

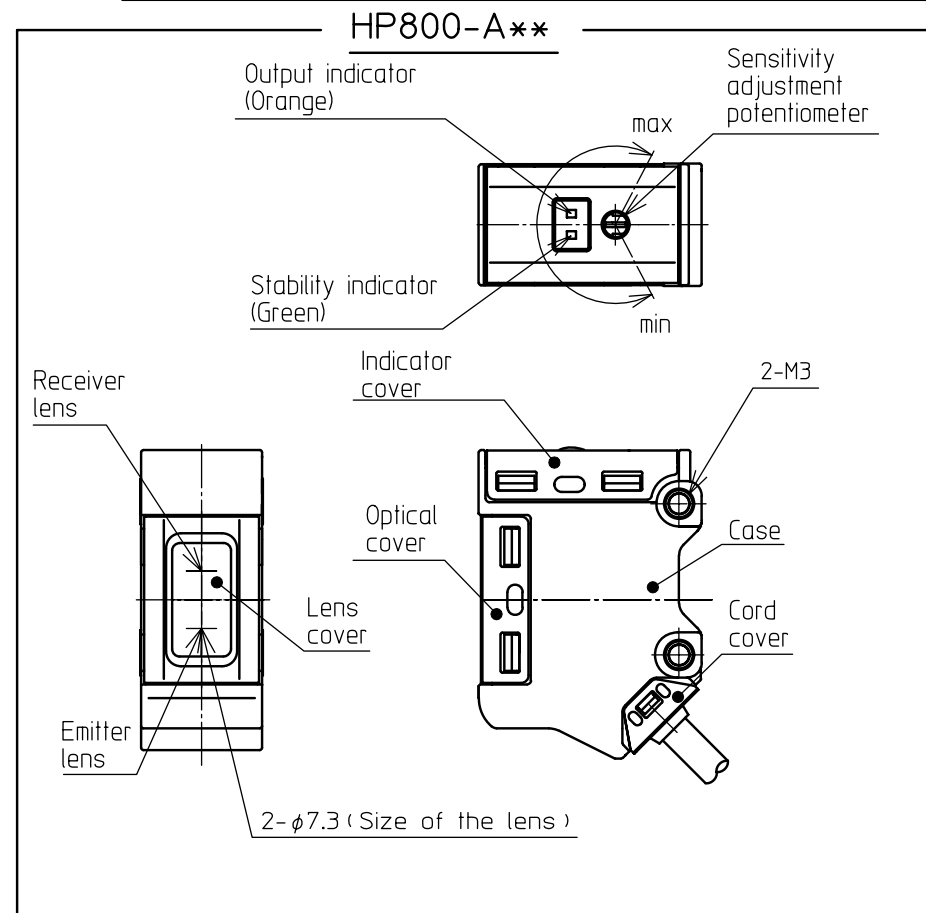
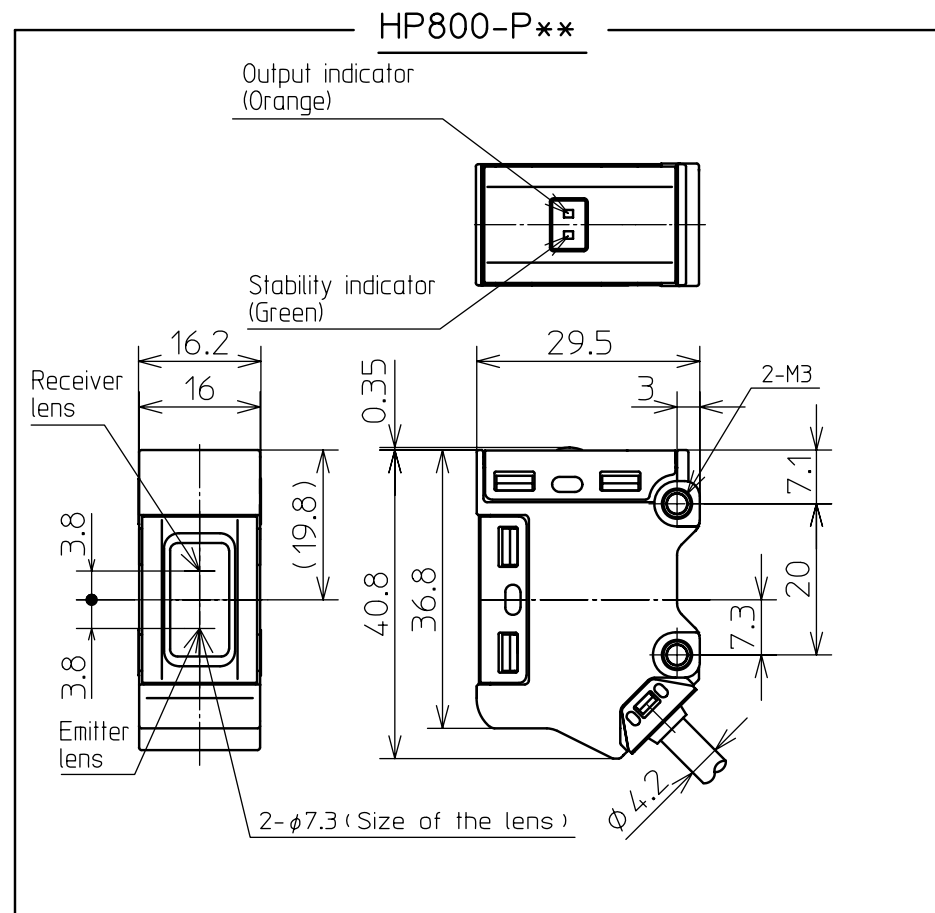
S.P. No.

**Yamatake Corporation**

**製品仕様書  
SPECIFICATIONS**

Polarized retroreflective scan	Diffuse scan	Through scan			Operating mode	Output
		Set	Emitter	Receiver		
HP800-P1L	HP800-A1L	HP800-T1L	HP800-E1	HP800-R1L	Light-on	Open collector of NPN transistor
HP800-P1D	HP800-A1D	HP800-T1D		HP800-R1D		
HP800-P2L	HP800-A2L	HP800-T2L	HP800-E1	HP800-R2L	Light-on	Open collector of PNP transistor
HP800-P2D	HP800-A2D	HP800-T2D		HP800-R2D		

**DIMENSIONS**



**Cord length**

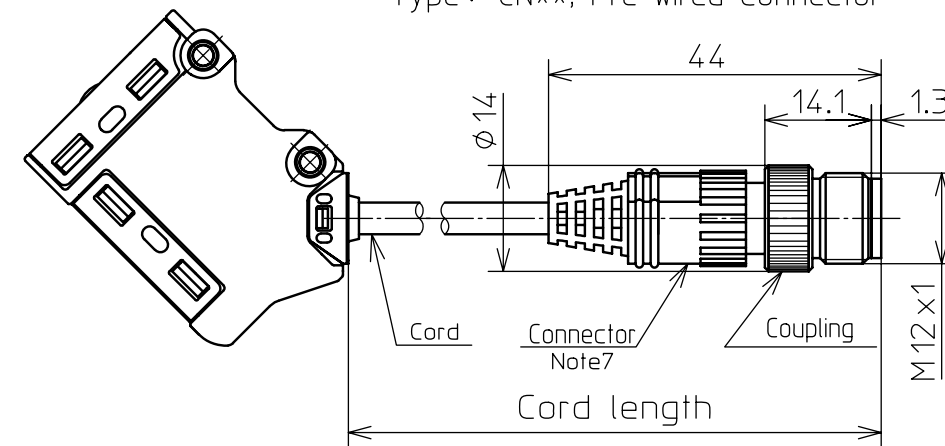
Catalog listing	Cord length	Wiring type
HP800-***-LP5	500min	with cord
HP800-***	2,000min	
HP800-***-L05	5,000min	with pre-wired connector
HP800-***-CN03	300min	
HP800-***-CN05	500min	
HP800-***-CN1	1,000min	

- Catalog listing, product rev. No. and date code are printed on the case and cord.
- The through scan emitter has only a power indicator.
- The diffuse scan type photoelectric switch has a sensitivity adjustment potentiometer.
- Effective lens diameter : 7.3mm
- Material (Photoelectric switch)

Case : Zinc alloy coated with black fluorocarbon resin  
 Indicator cover : Stainless steel plate coated with black fluorocarbon resin  
 Optical cover : Stainless steel plate with chromate treatment  
 Cord cover : Stainless steel plate with chromate treatment  
 Lens cover : Soda glass  
 Mounting screws (2-M3×10) : Chromium molybdenum steel with chromate treatment (Connector)  
 Body : Gray polyester elastomer  
 Pins : Gold-plated brass  
 Coupling : Nickel-plated brass  
 Cord : Oil-resistant PVC, 0.2mm<sup>2</sup> wire, outside dia. 4.2mm  
 Sheath color : Gray(except through scan emitter)  
                   : Black(through scan emitter only)

- A dedicated mounting bracket, HP800-B01(sold separately), is available.
- Please use the "PA5" series (DC type) of our VA connector.
- UL LISTED PRODUCT  
 UL FILE No.E252012  
 ENCLOSURE TYPE 1  
 RATINGS POWER SUPPLY: 12/24VDC, CLASS 2  
 OUTPUT: I max. 100mA  
 MAXIMUM AMBIENT TEMPERATURE: 60℃

Type :-CN\*\*, Pre-wired connector



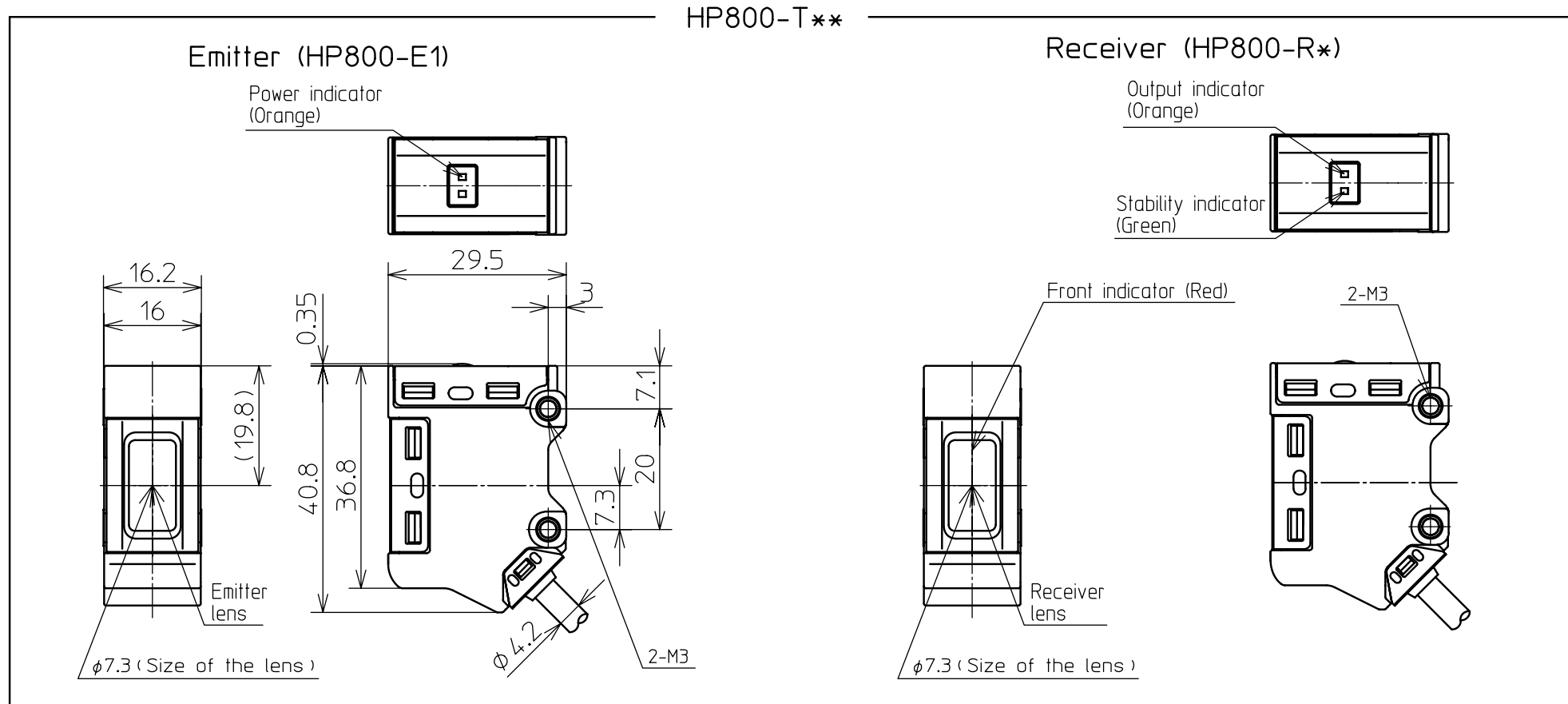
角度	~	±1.5°	
長さ	30	120	±0.8
	6	30	±0.5
	3	6	±0.3
		3	±0.2
を越え 以下 寸法区分		記入のない公差	

4 04  
3 04  
2 04  
PAGE REV.

作成DR. T.Fukuda March,21'06	検図CHK. T.Nonaka March,24'06	認可APPD. S.Suzuki March,24'06	日付DATE March,31'06	尺度SCALE 1:1	記入のない公差 TOL. UNLESS NOTED 上記参照
04	ECOP09-2042	Dec,1'09	T.Hosoi M.Tanaka	形番 MODEL	HP800 series
03	ECO07-2642	Dec,25'07	T.Fukuda S.Nonaka	名称 NAME	Photoelectric switch
02	ECO07-0261	Feb,05'07	T.Fukuda T.Koike	図番 NO.	AD14410E
01	ECO06-3307	Dec,01'06	T.Fukuda T.Koike	改番REV.	04 / 4
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.	

S.P. No.

DIMENSIONS



Handling Precaution

- \* Precautions for installation
  - Use the included mounting screws for installation. The recommended tightening torque is 1.6-2.1N·m. If screws other than the included ones are used, be sure that they extend into this product at least 5mm. Also, note that the use of stainless steel screws with this product can lead to corrosion.
  - When installing this product in corrosive surroundings (unless the corrosive element is cutting oil), mount through the HP800-PA01 spacer (sold separately).
  - Tighten the connector firmly by hand. The recommended tighten torque is 0.4-0.6N·m.
  - Turn the sensitivity adjustment potentiometer with a torque of 0.05N·m or less. Otherwise it might be damaged.
  - The lens cover is made of glass and can be damaged by a direct shock. Do not use this product in an application where broken glass might create a dangerous state.
  - Oil resistant cable is used, but water-insoluble coolant and machine oil could make the cable hardened or deteriorated. That might lead sealing failure and using under those oil is not recommended. Also protect end of cable from water, coolant and oil.
- \* Disposal
  - Do not incinerate this product. It contains fluorocarbon resin and PVC substances that expel poisonous gases when burned. When discarding the HP800, dispose of it properly as industrial waste in accordance with local regulations.

角度	~	±1.5°
長さ	30 120	±0.8
	6 30	±0.5
	3 6	±0.3
	3	±0.2
	を越え 以下 寸法区分	記入のない公差

作成DR. T.Fukuda March.21'06	検図CHK. T.Nonaka March.24'06	認可APPD. S.Suzuki March.24'06	日付DATE March.31'06	尺度SCALE 1:1	記入のない公差 TOL. UNLESS NOTED 上記参照
形番 MODEL	HP800 series				
名称 NAME	Photoelectric switch				
図番 NO.	AD14410E				改番REV. 04

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# Yamatake Corporation

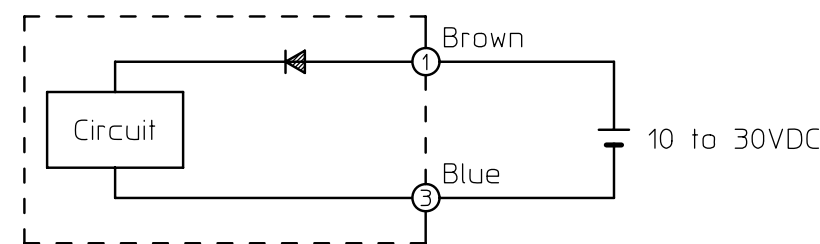
## 製品仕様書 SPECIFICATIONS

### SPECIFICATIONS

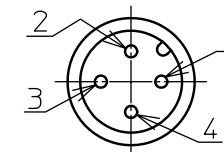
Catalog listing	HP800-P**	HP800-T**	HP800-A**
Scanning type	Polarized retroreflective scan	Through scan	Diffuse scan
Supply voltage	10 to 30VDC (ripple 10% max.)		
Current consumption	13mA max.	27mA max. Emitter:16mA max. Receiver:11mA max.	16mA max.
Scanning distance	0.05 to 4.5m (Reflector:FE-RR8)	15m	0.77m
Target	Opaque materials more than $\phi 80$ (Reflector : FE-RR8)	Opaque materials more than $\phi 9$	White paper (KODAK Graycard 90%) 300X300mm
Operating angle	Sensor : 0.5 to 10° / Reflector : 20° min.	2 to 20°	
Hysteresis			20% max. of scanning distance
Operating mode	HP800-**L : Light-on / HP800-**D : Dark-on		
Output mode	HP800-**1LorD : Open collector of NPN transistor (N-MOS FET is used for output device) HP800-**2LorD : Open collector of PNP transistor (P-MOS FET is used for output device)		
Output	Load current : 100mA (resistive load), Output withstand voltage : 30V, Saturation voltage : 3V max. (at 100mA load current) Short circuit protection		
Response time	500 $\mu$ s max.		
Light source	Red LED	Infrared LED	
Indicator	except HP800-E1 : Orange 'ON' with output / Green 'ON' with stable light and stable dark HP800-E1 : Orange 'ON' with power on HP800-R** : Front indicator Red 'ON' with light receiving		
Ambient light	Incandescent light : 10,000lx max. / Sunlight : 40,000lx max.		
Operating temperature	-30 to +60°C (without condensation)		
Humidity	35 to 85%RH (without condensation)		
Insulation resistance	20M $\Omega$ min. (at 500VDC)		
Dielectric strength	1000VAC 50/60Hz 1 minute		
Vibration	10 to 55Hz 1.5mm double amplitude 2 hours in each direction of X,Y,Z		
Shock	1000m/s <sup>2</sup> 10 times in each direction of X,Y,Z		
Sealing	IP67 (IEC standard) IP67g (JEM standard) (without connector parts)		
Mass	Approx.105g (only sensor with cable 2m)		
Protection	False pulse protection (8ms typ.) wrong wiring protection		
ELECTROSTATIC DISCHARGES (ESD)	LEVEL 3 (EN61000-4-2:1995/A1:1998/A2:2001)		
RADIATED RADIO-FREQUENCY ELECTROMAGNETIC FIELDS (RS)	LEVEL 2 (EN61000-4-3:2001/A1:2002)		
ELECTRICAL FAST TRANSIENTS (EFT)	LEVEL 3 (EN61000-4-4:1995/A1:2001/A2:2001)		
CONDUCTED SUSCEPTIBILITY (CS)	LEVEL 2 (EN61000-4-6:1996/A1:2001)		

### WIRING

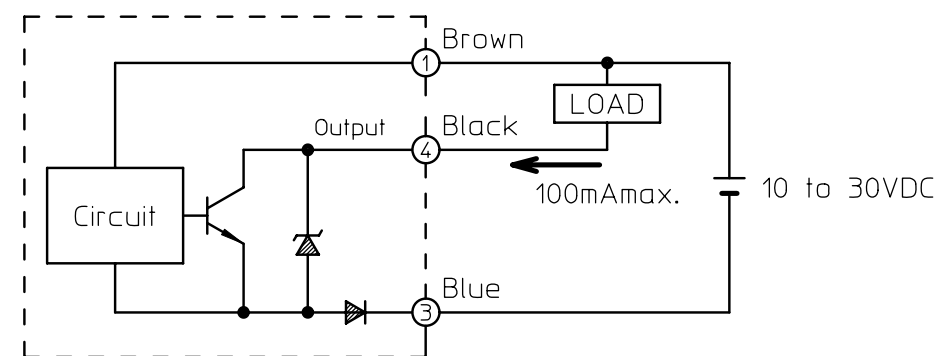
Through scan emitter



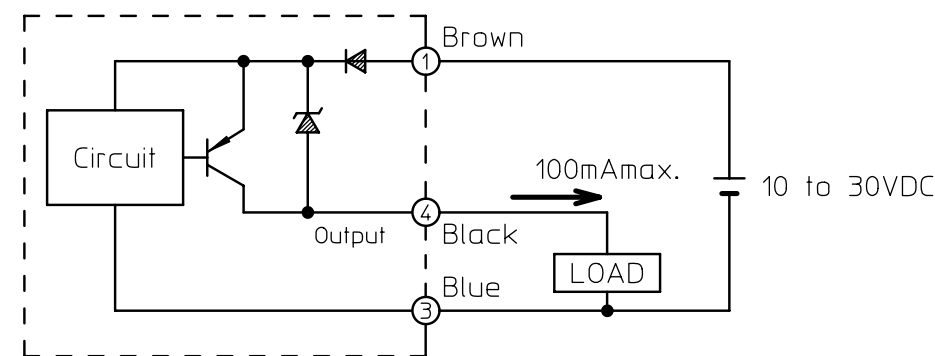
pre-wired connector  
pin layout



NPN Type : Polarized retroreflective scan  
Through scan receiver  
Diffuse scan



PNP Type : Polarized retroreflective scan  
Through scan receiver  
Diffuse scan



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改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

作成DR. T.Fukuda Aug.25'06	検図CHK. T.Koike Aug.29'06	認可APPD. S.Suzuki Sep.05'06	日付DATE Sep.8'06	尺度SCALE	記入のない公差 TOL. UNLESS NOTED
形番 MODEL	HP800 series				
名称 NAME	Photoelectric switch				
図番 NO.	AD14410E	改番REV. 04	3		



SP. NO.	Yamatake Corporation		製品仕様書 SPECIFICATIONS			
	<b>Terms and Conditions</b>					
	<p>We would like to express our appreciation for your purchase and use of Yamatake products.  You are required to acknowledge and agree upon the following terms and conditions for your purchase of Yamatake products (field instruments, control valves, and control products), unless otherwise stated in any separate document, including, without limitation, estimation sheets, written agreements, catalogs, specifications and instruction manuals.</p>					
	<p><b>1 Warranty period and warranty scope</b></p>					
	<p><b>1.1 Warranty period</b>  Yamatake products shall be warranted for one (1) year from the date of your purchase of the said products or the delivery of the said products to a place designated by you.</p>					
	<p><b>1.2 Warranty scope</b>  In the event that Yamatake product has any failure attributable to Yamatake during the aforementioned warranty period, Yamatake shall, without charge, deliver a replacement for the said product to the place where you purchased, or repair the said product and deliver it to the aforementioned place.  Notwithstanding the foregoing, any failure falling under one of the following shall not be covered under this warranty:</p>					
	<p>(1) Failure caused by your improper use of Yamatake product  (noncompliance with conditions, environment of use, precautions, etc. set forth in catalogs, specifications, instruction manuals, etc.);</p>					
	<p>(2) Failure caused for other reasons than Yamatake product;</p>					
	<p>(3) Failure caused by any modification or repair made by any person other than Yamatake or Yamatake's subcontractors;</p>					
	<p>(4) Failure caused by your use of Yamatake product in a manner not conforming to the intended usage of that product;</p>					
	<p>(5) Failure that the state-of-the-art at the time of Yamatake's shipment did not allow Yamatake to predict; or</p>					
	<p>(6) Failure that arose from any reason not attributable to Yamatake, including, without limitation, acts of God, disasters, and actions taken by a third party.</p>					
	<p>Please note that the term "warranty" as used herein refers to equipment-only-warranty, and Yamatake shall not be liable for any damages, including direct, indirect, special, incidental or consequential damages in connection with or arising out of Yamatake products.</p>					
	<p><b>2 Ascertainment of suitability</b>  You are required to ascertain the suitability of Yamatake product in case of your use of the same with your machinery, equipment, etc. (hereinafter referred to as "Equipment") on your own responsibility, taking the following matters into consideration:</p>					
	<p>(1) Regulations and standards or laws that your Equipment is to comply with.</p>					
	<p>(2) Examples of application described in any documents provided by Yamatake are for your reference purpose only, and you are required to check the functions and safety of your Equipment prior to your use.</p>					
	<p>(3) Measures to be taken to secure the required level of the reliability and safety of your Equipment in your use  Although Yamatake is constantly making efforts to improve the quality and reliability of Yamatake products, there exists a possibility that parts and machinery may break down.  You are required to provide your Equipment with fool-proof design, fail-safe design, anti-flame propagation design, safety design, or the like so that the said Equipment may satisfy the level of the reliability and safety required in your use, whereby preventing any occurrence of physical injuries, fires, significant damage, and so forth.</p>					
	<p><b>3 Precautions and restrictions on application</b>  Yamatake products other than those explicitly specified as applicable (e.g. Yamatake Limit Switch For Nuclear Energy) shall not be used in a nuclear energy controlled area (radiation controlled area).  Any Yamatake products shall not be used for/with medical equipment.  In addition,  you are required to conduct a consultation with our sales representative and understand detail specifications, cautions for operation, and so forth by reference to catalogs, specifications, instruction manual, etc. in case that you intend to use Yamatake product for any purposes specified in (1) through (6) below.  Moreover, you are required to provide your Equipment with fool-proof design, fail-safe design, anti-flame propagation design and other designs of protection/safety circuit on your own responsibility to ensure the reliability and safety, whereby preventing problems caused by failure or nonconformity.</p>					
	<p>(1) For use under such conditions or in such environments as not stated in technical documents, including catalogs, specification, and instruction manuals</p>					
	<p>(2) For use of specific purposes, such as:</p>					
	<p style="padding-left: 40px;">* Nuclear energy/radiation related facilities  [For use outside nuclear energy controlled areas]  [For use of Yamatake Limit Switch For Nuclear Energy]</p>					
	<p style="padding-left: 40px;">* Machinery or equipment for space/sea bottom</p>					
	<p style="padding-left: 40px;">* Transportation equipment  [Railway, aircraft, vessels, vehicle equipment, etc.]</p>					
	<p style="padding-left: 40px;">* Antidisaster/crime-prevention equipment</p>					
	<p style="padding-left: 40px;">* Burning appliances</p>					
	<p style="padding-left: 40px;">* Electrothermal equipment</p>					
	<p style="padding-left: 40px;">* Amusement facilities</p>					
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