

SWD60(E)

Punch hole detection sensor

Self-check feature integrated

Transmitter SWD60T

Receiver SWD60R (E)

For single- and double-hole detection



Controller SWD60B



With case



Without case

Air purge unit or water-cooling jacket can be optionally attached to the transmitter and receiver.

Air purge unit: model AP60ET (for transmitter)

AP60ER (for receiver)

Water-cooling jacket: model WJ60E (for transmitter/receiver)

- Edge processing feature available (separate model)
For plate width narrower than effective detecting width of the sensor, receiver provided with an edge processing feature is available.
Receiver model: SWD60RE

Features

- Differentiation between single and double holes
One set of sensor is capable of differentiation between single and double holes, generating various types of output signals
- Simple light axis alignment
When light is fully received (nothing in the detection area between the transmitter and receiver), the AMP gain of the receiver is reduced to about 1/10 of the ordinary detection of punch holes. When the light axis is aligned in this condition, the SAFETY lamp on the receiver is illuminated.
- Self-check feature
The transmitter is provided with light emission monitor circuit, which checks for any abnormality in light emission and outputs alarm signal accordingly. The receiver allows external checking of whether it is functioning normally.
When light is fully received, the AMP gain of the receiver is automatically reduced to about 1/10. If the receiver detects full light reception in this condition, the SAFETY lamps on the receiver and controller are illuminated, indicating that the received light intensity level has a margin of more than tenfold.

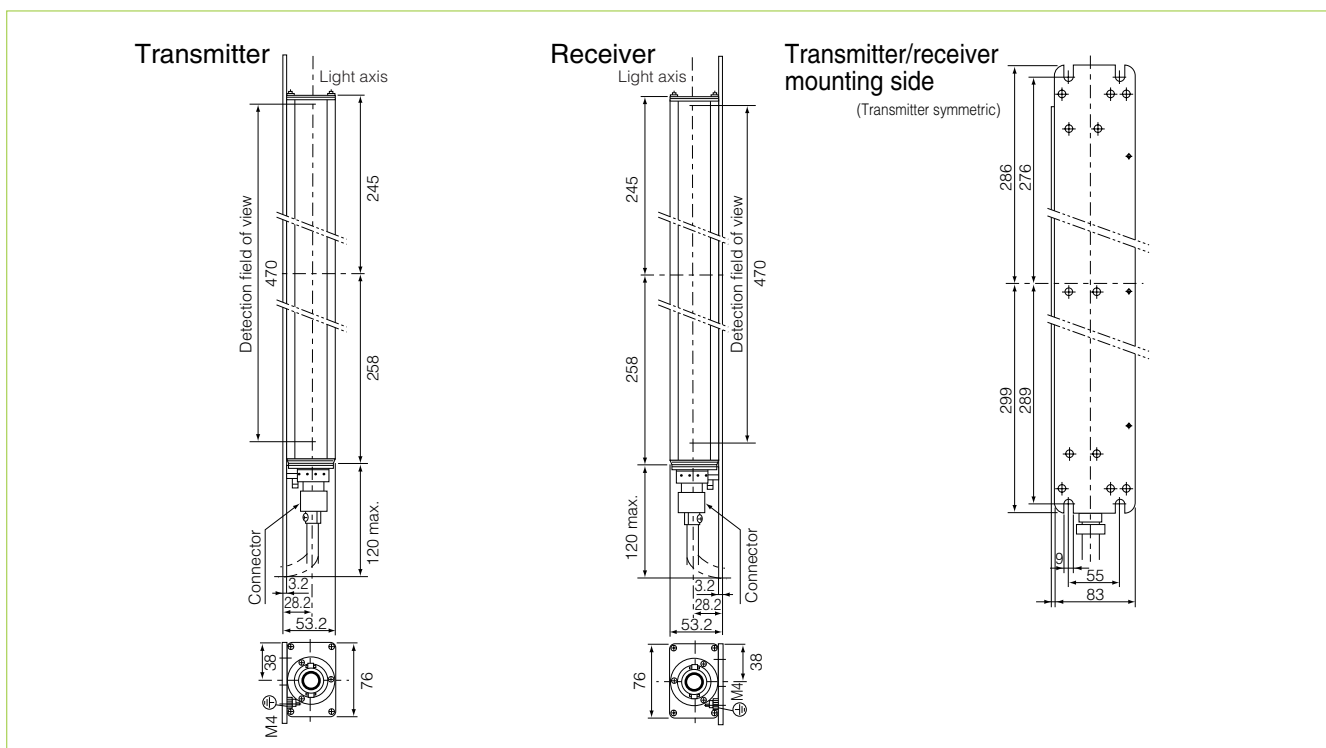
Rating/Performance/ Specification (Transmitter/Receiver)

Detecting distance	250-1,000 mm between transmitter and receiver (500 mm recommended)
Detecting range within detecting distance	
Effective detecting width	470mm
Light source	Infrared LED
Light-sensitive element	Silicon photodiode
Power supply	Supplied by controller (24 VDC (20-30 V), ripple 10% max.)
Current consumption	Transmitter: 280 mA max.; receiver: 210 mA max.
Ambient temperature	-25 - +55 °C (80 °C max. with water-cooling)
Storage temperature range	-40 - 70°C (Non-freezing)
Ambient humidity	35 - 85%RH (Non-condensing)
Vibration	10-55 Hz / 1.5 mm amplitude / 2 hours each in 3 direction
Shock	500 m/s ² / 3 times each in 3 directions
Connection	Metal connector (cord length: 2 m)
Protective structure	IP66
Mass	Transmitter: about 2.6 kg (including 2-m cord) Receiver: about 2.9 kg (including 2-m cord) Air purge unit: about 0.3 kg Water-cooling jacket: about 1.7 kg.

(Controller)

Control output	Single-hole detection output	Relay contact 1c and NPN open collector output (floating)
	Double-hole detection output	Relay contact 1c and NPN open collector output (floating)
	Output rating	Relay contact: 250 VAC 5 A (resistance load) NPN Open collector output: 30VDC 100mA.
	Operation mode	One-shot output; duration variable between 0.1-1 second (adjustment volume on panel)
Response time	Relay contact	30 ms max.
	NPN Open collector output	3ms max.
SAFETY output	Relay contact 1a	
Output rating	250 VAC 5 A (resistance load)	
ALARM output operation mode	Power supply	ON
	OFF	
	Operation	Abnormal
Normal		
Output	Relay contact open	
Relay contact closed		t < 1 second
Output rating	Relay contact 250VAC 5A (resistance load)	
Receiver check input	a (normally-open) contact input (short-circuiting of Terminals 9 and 10)	
Power supply	100, 110, 200 or 220 VAC (rated voltage: -15+10%, 50/60 Hz)	
Power consumption	30W max.	
Ambient temperature	-25 - +55 °C (non-freezing)	
Storage temperature range	-40 to 70°C (Non-condensing)	
Ambient humidity	35 - 85%RH max. (Non-condensing)	
Dielectric withstanding/ Insulation resistance	Between power supply and case	1,500 VAC for 1 minute
	Between relay contact output and case	20 MΩ or higher
	Between relay contact output and power supply	(with 500 VDC megohmmeter)
Vibration	Between open collector output and case	1,000 VAC for 1 minute
	Between open collector output and power supply	20 MΩ or higher
	(with 250 VDC megohmmeter)	
Shock	500 m/s ² / 3 times each in 3 directions	
Connection	Terminal block	
Protective structure	IP40 (with case)	
Mass	About 9kg	

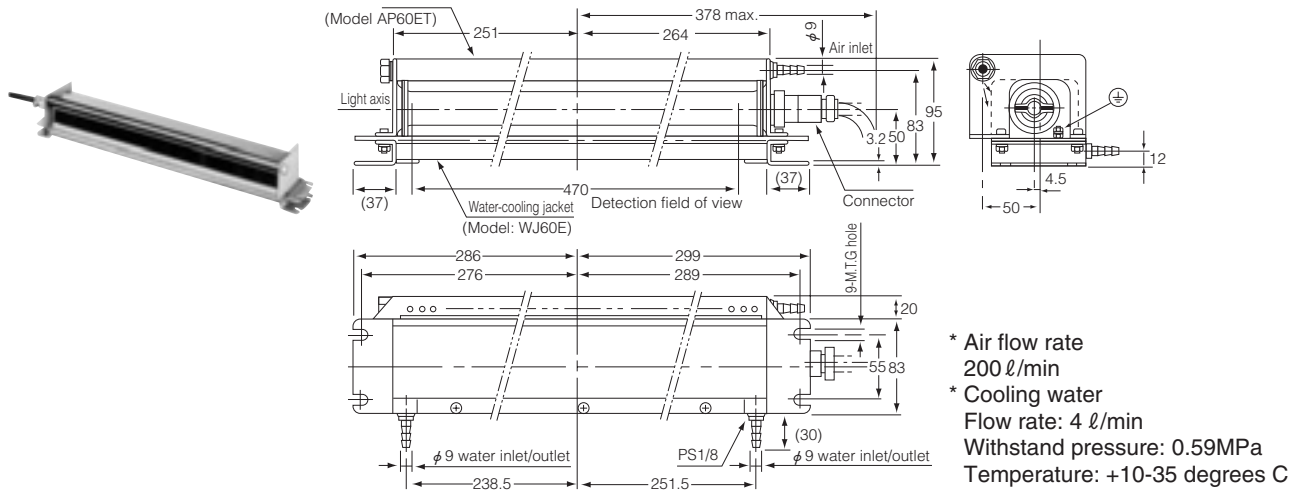
Dimension (in mm)



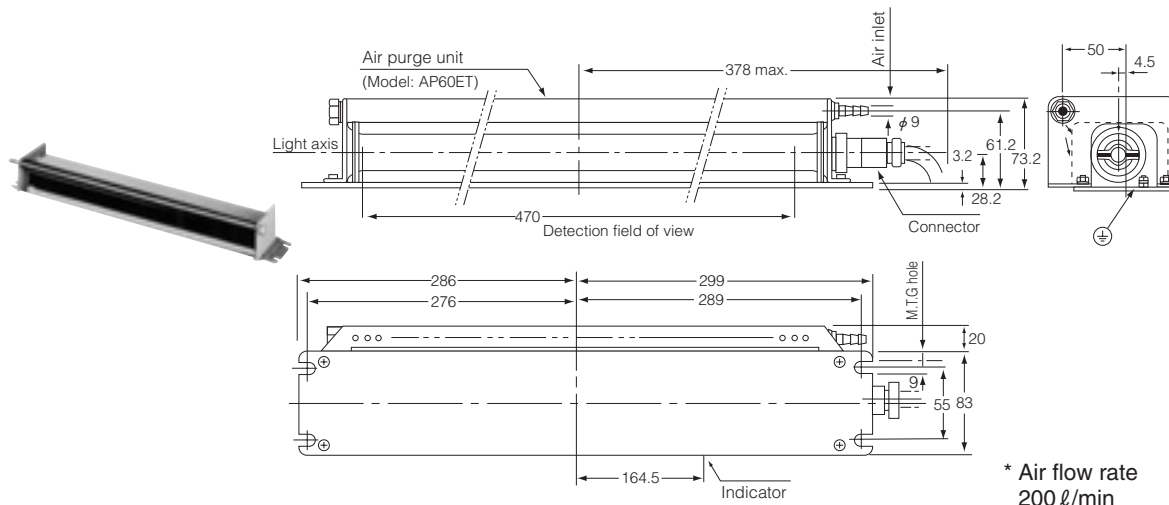
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Dimensions (in mm; transmitter/receiver)

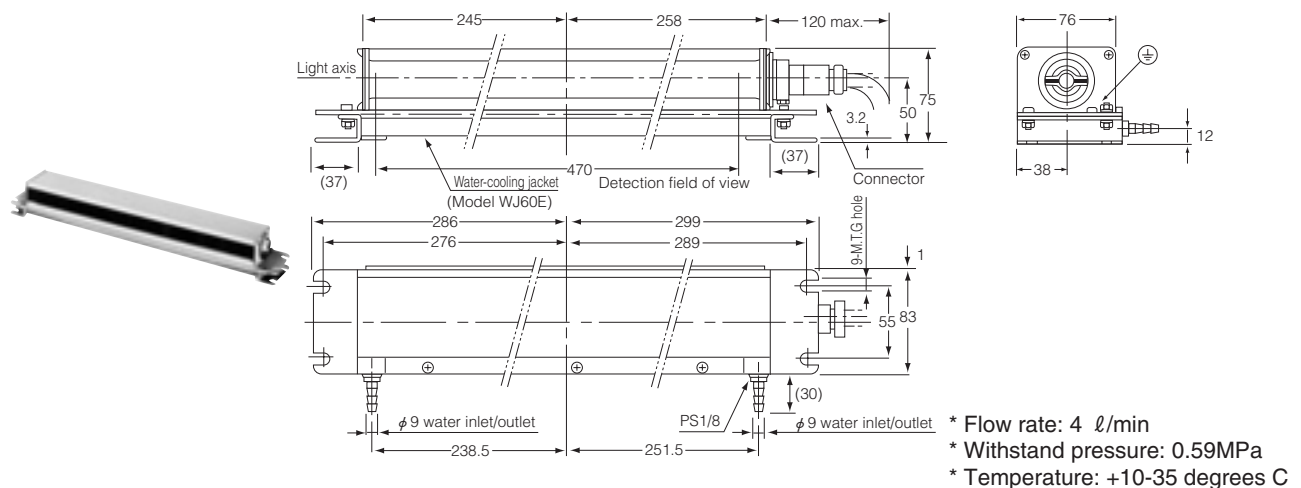
- With air purge unit and water-cooling jacket attached



- With air purge unit attached



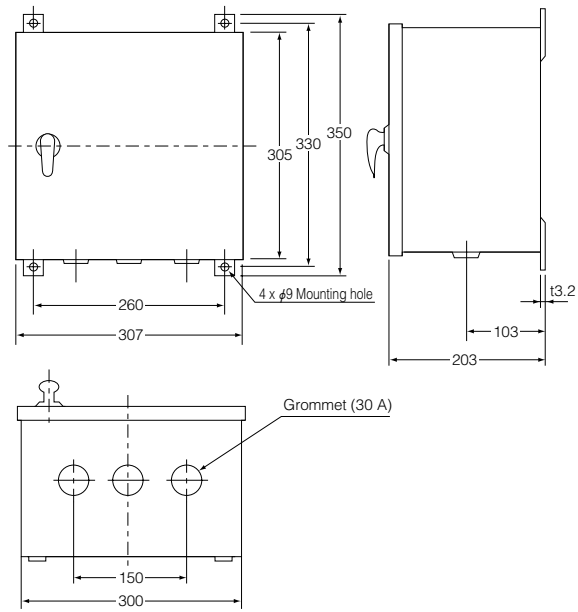
- With water-cooling jacket attached



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Dimensions (in mm; controller SWD55/SWD60)

With case



Without case

