/h	1.69×10 ⁻² 1/h	
Enclosure rating (EN/IEC 60529)	Terminals: IP20, Housing: IP40		
EMC	EN61000-6-2, EN55011(Class A)*4		
Protection class			
Number of EFI interfaces	0	2	
EFI connection	—	By spring clamp terminal block	
Data interface	Backplane bus (FLEX BUS+)		
Configuration interface	RS-232		
Cross-circuit of connecting wires	Single-core or finely stranded: 1×0.14 mm ² to 2.5 mm ² or 2×0.14 mm ² to 0.75 mm ²		
	Finely stranded with ferrules to EN 46228: 1×0.25 mm ² to 2.5 mm ² or 2×0.25 mm ² to 0.5 mm ²		
Dimensions (W×H×D)	22.5×96.5×120.8 mm	22.5×101.7×120.8 mm	
Weight	100 g	110 g	
External power specs	Supply voltage	24 V DC (16.8 to 30 V DC)	
	Type of supply voltage	PELV or SELV (The current of the power supply unit that supplies the CPU module has to be limited to a maximum of 4 A - either by the power supply unit itself or by a fuse.)	
	Power consumption	Max. 2.5 W	
	Switch-on time	Max. 18 seconds	
	Short-circuit protection	4 A gG (with tripping characteristics B or C)	

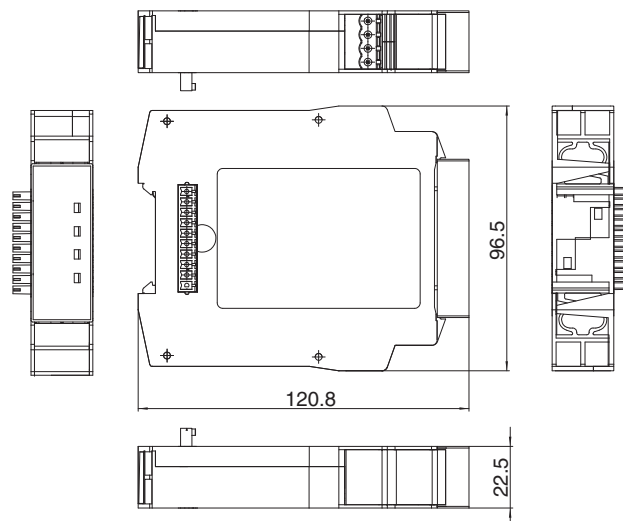
Ethernet interface module specifications

Item	Specifications	
	WS0-GETH	
Number of modules mountable to the safety controller	Max. 2 modules (in total of WS0-GETH and WS0-GCC1)	
Communication	Ethernet (TCP/IP)	
	Network type	100Base-TX 10Base-T
	Transmission rate	100Mbps 10Mbps
	Connection technique: RJ45	
Number of connections	Max. 4 connections+1 connection (for Setting and Monitoring Tool only)	
Enclosure rating (EN/IEC 60529)	IP20	
Data interface	Backplane bus (FLEX BUS+)	
Internal power consumption	Max. 2.4 W	
Dimensions (W×H×D)	22.5×96.5×120.8 mm	
Weight	125 g	

- *1 :Do not store or use the programmable controller under the pressure higher than the atmospheric pressure of altitude 0 m.
- *2 :This indicates the section of power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within the premises. Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.
- *3 :This index indicates the degree to which conductive material is generated in the environment where the device is used. Pollution degree 2 is when only non-conductive pollution occurs. However, temporary conductivity caused by condensation is to be expected.
- *4 :Specifications of MELSEC-WS differ from MELSEC-Q/QS mainly in:
 - ① General specifications (Operating ambient temperature, storage ambient temperature, etc.)
 - ② EMC standards: MELSEC-WS - EN61000-6-2, EN55011
 - MELSEC-Q/QS - IEC 61131-2

External Dimensions of Safety Controller

Unit: mm



Safety input and I/O combined modules specifications

Item	Specifications	
	WS0-XTIO	WS0-XTDI
Category	Category 4 (EN/ISO 13849-1), Category 4 (EN 954-1)	
Safety Integrity Level (SIL)	SIL3 (IEC 61508)	
Performance level (PL)	PLe (EN/ISO 13849-1)	
PFHd	0.9×10 ⁻⁹ 1/h (double channel) 4.8×10 ⁻⁹ 1/h (single channel)	0.4×10 ⁻⁹ 1/h
Enclosure rating (EN/IEC 60529)	Terminals: IP20, Housing: IP40	
EMC	EN61000-6-2, EN55011 (Class A)*	
Protection class	III	
External connection method	By spring clamp terminal block	
Data interface	Backplane bus (FLEX BUS+)	
Internal power consumption (without test pulse output)	Max. 1.1 W	Max. 1.4 W
Cross-circuit of connecting wires	Single-core or finely stranded: 1×0.14 mm ² to 2.5 mm ² or 2×0.14 mm ² to 0.75 mm ² Finely stranded with ferrules to EN 46228: 1×0.25 mm ² to 2.5 mm ² or 2×0.25 mm ² to 0.5 mm ²	
Dimensions (W×H×D)	22.5×106.5×120.8 mm	
Weight	180 g	150 g
External power specs	Supply voltage	24 V DC (16.8 to 30 V DC)
	Type of supply voltage	PELV or SELV (The current of the power supply unit that supplies the CPU module has to be limited to a maximum of 4 A - either by the power supply unit itself or by a fuse.)
	Power consumption	Max. 96 W (including Q1 to Q4)
	Switch-on time	Max. 18 seconds
	Short-circuit protection	4 A gG (with tripping characteristics B or C)
Input specs	ON voltage	13 to 30 V DC
	OFF voltage	-5 to +5 V DC
	ON current	2.4 to 3.8 mA
	OFF current	-2.5 to 2.1 mA
	Redundancy mismatch time	4 ms to 30 s (Default: 3 s, Increase or decrease 4 ms by 4 ms)
Test pulse output specs	Number of inputs	8 points (Single), 4 points (Dual-channel)
	Number of outputs	2 points (2 kinds)
	Output type	PNP
	Output voltage	15.6 to 30 V DC
	Output current (DC)	Max. 120 mA
	Test pulse cycle	1 to 25 Hz (Changeable by settings)
	Test pulse OFF time	1 to 100 ms (Changeable by settings)
	Load capacity	1 μF for test pulse duration ≥ 4 ms, 0.5 μF for test pulse duration 1 ms < 100 μs
	Cable resistance	100 Ω or less
	Output specs	Output points
Output type		PNP
Output voltage		24 V DC (15.6 to 30 V DC)
Output current (DC)		2 A
Total output current		Max. 3.2 A
Test pulse OFF time		≤ 0.65ms
Test pulse cycle		0.8 Hz
Load capacity		≤ 0.5 μF
Cable length		100m, 1.5mm ²
Response time		Changeable by logic configuration
Fast shut off time	8ms	

Safety relay output module specifications

Item	Specifications		Item	Specifications	
	WS0-4RO	WS0-4RO		WS0-4RO	WS0-4RO
Category	Category 4		Insulation	Internal circuit-Input circuit	Not insulated
Safety Integrity Level (SIL)	SIL3			Internal circuit-Output circuit	Insulated
PFHd	1.6×10 ⁻⁷			Input circuit-Output circuit	Insulated
PFHd	1×10 ⁻⁹ 1/h		Dimensions (W×H×D)	22.5×106.5×120.8 mm	
Supply voltage	24 V DC (19.2 to 30 V DC)		Weight	0.19 kg	
Enclosure rating (EN/IEC 60529)	Terminals: IP20, Housing: IP40		Output circuit specs	Number of NO contacts	2 contacts (4 outputs)
EMC	EN61000-6-2, EN55011 (Class A)*			Number of NC contacts	2 contacts
Power consumption	Max. 2 W		Rated load	Voltage	250 V AC (5 to 275 V AC), 230 V DC (5 to 275 V DC)
Impulse resistance voltage	4 kV			Current	10 mA (5V), 2 mA (24 V), Max. 6 A
Rated voltage	300 V AC		13-14	Total current	12 A
Cross-circuit of connecting wires	Single-core or finely stranded: 1×0.14 mm ² to 2.5 mm ² or 2×0.14 mm ² to 0.75 mm ²	Finely stranded with ferrules (EN0815 compliant): 1×0.25 mm ² to 2.5 mm ² or 2×0.25 mm ² to 0.5 mm ²	23-24	Response time	30ms
			Y1-Y2	Output type	isolated NO contact, Forced dissociation
	Finely stranded with ferrules (EN46288 compliant): 1×0.25 mm ² to 2.5 mm ² or 2×0.25 mm ² to 0.5 mm ²	33-34	Contact material	AgSnO ₂ with 1 μm Au	
		43-44	Output circuit fusing	6A gG, per current path	
		Y3-Y4	Utilization category	AC-15:Ue 250V, Ie 3A, DC-13:Ue 24V, Ie 3A	
Peeled off length of wire	8 mm	0.6 Nm	Output circuit specs	Output type	Non-isolated NO contact, positively driven, current-limited
				Number of NO contacts	2 contacts
				Output voltage	24 V DC (18 to 30 V DC)
				Output current	Max. 75 mA
Max. tension	0.6 Nm		Y14	Load capacity	200 nF
			Y24		

* Specifications of MELSEC-WS differ from MELSEC-Q/QS mainly in:

① General specifications (Operating ambient temperature, storage ambient temperature, etc.)

② EMC standards: MELSEC-WS-EN61000-6-2, EN55011

MELSEC-Q/QS-IEC 61131-2

From SICK AG to the World-Offered is International Safety Standards Compliant, Cutting-Edge Safety Solutions

SICK, a German company, is one of the first companies in the world that developed and manufactured optical electronics products. With over 60 years of broad experience in the FA industry and its exceptional safety solutions, SICK is recognized as a worldwide leading company in the industry. Its industry-leading, diverse product lineup includes safety light curtains, safety scanners, safety switches, and safety controllers, all of which are compliant with the strict European safety standards.



Warranty

Warranty Terms of Safety Controller

1. Limited Warranty and Product Support

(1) Mitsubishi Electric Corporation ("MELCO") warrants that for a period of one (1) year after date of delivery from the point of manufacture or eighteen months from date of Customer's purchase, whichever is less, Mitsubishi Safety controllers (the "Products") will be free from defects in material and workmanship.

(2) At MELCO's option, for those Products MELCO determines are not as warranted, MELCO shall either repair or replace them or issue a credit or return the purchase price paid for them.

(3) For this warranty to apply:

① Customer shall give MELCO (i) notice of a warranty claim to MELCO and the authorized dealer or distributor from whom the Products were purchased, (ii) the notice shall describe in reasonable details the warranty problem, (iii) the notice shall be provided promptly and in no event later than thirty (30) days after the Customer knows or has reason to believe that Products are not as warranted, and (iv) in any event, the notice must given within the warranty period;

② Customer shall cooperate with MELCO and MELCO's representatives in MELCO's investigation of the warranty claim, including preserving evidence of the claim and its causes, meaningfully responding to MELCO's questions and investigation of the problem, grant MELCO access to witnesses, personnel, documents, physical evidence and records concerning the warranty problem, and allow MELCO to examine and test the Products in question onsite or at the premises where they are installed or used; and

③ If MELCO requests, Customer shall remove Products it claims are defective and ship them to MELCO or MELCO's authorized representative for examination and, if found defective, for repair or replacement. The costs of removal, shipment to and from MELCO's designated examination point, and reinstallation of repaired or replaced Products shall be at Customer's expense.

④ If Customer requests and MELCO agrees to effect repairs onsite at any domestic or overseas location, the Customer will pay for the costs of sending repair personnel and shipping parts. MELCO is not responsible for any re-commissioning, maintenance, or testing on-site that involves repairs or replacing of the Products.

(4) Repairs of Products located outside of Japan are accepted by MELCO's local authorized service facility centers ("FA Centers"). Terms and conditions on which each FA Center offers repair services for Products that are out of warranty or not covered by MELCO's limited warranty may vary.

(5) Subject to availability of spare parts, MELCO will offer Product repair services for four (4) years after each Product model or line is discontinued, at MELCO's or its FA Centers' rates and changes and standard terms in effect at the time of repair. MELCO usually produces and retains sufficient spare parts for repairs of its Products for a period of four (4) years after production is discontinued.

(6) MELCO generally announces discontinuation of Products through MELCO's Technical Bulletins. Products discontinued and repair parts for them may not be available after their production is discontinued.

2. Limits of Warranties

(1) MELCO does not warrant or guarantee the design, specify, manufacture, construction or installation of the materials, construction criteria, functionality, use, properties or other characteristics of the equipment, systems, or production lines into which the Products may be incorporated, including any safety, fail-safe and shut down systems using the Products.

(2) MELCO is not responsible for determining the suitability of the Products for their intended purpose and use, including determining if the Products provide appropriate safety margins and redundancies for the applications, equipment or systems into which they are incorporated.

(3) Customer acknowledges that qualified and experienced personnel are required to determine the suitability, application, design, construction and proper installation and integration of the Products. MELCO does not supply such personnel.

(4) MELCO is not responsible for designing and conducting tests to determine that the Product functions appropriately and meets application standards and requirements as installed or incorporated into the end-user's equipment, production lines or systems.

(5) MELCO does not warrant consumable products (e.g. batteries, backlights, fuses).

(6) MELCO does not warrant any Product:

- ① repaired or altered by persons other than MELCO or its authorized engineers or FA Centers;
- ② subjected to negligence, carelessness, accident, misuse, or damage;
- ③ improperly stored, handled, installed or maintained;
- ④ integrated or used in connection with improperly designed, incompatible or defective hardware or software;
- ⑤ that fails because consumable parts such as batteries, backlights, or fuses were not tested, serviced or replaced;
- ⑥ operated or used with equipment, production lines or systems that do not meet applicable and commensurate legal, safety and industry-accepted standards;
- ⑦ operated or used in abnormal applications;
- ⑧ installed, operated or used in contravention of instructions, precautions or warnings contained in MELCO's user, instruction and/or safety manuals, technical bulletins and guidelines for the Products;
- ⑨ used with obsolete technologies or technologies not fully tested and widely accepted and in use at the time of the Product's manufacture;
- ⑩ subjected to excessive heat or moisture, abnormal voltages, shock, excessive vibration, physical damage or other improper environment; or
- ⑪ damaged or malfunctioning due to Acts of God, fires, acts of vandals, criminals or terrorists, communication or power failures, or any other cause or failure that results from circumstances beyond MELCO's control.

(7) All Product information and specifications contained on MELCO's website and in catalogs, manuals, or technical information materials provided by MELCO are subject to change without prior notice.

(8) The Product information and statements contained on MELCO's website and in catalogs, manuals, technical bulletins or other materials provided by MELCO are provided as a guide for Customer's use. They do not constitute warranties and are not incorporated in the contract of sale for the Products.

(9) These terms and conditions constitute the entire agreement between Customer and MELCO with respect to warranties, remedies and damages and supersede any other understandings, whether written or oral, between the parties. Customer expressly acknowledges that any representations or statements made by MELCO or others concerning the Products outside these terms are not part of the basis of the bargain between the parties and are not factored into the pricing of the Products.

(10) THE WARRANTIES AND REMEDIES SET FORTH IN THESE TERMS ARE THE EXCLUSIVE AND ONLY WARRANTIES AND REMEDIES THAT APPLY TO THE PRODUCTS.

3. Limits on Damages

(1) MELCO's MAXIMUM CUMULATIVE LIABILITY BASED ON ANY CLAIMS FOR BREACH OF WARRANTY OR CONTRACT, NEGLIGENCE, STRICT TORT LIABILITY OR OTHER THEORIES OR RECOVERY REGARDING THE SALE, REPAIR, REPLACEMENT, DELIVERY, PERFORMANCE, CONDITION, SUITABILITY, COMPLIANCE, OR OTHER ASPECTS OF THE PRODUCTS OR THEIR SALE, INSTALLATION OR USE SHALL BE LIMITED TO THE PRICE PAID FOR PRODUCTS NOT AS WARRANTED.

(2) Although MELCO has obtained the certification for Product's compliance to the international safety standards IEC61508 and EN954-1/ISO 13849-1 from a third party, this fact does not guarantee that Product will be free from any malfunction or failure. The user of this Product shall comply with any and all applicable safety standard, regulation or law and take appropriate safety measures for the system in which the Product is installed or used and shall take the second or third safety measures other than the Product. MELCO is not liable for damages that could have been prevented by compliance with any applicable safety standard, regulation or law.

(3) MELCO prohibits the use of Products with or in any application, including the followings, that contains a high level of risk to human life and properties, and is not responsible for any claims that are arising out of the use of Products with or in the said applications.

- ① heating, hydraulic and/or atomic power plants,
- ② trains, railway systems, airplanes, airline operations, and other transportation systems,
- ③ all the equipment and applications involving hospitals, medical care, and life support,
- ④ amusement equipment,
- ⑤ incineration and fuel devices,
- ⑥ handling of nuclear or hazardous materials or chemicals,
- ⑦ mining and drilling, and
- ⑧ other applications where the level of risk to human life, health or property are elevated.

(4) MELCO SHALL NOT BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, INDIRECT OR PUNITIVE DAMAGES, FOR LOSS OF PROFITS, SALES, OR REVENUE, FOR INCREASED LABOR OR OVERHEAD COSTS, FOR DOWNTIME OR LOSS OF PRODUCTION, FOR COST OVERRUNS, OR FOR ENVIRONMENTAL OR POLLUTION DAMAGES OR CLEAN-UP COSTS, WHETHER THE LOSS IS BASED ON CLAIMS FOR BREACH OF CONTRACT OR WARRANTY, VIOLATION OF STATUTE, NEGLIGENCE OR OTHER TORT, STRICT LIABILITY OR OTHERWISE.

(5) Product Liability

① Should a third party claims and/or sues Customer arising out of or relating to Products or defects in them ("Defects"), for damages or losses in human life, health or properties, Customer shall, by writing, notify MELCO of such claims, and MELCO and Customer cooperates for the earliest settlement of the dispute.

② Should Customer have compensated the third party for the claimed damage in accordance with the written agreement between Customer and MELCO, Customer may discuss with and charge MELCO for the amount agreed upon by Customer and MELCO in consideration of the degrees of the responsibilities of each other.

③ Notwithstanding the above two paragraphs, MELCO is not responsible for any claims should the Defect was arising out of any of items listed in Section 2, Subsection f. in this warranty terms.

(6) Each of the provisions set forth in these terms, including the limitations on MELCO's responsibilities as well as remedies and damage compensations to Customer's claims, is separate and independently enforceable, and retains its enforceability, notwithstanding the cases where a judicial judgment denies the enforceability of the mutually agreed provisions including any warranty, undertaking, damage limitation, and other provision of these terms comprising the contract of sales between Customer and MELCO.

4. Delivery/Force Majeure

(1) Any delivery date for the Products acknowledged by MELCO is an estimated and not a promised date. MELCO will make all reasonable efforts to meet the delivery schedule set forth in Customer's order or the purchase contract but shall not be liable for failure to do so.

(2) Products stored at the request of Customer or because Customer refuses or delays shipment shall be at the risk and expense of Customer.

(3) MELCO shall not be liable for any damage to or loss of the Products or any delay in or failure to deliver, service, repair or replace the Products arising from shortage of raw materials, failure of suppliers to make timely delivery, labor difficulties of any kind, earthquake, fire, windstorm, flood, theft, criminal or terrorist acts, war, embargoes, governmental acts or rulings, loss or damage or delay in carriage, acts of God, vandals of any other circumstances reasonably beyond MELCO's control.

5. Jurisdictional Court and Applicable Laws

(1) This contract and the provisions contained herein are governed by the laws of Japan, and shall be interpreted in accordance with the Japanese laws.

(2) Tokyo District Court shall be the court of the first instance for any dispute referring to this Contract or the provisions contained herein.

Major differences in after-service between MELSEC-WS and MELSEC-Q/QS

- ① The warranty period of MELSEC-WS is one year after the purchase or 18 months after the manufacturing date, whichever comes first.
- ② Repair service remains available for four years after the production discontinuation.
- ③ Repair service would mainly be a product replacement.
- ④ MELCO may need a certain time to resolve your request depending on the content and time request.

Mitsubishi Electric Corporation Nagoya Works is a factory certified for ISO14001 (Standard for environmental management systems) and ISO9001 (standards for quality assurance management systems).



Mitsubishi Safety Controller

MELSEC-WS Series

Precautions for Choosing the Products

This catalog explains the typical features and functions of the WS Series safety controller and does not provide restrictions and other information on usage and module combinations. When using the products, always read the user's manuals of the products. Also, confirm the "Warranty" on page 6 before using the products.

For safe use

- To use the products given in this catalog properly, always read the manuals before starting to use them.
- Confirm the "Warranty" on page 6 before using the products.

Country/Region	Sales office	Tel/Fax
USA	Mitsubishi Electric Automation Inc. 500 Corporate Woods Parkway, Vernon Hills, IL 60061, USA	Tel: +1-847-478-2100 Fax: +1-847-478-0327
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Germany	Mitsubishi Electric Europe B.V. German Branch Gothaer Strasse 8, D-40880 Ratingen, Germany	Tel: +49-2102-486-0 Fax: +49-2102-486-1120
UK	Mitsubishi Electric Europe B.V. UK Branch Travellers Lane, Hatfield, Hertfordshire, AL10 8XB, UK.	Tel: +44-1707-276100 Fax: +44-1707-278992
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Spain	Mitsubishi Electric Europe B.V. Spanish Branch Ctra. de Rubí 76-80-AC.420, E-08190 Sant Cugat del Vallés (Barcelona), Spain	Tel: +34-93-565-3131 Fax: +34-93-589-1579
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Czech Republic	Mitsubishi Electric Europe B.V. Czech Branch Avenir Business Park, Radlická 714/113a CZ-158 00 Praha 5	Tel: +420-251-551-470 Fax: +420-251-551-471
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Thailand	Mitsubishi Electric Automation (Thailand) Co., Ltd. Bang-Chan Industrial Estate No.111 Soi Serithai 54, T.Kannayao, A.Kannayao, Bangkok 10230 Thailand	Tel: +66-2-517-1326 Fax: +66-2-517-1328
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