OMRON

Model ZG2-WDC□□

Smart Sensor
Sensor Controller
for ZG2-WDS□□□

INSTRUCTION SHEET

Thank you for selecting OMRON product. This sheet primarily describes precautions required in installing and operating the product.
Before operating the product, read the sheet thoroughly to acquire sufficient knowledge of the product. For your convenience, keep the sheet at your disposal.

TRACEABILITY INFORMATION:
Importer in EU:
OMRON Europe B.V.
Wegalaan 67-69,
NL-2132 JD Hoofddorp
The Netherlands

Manufacturer:
OMRON Corporation,
Shiokoji Horikawa, Shimogyo-ku,
Kyoto. 600-8530 JAPAN

The following notice applies only to products that carry the CE mark:
Notice:
This is a class A product. In residential areas it may cause radio interference, in which case the user may be required to take adequate measures to reduce interference.

CE

9309251-6D

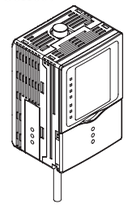
PRECAUTIONS FOR SAFE USE

Please observe the following precautions for safe use of the product:
1. Do not use the product in environments where it can be exposed to inflammable/explosive gas.
2. Do not disassemble, repair or modify this product.
3. Be sure to make sure that locking mechanisms are locked before use.
4. The supply voltage must be within the rated range.
5. Use the power supply within the rated load.
6. Dispose of this product as industrial waste.

PRECAUTIONS FOR CORRECT USE

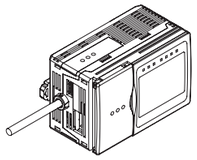
1. Do not install the product in locations subjected to the following conditions:
   - Direct sunlight or near heaters
   - Condensation caused by high humidity
   - Sudden changes in humidity
   - Cold conditions that may cause freezing
   - Presence of corrosive or flammable gases
   - Direct vibration or shock
   - Build-up of dust or metal chips
   - Spraying by organic solvents, water, oil or other liquids
   - Strong magnetic or electric field
   - Reflection of intense light (such as other laser beams or electric arc-welding machines)
2. Power Supply and Wiring
   - Reverse connection of power supply is not allowed. Connection to AC power supply is also not allowed.
   - Open-collector outputs should not be short-circuited.
   - Use the Extension Cable ZG2-XC□□CR: length 25m/15m/8m/3m for extending the cable between the Sensor Head and Sensor Controller. The total length differs according to the Extension cable.
   - High-voltage lines and power lines must be wired separately from this product. Wiring them together or placing them in the same duct may cause induction, resulting in malfunction or damage.
   - When using a commercially available switching regulator, make sure that the FG (Frame Ground) terminal is grounded.
   - If surge currents are present in the power lines, connect surge absorbers that suit the operating environment.
   - Before connecting/disconnecting the Sensor Head, make sure that the Sensor Controller is turned OFF. The Sensor Controller may break down if it is connected or disconnected while the power is ON.
   - Use only the specified combinations of Sensor Head and Sensor Controller.
3. Orientation when Installing the Sensor Controller
   To improve heat radiation, install the Sensor Controller only in the orientation show below.

Correct

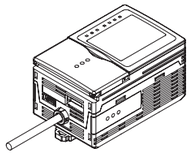


Do not install the Sensor Controller in the following orientations.

Incorrect



Incorrect



4. Cleaning
   - Do not use paint thinner, benzene, acetone or kerosene to clean the Sensor Controller. Doing so will melt the surface of the Sensor Controller.
   - Use commercially available alcohol.

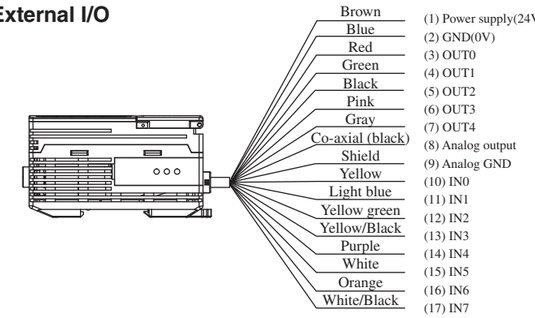
■Communication with a Host Device

Before communicating with a host device, make sure that the product has started up. Also, clear the receive buffers on the device in use or perform other measures since undetermined signals might be output from the host interface when this product is started up.

■Specifications

Item		Model	ZG2-WDC11/WDC11A	ZG2-WDC41/WDC41A
Output method			NPN	PNP
No. of mounted Sensors			1 per Sensor Controller	
Measurement time			5ms/8ms/16ms	
Unit of minimum display			10nm	
Range of display			-999.99999~999.99999	
Display		LCD monitor	TFT2.2-inch Color LCD (display dots:557×234pix)	
		LED monitor	・Judgement result indicator (color:orange):T1/T2/T3/T4 ・Laser on indicator (color:green):LD ON ・Zero reset indicator (color:green):ZERO-RESET ・Trigger indicator (color:green):TRIG	
External I/F	Output	Analog output	Selectable from 2types voltage/current output (selected by side switch on base) ・At voltage output:-10 to +10V,output impedance:40Ω ・At current output:4 to 20mA,max.load resistance:300Ω	
		Judgement output (ALL-PASS/NG/ERROR)	NPN open-collector,30VDC,50mA max., Residual voltage:1.2V max.	PNP open-collector,50mA max., Residual voltage:1.2V max.
		Trigger assistance output (ENABLE/GATE)		
	Input	Laser off input(LD-OFF)	ON:Short-circuited with 0V terminal or 1.5V max. OFF:Open (leakage current:0.1mA max.)	ON:Supply voltage short-circuited or within supply voltage -1.5V max. OFF:Open (leakage current:0.1mA max.)
		Zero reset input(ZERO-RESET)		
		Trigger input (TRIG)		
		Bank setting input (BANK A/BANK B/BANK C/BANK D)		
	Serial I/O	USB2.0	1 port,FULL-SPEED[max.12Mbps],MINI-B	
		RS-232C	1 port,max. 115200bps	
Functions		Bank selection	16banks per Sensor Controller	
		Sensitivity adjustment	MULTI/HIGH SPEED MULTI/AUTO/FIXED	
		Measurement items	Height/2-point step/3-point step/Edge position/Edge width/Angle/Intersection angle/Intersection coordinates/ Cross-sectional area/Calculations between tasks (max. 8 items simultaneously selectable)	
		Trigger mode	External trigger/Continuous	
Power supply voltage			21.6V DC to 26.4V DC(including ripple)	
Current consumption			0.8A max.	
Dialectic strength			Across all lead wires and controller case,1000VAC,50/60Hz,1min	
Ambient temperature			Operating:0 to 50℃,Storage:-15 to 60℃ (with no icing or condensation)	
Ambient humidity			Operating and storage:35% to 85% RH (with no condensation)	
Degree of protection			IEC60529,IP20	
Vibration resistance (destructive)			Destruction:10 to 150Hz,0.35-mm single amplitude,10 times each X,Y,and Z directions for 8min	
Shock resistance (destructive)			Destruction:150m/s²,3 times each 6 directions(up/down,left/right,forward/backward)	
Materials			Case: Polycarbonate (PC), Cable sheath: heat-resistant PVC	
Cord length			2m	
Weight			Approx.300g(including cord)	
Accessories			ZG2-WDC□1 : ferrite core (large) (1 p’ ce), Insure Lock (1 p’ ce), Instruction Sheet (This sheet) ZG2-WDC□1A: ferrite core (large) (1 p’ ce), ferrite core (small) (2 p’ ces), Insure Lock (1 p’ ce), Instruction Sheet (This sheet), Smart Monitor ZG2 (exclusive PC software, CD-ROM), USB cable	

■External I/O



(1) Power supply
This connects the 24 V DC (±10%) power supply. When using a Sensor Controller with a PNP output, the power supply terminal is also the common I/O terminal for all I/O except for the Analog output.

CHECK!
- Supply power from a DC power supply unit that has a countermeasure (safety ultra-low voltage circuit) built-in for preventing high voltages from occurring.
- Wire the power supply separately from other devices. Wiring them together or placing them in the same duct may cause induction, resulting in malfunction or damage.

(2) GND
The GND terminal is the 0V power supply terminal. When using a Sensor Controller with an NPN output, the GND terminal is also the common I/O terminal for all I/O except for the Analog output.

(3) OUT0 (ALL PASS output)
This outputs judgment results (ALL PASS).

(4) OUT1 (NG output)
This outputs judgment results (NG).

(5) OUT2 (ERROR output)
This turns on when an error is generated.

(6) OUT3 (ENABLE output)
This turns ON when the sensor is ready for TRIG input.

(7) OUT4 (GATE output)
This turns ON when the measurement data can be aquired.

(8) Analog output
The Analog output outputs a current or voltage in accordance with the measured value.

(9) Analog GND
The Analog GND terminal is the 0V terminal for the Analog output.

CHECK!
- This ground wire must be wired separately from the other ground wires.

(10) IN0 (BANK A)
Bank switching input A.

(11) IN1 (BANK B)
Bank switching input B.

(12) IN2 (BANK C)
Bank switching input C.

(13) IN3 (BANK D)
Bank switching input D.

(14) IN4 (LD-OFF)
Laser ON/OFF switch input. If this signal is set on,the laser will stop emission.

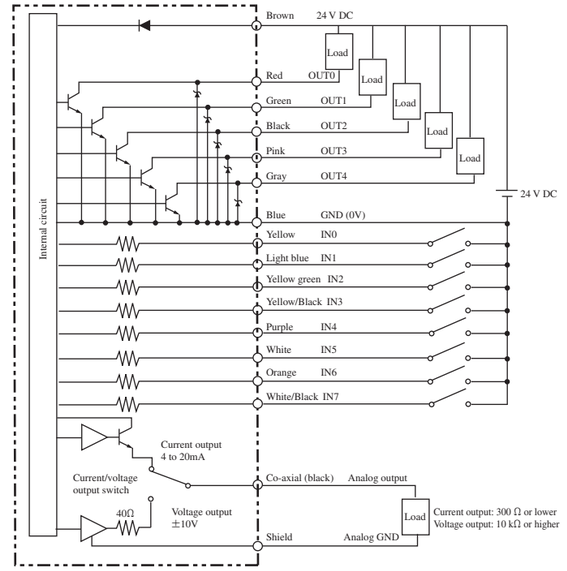
(15) IN5 (ZERO-RESET)
Zero reset input.

(16) IN6 (TRIG)
External Trigger input.

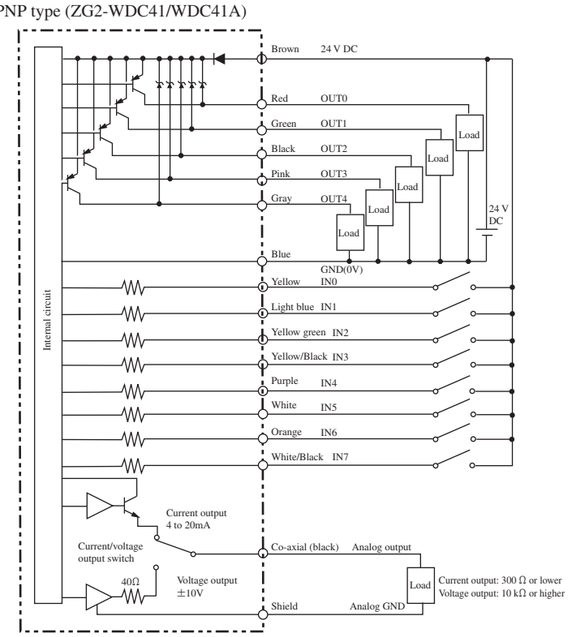
(17) IN7 (HOLD-RESET)
Hold reset input.

■I/O circuit diagrams

・NPN type (ZG2-WDC11/WDC11A)

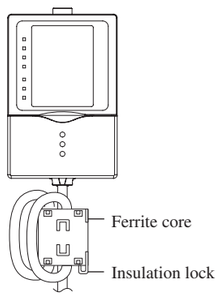


・PNP type (ZG2-WDC41/WDC41A)



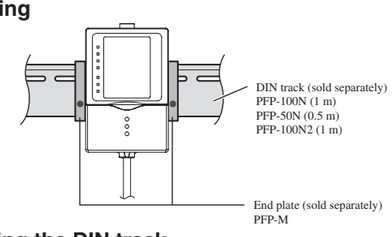
■Attaching the ferrite core

Attach the ferrite core (provided with the Sensor Controller) to the I/O cable of the Sensor Controller.



*Please two turns and install the cable.

■Mounting

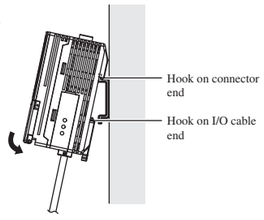


■Installing the DIN track

The following describes how to attach the 35 mm wide DIN track by quick, easy operation.

① Hook the hook on the connector end onto the DIN track.

② Push the Sensor Controller down onto the DIN track until the hook on the I/O cable side is locked.
Push down until you hear it snap into place.



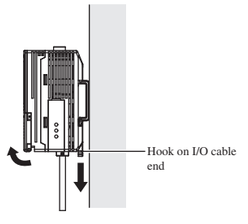
CHECK! When Sensor Controllers are used gang-mounted, attach the End Plate (sold separately PFP-M) on the DIN track beforehand. Always hook the hook on the connector end on the DIN track first. Hooking the I/O cable end on the DIN track first may impair the mounting strength of the DIN track attachment.

■Removing the DIN track

The following describes how to remove the Sensor Controller from the DIN track.

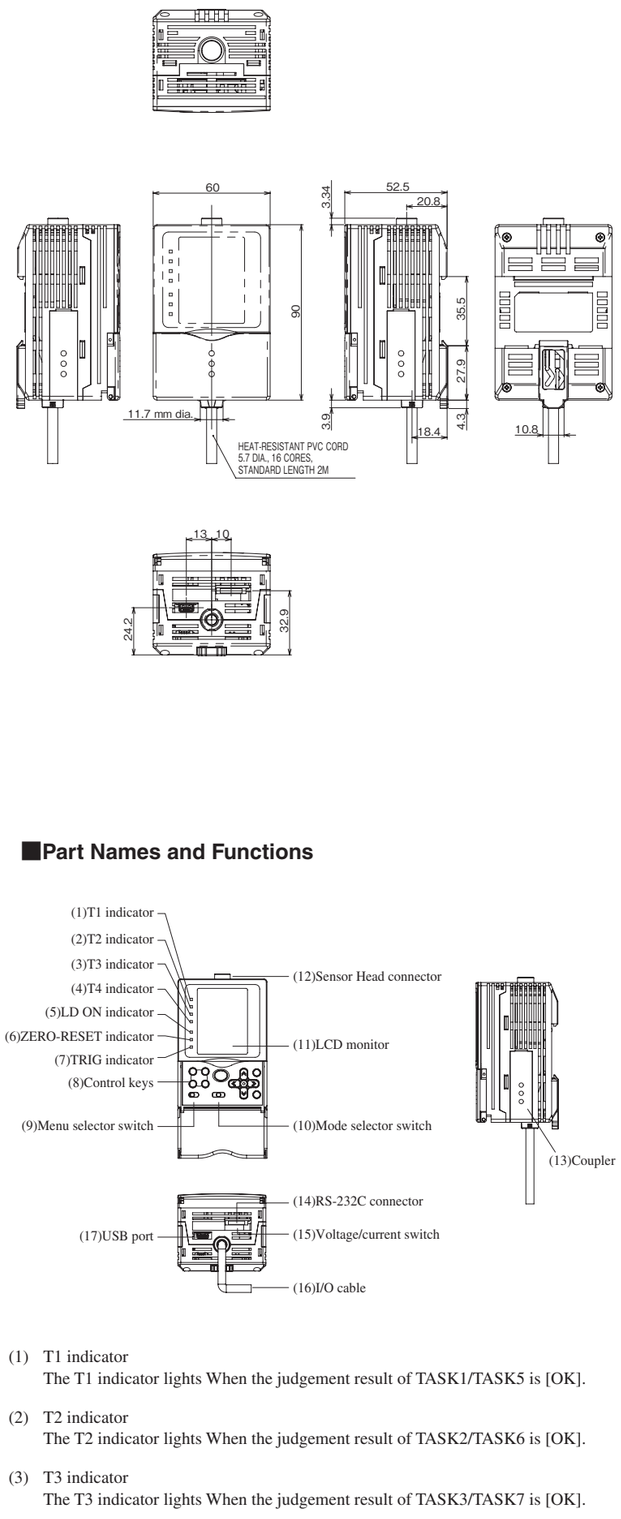
① Pull the hook on the I/O cable end of the Sensor Controller downwards.

② Lift up the Sensor Controller from the I/O cable, and remove it from the DIN track.



■Dimensions

(unit: mm)



■Part Names and Functions

(1) T1 indicator
The T1 indicator lights When the judgement result of TASK1/TASK5 is [OK].

(2) T2 indicator
The T2 indicator lights When the judgement result of TASK2/TASK6 is [OK].

(3) T3 indicator
The T3 indicator lights When the judgement result of TASK3/TASK7 is [OK].

(4) T4 indicator
The T4 indicator lights When the judgement result of TASK4/TASK8 is [OK].

(5) LD ON indicator
The LD ON indicator lights while the Sensor Head is emitting a laser beam.

(6)ZERO-RESET indicator
The ZERO-RESET indicator lights when the zero reset function is enabled.

(7) TRIG indicator
The TRIG indicator lights while inputting the trigger signal.

(8) Control keys
The Control keys are for setting measurement conditions and information.

(9) Menu selector switch
This switch selects the setup menu.
STD : Standard menu.Select this mode when setting the minimum require items for measurement.
EXP : Expert menu.Select this mode when making a more detailed setup.

(10) Mode selector switch
This switch selects the operating mode.
FUN : Select this mode when setting measurement conditions.
ADJ : Select this mode when adjusting the judgement threshold value.
RUN : Select this mode when performing measurement.
Output is performed only when the RUN mode is currently selected.

(11) LCD monitor
The LCD monitor displays setup menus and images captured from the sensor head.

(12) Sensor Head connector
This connector connects the Sensor Head.

(13) Coupler
This coupler connects the Controller Unit when gang-mounting Sensor Controllers.

(14) RS-232C connector
Connect the RS-232C cable when you are connecting the Sensor Controller to a PLC or a personal computer.

(15) Voltage/current switch
The Voltage/Current switch selects between voltage output and current output.

CHECK! Before operating this switch, make sure that the Sensor Controller is turned OFF. Also, make sure that the load connected to "Analog output wire (co-axial) - Analog GND wire" satisfies the rating (see I/O circuit diagram) of the set state (voltage or current output) before turning the Sensor Controller ON. Otherwise, the Sensor Controller may be damaged.

(16) I/O cable
The I/O cable connects the Sensor Controller to the power supply and external devices, such as sync sensors or programmable controllers.

(17) USB port
Connect the USB cable to the USB port to connect to a personal computer.

■Operating Environment

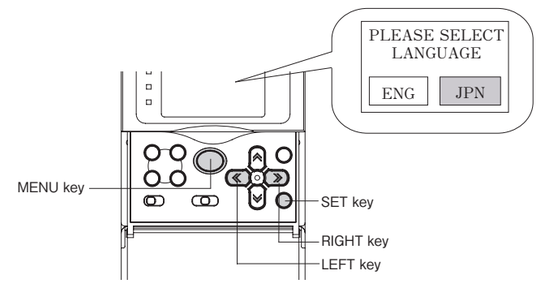
The recommended operating environment of SmartMonitorZG2 is as follows. Please check the system configuration of the PC connected to the controller and install the software.

Item	Condition
OS	Windows 10 (32 bit / 64 bit) Windows 7 (32 bit / 64 bit) Windows XP (At least Service Pack 3, 32bit)
CPU	Intel Pentium Ⅲ at least 1GHz(recommend 2GHz or more)
Memory	At least 1GB
Display	At least 1024 x 768 dots, at least 1.6 million Color

■How to Switch the Display Language to English

Only when power supply first time is turned on,The language switch menu is automatically displayed.Please select[ENG(English)] or [JPN(Japanese)] with a right and left key,and decide it with the SET key.
The content of the selection is reflected when starting.

*If you want to start language selection menu since the second times,Please turn on power while pushing the menu key.



■Notice for Korea Radio Law

Please see the following URL for Korean KC mark compliance information.
http://www.rra.go.kr/selform/OMR-ZG2-WDC

Suitability for Use

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

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(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

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