

IPD system

Installation Type Iron Piece detector
For exclusive iron detection use



Catalogue No IPD-R05E

USE

Textile (non-woven, knit fabric, dyeing and finishing, carpet, lace), Apparel • Sewn product, Sanitary material, Paper • lumber (pulp, paper container), chemistry (rubber • plastic • film), Recycle (PET bottle, construction waste material • plastic)



Controller ATTER-IS600 series (L : Front side / R : Rear side)



Sensor IPD-9AS



Controller ATTER-DS

- Installed to production line or fabric inspection machine for wide products such as paper, textile, carpet, non-woven material or felt etc.

This machine can be used extensively for the detection of small ferrous objects such as chips, metallic wear debris, broken cutter blades, left tools or scissors, fish hooks contained in feed for animals, or in any case where contamination by ferrous objects are prohibited, contrarily, can also be used for notification of forgotten objects such as an IC tag or a deoxidizer.

- A variety of controller and sensor options for a wide range of needs.

There are 6 types of IPD system controller by functions. Optimum combination with IPD system sensor can be selected according to applications. Determination of the model depends on the product, detected metal size requirement, product line speed or installation environment.

- IPD system sensor is custom-made with short delivery time.

Custom-made and short delivery time (10 business days at earliest) plus optimum IPD system is installed in accordance with product width requirement and facility conditions.

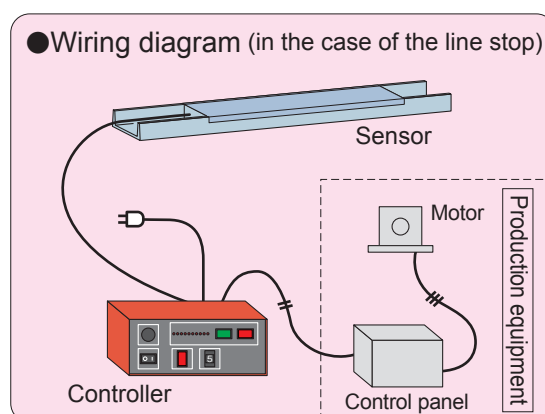
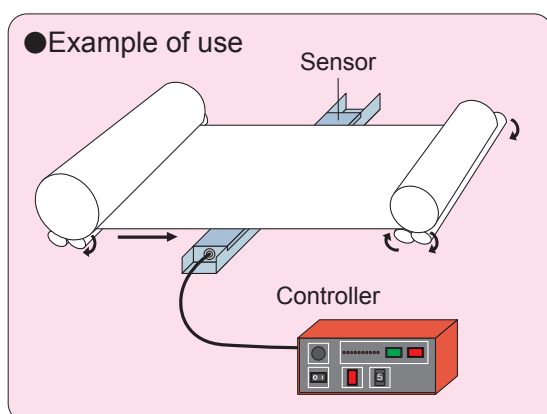
- Ferrous objects can be detected from a standstill (0m/min) to high speed production line.

The sensor is installed and functions with the generator principle with the combination of magnet and coil. The lower the inspection passing speed, the higher the electromotive force is required in order to detect ferrous particles sufficiently.

When the product line speed is 10m/min or lower, then the IPD system will give best detecting results in conjunction with the DB oscillator.

- Product line can be stopped in interlock with IPD system.

Product line can be stopped at detection of a ferrous object by contact output of the controller. (Please see explanation of the controller for details.) Since marking is performed at detection with the marking device (optional), a ferrous object can be removed post-process.



CONTROLLER

ATTER-DS High Sensitivity Type Controller



1. Multifunctional LED readout (LEVEL)

①Signal from sensor ②Alarm operation sensitivity setting (SENSE) ③Noise level are indicated.

2. Gain of amplification can be adjusted finely.

The amplifier built in to the controller amplifies weak signal from sensor at detection enough to process it electrically. Gain amplification can be adjusted by gain volume on the rear of controller between “low (left)” and “high (right)” finely in adjustment. It is usually recommended to adjust gain so that the LED readout lights up to the center when ferrous particle to be detected passes through sensor.

3. Alarm operating sensitivity setting (SENSE).

Alarm operating sensitivity for detection can be set in 10 increments from 0 to 9 on the digital switch. The relevant set value level lights up on LED readout. When the signal from the sensor is larger than or equal to the set value, the alarm is triggered. As the sensitivity is increased, alarm operation is performed with smaller ferrous objects. The sensitivity can be set to allow ferrous objects smaller than the minimum allowed to pass undetected.

4. Noise level

In some installation locations of IPD system, the sensor may receive electrical signals similar to or the same as the detection signal from nearby machinery etc. Since these signals or “Noise” is other than the detection signal, it may cause “false detection” when actually there is in fact no ferrous object. The noise filter at the input of amplifier compresses and removes them as noise. However, when the noise is too large, some lamps of super LED readout light up and shows noise level. When “SENSE” is set to lower detection level (larger numeric value) than noise level, alarm operation is performed with noise.

5. Cassette system high sensitive amplifier

Cassette system high sensitive amplifier built in to controller. It can be removed and replaced easily without controller disassembly even if failure occurs.

ATTER-ICA Standard Sensitivity Type Controller

1. Excellent cost performance long selling ATTER.
2. Differs from the ATTER-DS, alarm operating point is fixed and the size of ferrous particle to be detected is adjusted with amplification rate between high and low.



Multi-channel Controller (used in combination with multi-channel sensor)



ATTER-DS2 2 Channel Type Controller

2 ATTER-DS units integrated into one ATTER-DS2.



ATTER-DSM Multi-channel Type Controller

3-5 ATTER-DS units integrated into one ATTER-DSM unit.

As for ATTER-DSM, cassette replacement of amplifier is not available.

- Multi-channel type controller into which 2-5 ATTER-DS units are integrated. Used in a set with multi-channel sensor corresponding to the number of channels, which is easy to specify the location of contaminated ferrous object. (See explanation of the sensor for details.)
- More space saving compared with multiple ATTER-DS units.
 - * Specifically for multi-channel sensor use. If multiple sensors are installed to separate facilities and one multi-channel controller unit is connected, stable operation cannot be ensured.

SENSOR

1. Custom-made and short delivery time (10 business days at earliest) plus optimum IPD system is installed in accordance with product width requirement and facility conditions.

- Sensor is custom made between 0.5 and 10 m in short delivery time (10 business days at earliest) .
- 100mm over each end of the product width to be inspected are added for determination of effective width.
(Ex: product width to be inspected 1000mm+100mm+100mm = effective width)
Total length, pitch of the mounting holes and shape of mounting part of sensor can be ordered according to facility conditions.
- Sensor separation length which can be manufactured depends on sensor models. Please contact us for details of length.

2. Multi-channel type which is easy to specify the location of contaminated ferrous object

- It is divided into a number of channels internally in one sensor and used by connecting an amplifier to each channel.
(Ex: If sensor is divided into 4 channels, the following combinations can be selected;
① Two ATTER-IS600T units • ② Four ATTER-DS units • ③ Two ATTER-DS2 units • ④ One 4 channel type ATTER-DSM unit.)
- Since the location of contaminated ferrous object can be specified by channel width, it is suitable for wide product inspection.
- Division of sensor channels must be requested when the machine is ordered and it cannot be changed or modified post assembly.
- Dividable number of channels depends on sensor models and effective width. Please contact us for number of channels or controller to be combined with.

3. Oscillator is required for low speed product line.

- The sensor is installed and functions with the generator principle with the combination of magnet and coil. The lower the passing speed, the higher the electromotive force is required for the sufficient detection of ferrous objects. Border speed which requires the oscillator is 10m/min or lower. For line speeds of less than 10m/min, the IPD system gives best performance in combination with oscillator.
- Sensor which can be combined with the oscillator is IPD-9ASBT only. For details, please see explanation of oscillator.

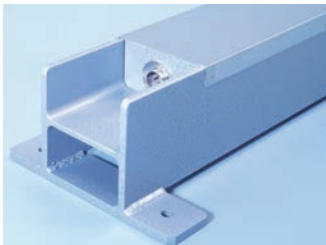


IPD-5ES Standard Type

1. Sensor cover : Stainless steel
 2. Usage in combination with oscillator is not available
 3. Dimensions (mm) : Approx 100(W) x 50(H) x ordering length
H type / Dimensions (mm) when total length is 3m or longer : Approx 100(W) x 100(H) x ordering length
- *Even if total length is under 3m, H type can be manufactured as needed.
*Outer appearances of IPD-9AS and 5ES is the same.

IPD-9AS/5ES

*If total length is 3m or longer, the H type shape will be supplied as below.

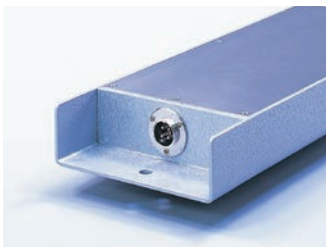


IPD-9AS High Sensitivity Type

1. Sensor cover : Stainless steel
 2. When adding oscillator, sensor type is IPD-9ASBT.
 3. Dimensions (mm) : Approx 100(W) x 50(H) x ordering length
H type / Dimensions (mm) when total length is 3m or longer : Approx 100(W) x 100(H) x ordering length
- *Even if total length is under 3m, H type can be manufactured as needed.
*Outer appearances of IPD-9AS and 5ES is the same.

IPD-9AS/5ES (H type)

*Shape when total length is 3m or longer.



IPD-11A Ultrahigh Sensitivity Type

1. Sensor cover : Stainless steel
 2. Usage in combination with oscillator is not available.
 3. Maximum effective width is 2.5m.
 4. Dimensions (mm) : Approx 150(W) x 62(H) x ordering length
- *Due to its construction, there are some effective widths which can not be manufactured. Please contact us.

IPD-11A







IPD-12A For thick product inspection

1. Tunnel type sensor suitable for thick product to be inspected. The product can be inspected from above and below.
2. Sensor cover : Stainless steel
3. Detection area can not be divided.
4. Usage in combination with oscillator is not available.
5. Maximum effective width is 2m.
Maximum detection height is 50mm.
6. Please contact us for dimensions.


IPD-12A

● Cross-sectional shape and length of sensor

	Cross-sectional shape				Maximum length
	Total length under 3m		Total length 3m or longer		
					
IPD-5ES	○	△*1	×	○	10m
IPD-9AS	○	△*1	×	○	10m
IPD-9ASBT	○	×	○*2	×	10m
IPD-11A	Special shape				2.5m
IPD-12A	Special shape				2m

○ : Available
× : Not available

*1. Even if total length is under 3m, H type can be manufactured as needed.

*2. Cross-sectional shape of IPD-9ASBT is  type even if total length is 3m or longer.

● Table of combination of controller and sensor

		CONTROLLER						OSCILLATOR DB series	Maximum length
		ATTER-ICA	ATTER-DS	ATTER-DS2	ATTER-DSM	ATTER-IS600S	ATTER-IS600T		
SENSOR	IPD-5ES	◎	△	△	△	△	△	×	10m
	IPD-9AS	△	◎	◎	◎	◎	◎	×	10m
	IPD-9ASBT	△	◎	◎	◎	◎	◎	◎	10m
	IPD-11A	△	○	△	△	◎	◎	×	2.5m
	IPD-12A	△	○	×	×	◎	×	×	2m
Marking device		○	○	○	○	○	○	○	—

◎Recommended combination ○Available combination △Available but recommended is ○. ◎This combination only ×Not available

Specification of controller

	Standard type ATTER-ICA	High sensitivity type ATTER-DS	High sensitivity 2 channel type ATTER-DS2	High sensitivity Multi-channel Type ATTER-DSM	Multifunctional type ATTER-IS600S	Multifunctional 2 channel type ATTER-IS600T
Detection performance ^{*1} *2	Magnetic substance of 5mg or more					Minimum 0.52mg of magnetic material
Sensitivity setting	Gain volume adjustment	10 increments of alarm operating point setting and gain volume adjustment			1023 increments of alarm operating point setting and gain volume adjustment	
Alarm	Buzzer, Alarm lamp					Buzzer, Screen display (option: alarm lamp)
Power voltage	AC100~250V 50/60Hz					AC85~264V 50/60Hz
Power consumption	10W		15W		30W	
Contact output	Detection output contact 1c	Detection output contact 1c	ATTER-DS 2 channels	ATTER-DS 3-5 channels	Detection output contact 1c	ATTER-IS600S 2 channels
	Capacity AC220V 2A, DC24V 20mA MAX.		Capacity AC250V 2A, DC48V 0.5A MAX.			Capacity AC250V 2A, DC30V 2A MAX.
	—					POWER ON output contact 1a Capacity AC250V 2A, DC30V 2A MAX.
External reset	Contact b input or open collector					Contact a input or open collector
External start	—					Contact a input or open collector
Dimensions Including terminal block and rubber foot	260(W)×180(D)×91(H)mm		140(W)×230(D)×261(H)mm	234(W)×231(D)×363(H)mm	185(W)×240(D)×166(H)mm (Excluding alarm lamp)	
Weight	Approx.2.7kg		Approx.4.4kg	Approx.14kg (In case of 5 channels)	Approx.3.6kg (Excluding alarm lamp)	

*1. Detection performance depends on product line speed and distance from detecting surface. Please contact us.

*2. Oscillator is required at the line speed of less than 10./min. Please contact us.

■ Precautions for use

The sensor generates a strong magnetic field. Keep objects influenced by magnetism away from sensor (medical electronics such as a pace makers, magnetic cards, watches etc.)

Important Precautions

*All products of needle detectors and metal detectors ATTER series are electronic devices so that should be used at a normal temperature.

*The specifications are subject to change without notice for improvement.

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