



PRODUCT TRACKING **4ch type**
FOR THE STEEL INDUSTRY

MWS-ST/SR-2WG

MICRO-GUNN

**UNAFFECTED BY HEAT, FLAMES,
AIRBORNE PARTICLES
OR VAPOR!**



**DESIGNED TO
REPLACE LASER SENSOR**

WADECO CO.,LTD.

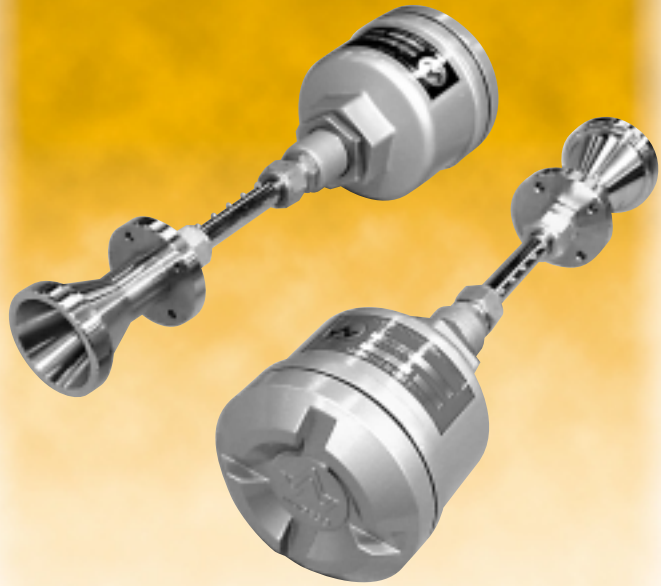
MICROWAVE SENSOR FOR HOT / COLD PRODUCT TRACKING

UNAFFECTED BY HEAT, FLAMES, AIRBORNE PARTICLES OR VAPOR!

Specifically designed to replace
laser product tracking sensors.

MWS-ST/SR-2WG Micro-Gunn consists of a pair of transmitting and receiving antennae, connected to separate controllers by circular waveguide tubing. The antennae, which are unaffected by heat, are installed in the high temperature zone, while the controllers are located in normal room temperature areas. The detection signal outputs with the interruption of the rotary microwave beam between the two antennae.

This is the first high temperature rotary microwave sensor ever developed. This maintenance free model **operates perfectly in high vapor areas**, whereas lasers will not. With a high degree of precision (repeatability), Micro-Gunn provides an economical and reliable solution for Product Tracking.



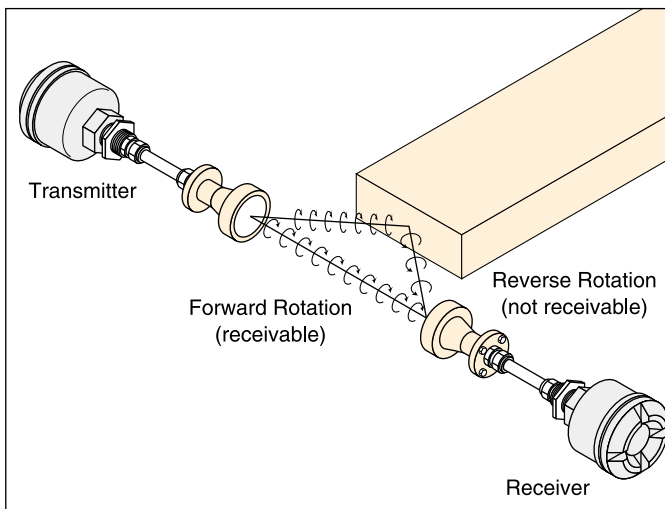
Features

- **Increased operating range**

The operating distance is three times that of the conventional model.

- **Rotary microwaves eliminate false detection**

When rotary microwaves are reflected off an object their direction of rotation is reversed. The receiver is tuned to reject spurious reflections according to their rotation. False actuation caused by reflected waves is thus eliminated.



- **Unaffected by adverse environments**

This sensor is unaffected by heat, flames, airborne particles or vapor.

- **Simple beam alignment**

Easy initial beam alignment at installation, due to the wide beam angle.

- **Selectable detection mode**

Either broken beam (BLOCK) or unbroken beam (UNBLOCK) detection method may be selected.

- **No set-to-set interference**

Four channels are available, selectable by rotary switch. This permits the use of multiple units in close proximity to each other.

- **Power level & sensitivity indicators**

The received power level and the sensitivity-set-point are indicated on the receiver by a bank of 15 LEDs, allowing for easy adjustment and maintenance of the sensors.

- **Inspection window (Optional)**

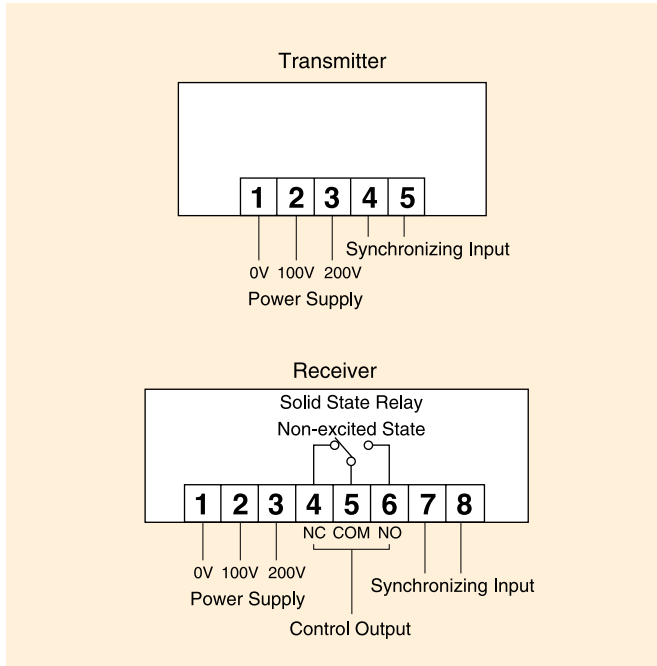
The received power level and the sensitivity-set-point are easily seen, without removing the controller cover.

- **Solid state output**

Highly reliable solid state output relay minimizes mechanical failure.

- **Enclosure rating IP65 equivalent**

Wiring



- * Phase of power supply must be the same for both transmitter and receiver.
- * Synchronizing input terminals are not used under normal conditions.
- * May operate in single channel mode by selecting CH0; doing so will disable the multi-channel function.

Selection of detection mode and relay configuration.

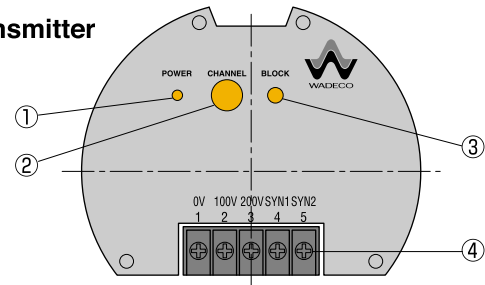
Detection mode		Beam broken BLOCK		Beam unbroken UNBLOCK	
Terminal number		4 & 5	5 & 6	4 & 5	5 & 6
Unpowered state		Closed	Open	Closed	Open
Powered state	Non-detecting state	Open	Closed	Open	Closed
	Detecting state	Closed	Open	Closed	Open

Specifications

Type	Transmitter Controller: MWS-ST-2WG Receiver Controller: MWS-SR-2WG Antenna: WG-6N (without cover) WG-6C (ceramic cover) WG-6G (heat resistant glass cover) WG-6T (Teflon cover)
Power Supply	AC100~120V or AC200~240V $\pm 10\%$, 50/60Hz
Operating range	Without waveguide: <80m With waveguide: <10m (varies)
Frequency and Transmission power	24GHz approx. Less than 10mW
Radiation Angle	$\pm 8^\circ$ approx. (angle in half of receiving value)
Number of channels	4 or 1
Received power level	Indicated by 1 of 15 LED indicators
Sensitivity-set-point	Indicated by 1 of 15 LED indicators
Control output	Solid state relay DC24V, 0.1A (standard) or IC relay contacts AC250V, 3A, $\cos \theta = 1$ (optional)

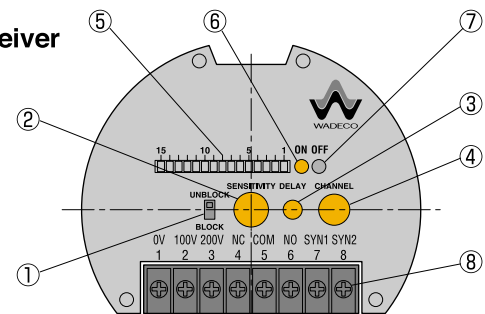
Function of switches, indicators & rheostats

Transmitter



	Part Name	Description
①	Power indicator	Green when power is on
②	Channel selector	CH1-4 or CH0
③	Block button	Blocks transmission
④	Terminals	

Receiver

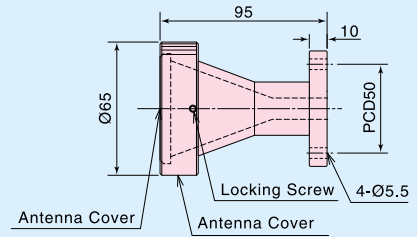
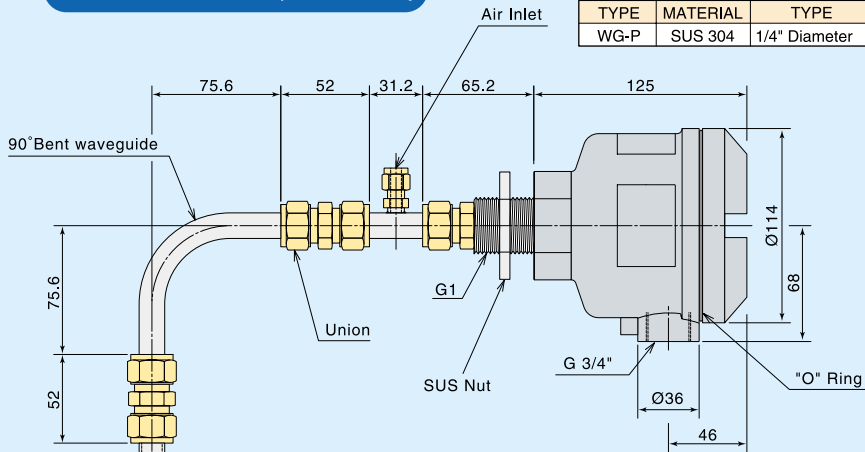


	Part Name	Description
①	Mode selection switch	BLOCK: Outputs on broken beam UNBLOCK: Outputs on unbroken beam
②	Sensitivity rheostat	To adjust sensitivity
③	Delay time rheostat	0.1 - 10 sec.
④	Channel selector	CH1-4 or CH0
⑤	Received power level indicators	Received power level: indicated by one of 15 LEDs Sensitivity set-point: indicated by one of 15 LEDs
⑥	Output indicator	ON(red): Illuminates on output
⑦	Output indicator	OFF(green): Illuminates on no output
⑧	Terminals	

Response time	Multi CH (CH1-4) 15msec. or Single CH (CH0) 5msec.
Delay function	Off delay 0.1-10 sec. (adjustable)
Delay time from power on to function	5sec. approx.
Power consumption	Transmitter Controller: 2VA Receiver Controller: 2VA
Noise immunity	Pulse noise from noise simulator $\pm 1.5KV$ (normal and common mode)
Ambient operating temperature	Antenna WG-6N: Approx. $-50^\circ C \sim +600^\circ C$ WG-6C: Approx. $-50^\circ C \sim +600^\circ C$ WG-6G: Approx. $-50^\circ C \sim +600^\circ C$ WG-6T: Approx. $-20^\circ C \sim +150^\circ C$ Controller: Approx. $-10^\circ C \sim +55^\circ C$
Enclosure rating	IP65 equivalent
Construction	Antenna: SUS304, Controller: Aluminium diecast
Color	Metallic silver grey
Weight	Transmitter (non-waveguide standard type): 2kg Receiver (non-waveguide standard type): 2kg

Dimensions

WAVEGUIDE TYPE(OPTIONAL)



Antenna With Cover

TYPE	MATERIAL	COVER
WG-6C	SUS 304	Ceramic
WG-6G	SUS 304	Vycor Glass
WG-6T	SUS 304	Teflon

Controller

	TYPE
Transmitter	MWS-ST-2WG
Receiver	MWS-SR-2WG

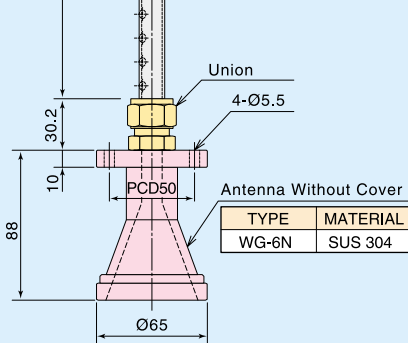
Union

TYPE	MATERIAL
B-15MO-6W	Brass

Rotary Converter

TYPE	MATERIAL
WG-R2 or WG-R3	SUS 304

NON-WAVEGUIDE TYPE(STANDARD)

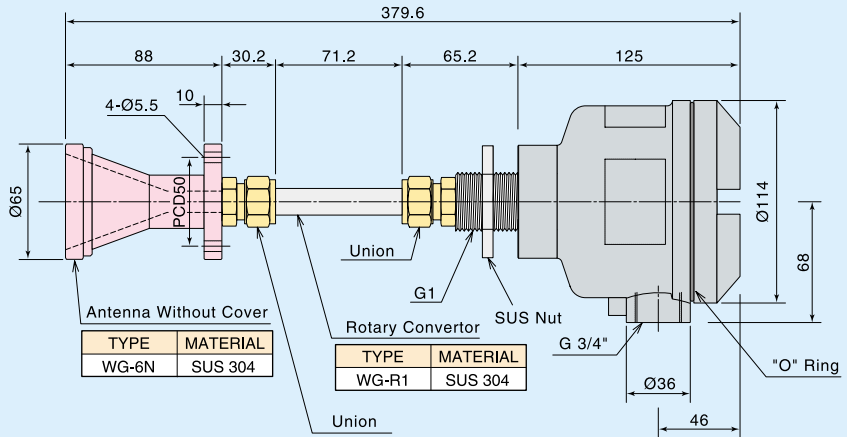


Straight Waveguide

TYPE	MATERIAL	NOTE
WG-C-L2500	Cu	2500mm
WG-SS-L2000	SUS 304	2000mm

90° Bent waveguide

TYPE	MATERIAL
WG-C-R46A90	Cu
WG-SS-R46A90	SUS 304



TYPE	MATERIAL
WG-6N	SUS 304

TYPE	MATERIAL
WG-R1	SUS 304

Union

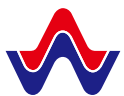
TYPE	MATERIAL
B-15MO-6W	Brass

Controller

	TYPE
Transmitter	MWS-ST-2WG
Receiver	MWS-SR-2WG

Dimensions are the same for both transmitter and receiver.

This specification may be changed without notification.



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