

S.R. No.  
600-9-003-0

Yamatake Corporation

製品仕様書  
SPECIFICATIONS

CATALOG LISTING 1 L S - J 1 2 H

↳ High temperature

1 ACTUATOR TYPE

Code	Actuator Type
500	Standard roller lever
501	Without lever
503	Adjustable. roller lever

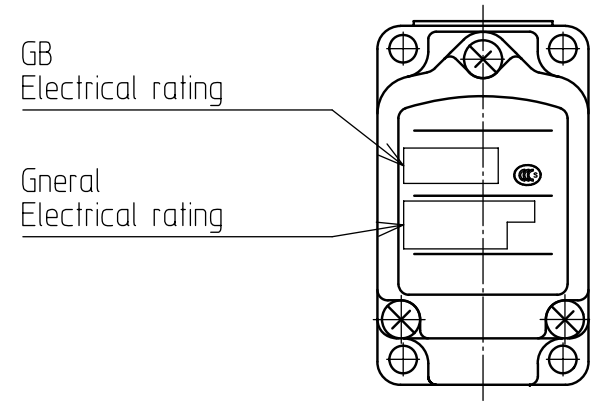
2 INTERNAL SWITCH

Code	Switch
~	General use silver contact
K	Gold plated contact for low current load

Catalog listings and electrical ratings covered by this drawing are as in the below table.

Catalog listing	Electrical rating	
	Gneral	GB
1LS-J500H 1LS-J501H 1LS-J503H	10A-125,250 OR 480VAC 1/2HP-125VAC : 1HP-250VAC 0.8A-125VDC 0.4A-250VDC "Y16"	3A-240VAC AC-15 0.4A-30VDC DC-12
1LS-J500KH 1LS-J501KH 1LS-J503KH	0.1A-125VAC 0.1A-30VDC "Y93"	0.1A-125VAC AC-12 0.1A-30VDC DC-12

ELECTRICAL RATING LOCATION



CATALOG LISTINGS OF INTERNAL SWITCH

Catalog listings	Catalog listings internal switch
1LS-J*** <span style="border: 1px solid black; padding: 0 2px;">~</span> H	2MN24-J
1LS-J*** <span style="border: 1px solid black; padding: 0 2px;">K</span> H	2MN24-JK

5 02  
4 02  
3 02  
2 02  
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02	ECO06-2442	10,24,'06	SAKIYAMA	TOMITA
01	JE099-1280	6,30,'99	TATSUHARA	TOMITA
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

作成DR. TATSUHARA 4, 21, '99		尺度 SCALE UN	記入のない公差 TOL. UNLESS NOTED ~
検図CHK. TOMITA 5, 7, '99	形番 MODEL	1LS-J****H	
認可APPD ABE 5, 11, '99	名称 NAME	LIMIT SWITCH	
日付 DATE 5, 11, '99	図番 NO.	AD53367E	改番REV. 02 / 1/5

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## 製品仕様書 SPECIFICATIONS

### 1. STANDARDS

- Conform to: JIS C 4508
- Approved by: GB14048.5 : 2001  $\triangle$
- CQC No. : 2003010305083775

### 2. STRUCTURE

- Type of contact: Two-circuit double-break  $\triangle$
- Shape of contact: Rivet
- Protective structure: IP67 (IEC 60529)  $\triangle$   
(JIS C 0920)  $\triangle$
- Shape of terminal: Screw (M4 binding head screw with toothed lock washer)

### 3. ELECTRICAL CHARACTERISTICS

- Insulation resistance and dielectric strength:

Property Parts measured	Insulation resistance (with 500Vdc megger)	Dielectric strength (50/60Hz, for 1 minute)
Between terminals of same polarities $\triangle$	100 M $\Omega$ min. $\triangle$	1000 Vac
Between each terminal and non-live metal part	100 M $\Omega$ min. $\triangle$	2000 Vac

- Contact resistance

Silver contacts:

50 m $\Omega$  max. (initial) Measured by the voltage drop method at 6 to 8 Vdc 1A.

Gold plated contacts:

100 m $\Omega$  max. (initial) Measured by the voltage drop method at 6 to 8 Vdc 0.1A.

- Minimum contact operating current

Silver contacts: 24V at 10mA, 12V at 20mA

Gold plated contacts: 5V at 10mA

作成DR. TATSUHARA 4, 21, '99		尺度 SCALE UP	記入のない公差 TOL. UNLESS NOTED ~
検図CHK. TOMITA 5, 7, '99	形番 MODEL	1LS-J****H	
認可APPD ABE 5, 11, '99	名称 NAME	LIMIT SWITCH	
日付 DATE 5, 11, '99	図番 NO.	AD53367E	改番REV. 2/5



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		02	UL	10,24,'06	SAKIYAMA	TOMITA

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## 製品仕様書 SPECIFICATIONS

### 4. MECHANICAL CHARACTERISTICS (Value at 38.1mm long lever)

- Actuator strength: Withstands **5** times O.F. in the operating direction for 1 minute.
- Terminal strength: Withstands **1.5N·m** tightening torque applied for 1 minute. 
- Shock:  At **300 m/s<sup>2</sup>**, contact misoperation is 1ms max. in the free position and in the total travel position.
- Vibration: With a vibration peak-to-peak amplitude of 1.5mm and frequency of 10 to 55Hz for 2 continuous hours, contact misoperation is 1ms max. in the free position and in the total travel position.
- Allowable operating speed: **1.7 mm/s to 0.5 m/s**  
 At the lowest speed, contact instability lasts 0.1s max.  
 At the highest speed, the actuator is not damaged.
- Mechanical operating frequency: **60 cycles/minute** max.

### 5. LIFE

- Mechanical life: **2000** k cycles min. at 70 to 100% of the rated O.T.
- Electrical life:











Code of internal switch	Condition	Operation cycle
~	Rated load and 6A-30Vdc	500k cycles min.
K	Rated load	2000k cycles min.


The chart assumes an operation frequency of 20 cycles a minute.

### 6. ENVIRONMENTAL CHARACTERISTICS

- Operating Temperature; **-10 to 120** °C (at no dewing)
- Operating Humidity ; **98** %RH max.

### 7. RECOMMENDED TIGHTENING TORQUE

- For mounting the switch on a panel: **5 to 6 N·m**  (M5 hex. socket head cap screw) 
- For mounting the lever on the switch: **4 to 5.2 N·m**  (M5 hex. socket head cap screw) 
- For mounting the terminal on the switch: **1.0 to 1.4 N·m**  (M4 binding head screw with toothed lock washer) 
- For mounting the cover on the housing: **1.3 to 1.7 N·m**  (M4 pan head screw with spring lock washer) 
- For mounting the head on the housing: **0.8 to 1.2 N·m**  (M3.5 pan head screw with spring lock washer) 

作成DR. TATSUHARA 4, 21, '99		尺度 SCALE C/D	記入のない公差 TOL. UNLESS NOTED ~
検図CHK. TOMITA 5, 7, '99	形番 MODEL	1LS-J****H	
認可APPD. ABE	名称 NAME	LIMIT SWITCH	
日付 DATE 5, 11, '99	図番 NO.	AD53367E	改番 REV. 3/5

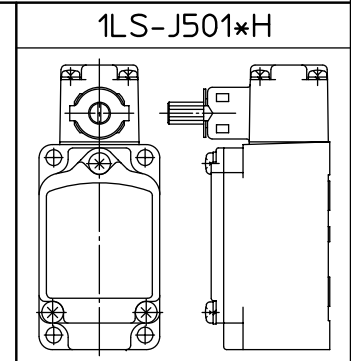
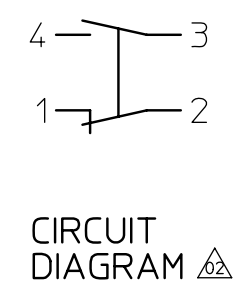
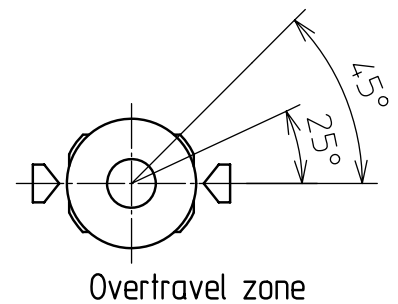
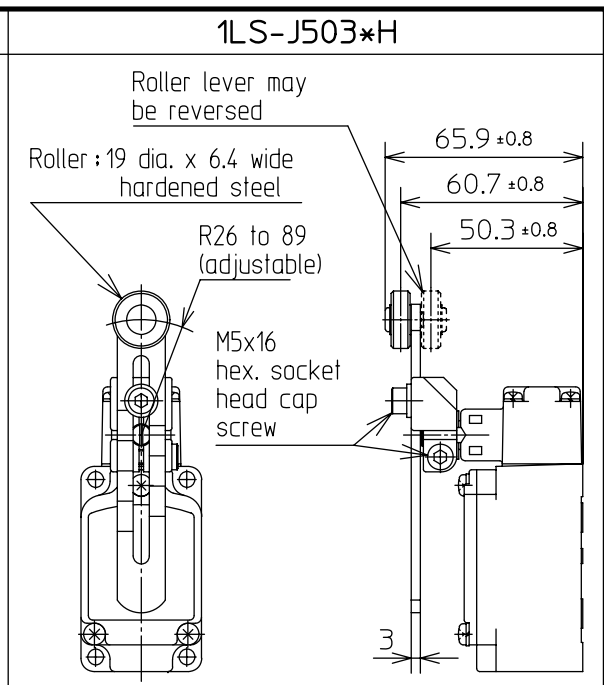
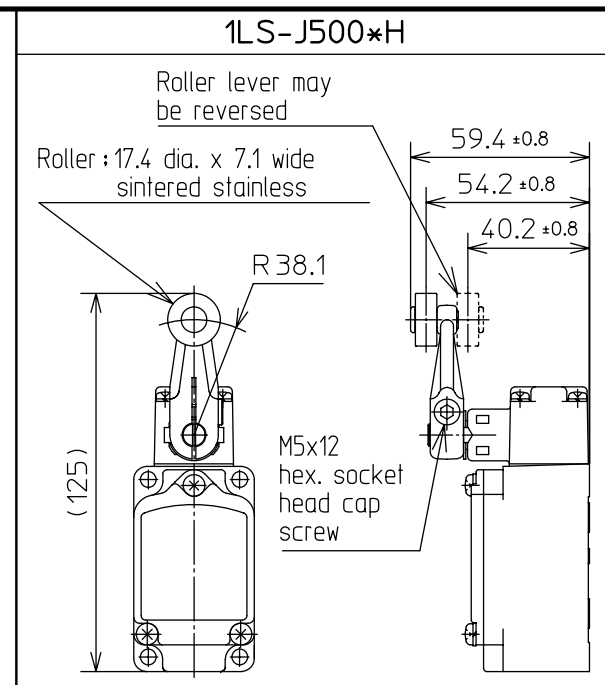
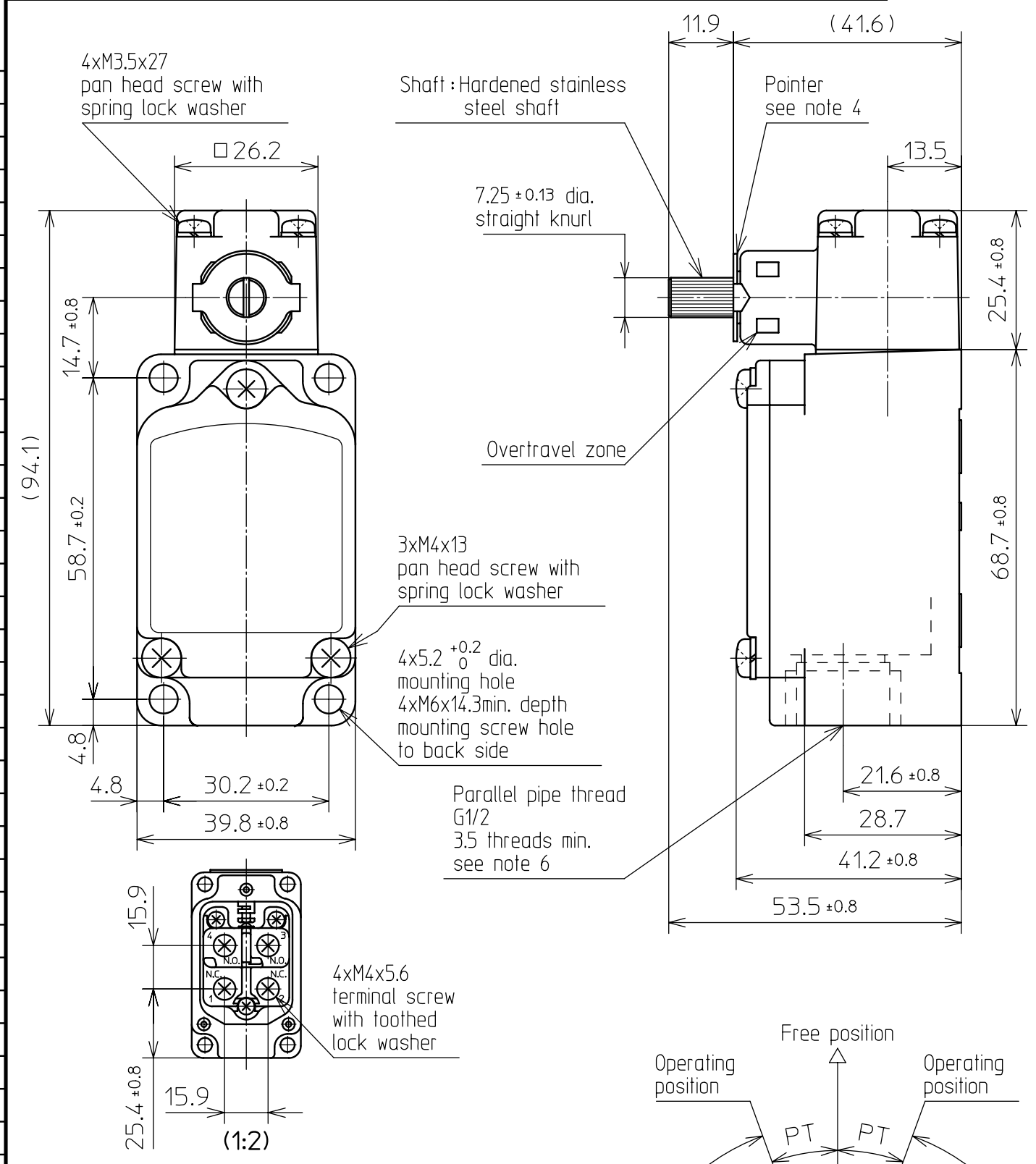
02	~	10,24,'06	SAKIYAMA	TOMITA		
01	SI {MKS} → SI	6,30,'99	TATSUHARA	TOMITA		
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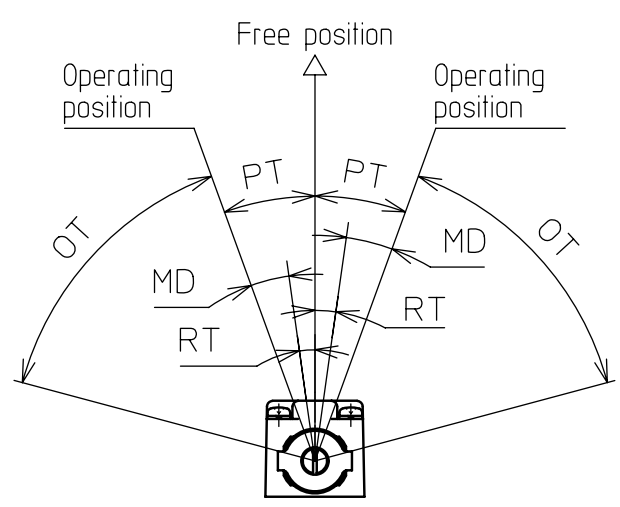
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SPECIFICATIONS



Characteristics		
Operating force	8.9 N max.	△
Release force	0.98N min.	△
Pretravel	20' max.	
Movement differential	12' max.	
Overtravel	55' min.	
Release travel	5' min.	



- Notes
1. This switch actuates in either direction.
  2. Aluminum alloy housing, cover and head are finished with glossy aclyic resin baking paint (Light beige, Munsell 4Y7.18/1.27).
  3. Actuator head mounts in any of for positions.
  4. Set lever shaft so that pointer tip can meet setting mark at overtravel zone.
  5. Roller lever may be locked in any position through 360'.
  6. Before using this switch, be sure the conduit is sealed.
  7. Values given for O.F. or R.F.(among the mechanical characteristics) are for a lever length of 38.1.

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作成DR. TATSUHARA 4. 21. '99	検図CHK. TOMITA 5. 7. '99	認可APPD ABE 5. 11. '99	日付DATE 5. 11. '99	尺度SCALE 1:1	記入のない公差 TOL. UNLESS NOTED ±0.4 ANGLES ±3'
02	UNIFIED	10,24,'06	SAKIYAMA	TOMITA	形番 MODEL 1LS-J****H
01	SI (MKS) → SI	6,30,'99	TATSUHARA	TOMITA	
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.	名称 NAME LIMIT SWITCH
					図番 NO. AD53367E
					改番REV. 02 / 5

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Yamatake Corporation

製品仕様書  
SPECIFICATIONS**Terms and Conditions**

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.

**1 Warranty period and warranty scope****1.1 Warranty period**

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.

**1.2 Warranty scope**

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:

- (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.);
- (2) Failure caused for other reasons than Yamatake product;
- (3) Failure caused by any modification or repair made by any person other than Yamatake or Yamatake's subcontractors;
- (4) Failure caused by your use of Yamatake product in a manner not conforming to the intended usage of that product;
- (5) Failure that the state-of-the-art at the time of Yamatake's shipment did not allow Yamatake to predict; or
- (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.

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.

**2 Ascertainment of suitability**

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:

- (1) Regulations and standards or laws that your Equipment is to comply with.
- (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.
- (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.

**3 Precautions and restrictions on application**

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.

- (1) For use under such conditions or in such environments as not stated in technical documents, including catalogs, specification, and instruction manuals
- (2) For use of specific purposes, such as:
  - \* Nuclear energy/radiation related facilities  
[For use outside nuclear energy controlled areas]  
[For use of Yamatake Limit Switch For Nuclear Energy]
  - \* Machinery or equipment for space/sea bottom
  - \* Transportation equipment  
[Railway, aircraft, vessels, vehicle equipment, etc.]
  - \* Antidisaster/crime-prevention equipment
  - \* Burning appliances
  - \* Electrothermal equipment
  - \* Amusement facilities

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				<p>(3) Supply systems such as electricity/gas/water supply systems, large-scale communication systems, and traffic/air traffic control systems requiring high reliability</p> <p>(4) Facilities that are to comply with regulations of governmental/public agencies or specific industries</p> <p>(5) Machinery or equipment that may affect human lives, human bodies or properties</p> <p>(6) Other machinery or equipment equivalent to those set forth in items (1) to (5) above which require high reliability and safety</p>	
		<p><b>4 Precautions against long-term use</b></p> <p>Use of Yamatake products, including switches, which contain electronic components, over a prolonged period may degrade insulation or increase contact-resistance and may result in heat generation or any other similar problem causing such product or switch to develop safety hazards such as smoking, ignition, and electrification.</p> <p>Although acceleration of the above situation varies depending on the conditions or environment of use of the products, you are required not to use any Yamatake products for a period exceeding ten (10) years unless otherwise stated in specifications or instruction manuals.</p>			
		<p><b>5 Recommendation for renewal</b></p> <p>Mechanical components, such as relays and switches, used for Yamatake products will reach the end of their life due to wear by repetitious open/close operations.</p> <p>In addition, electronic components such as electrolytic capacitors will reach the end of their life due to aged deterioration based on the conditions or environment in which such electronic components are used.</p> <p>Although acceleration of the above situation varies depending on the conditions or environment of use, the number of open/close operations of relays, etc. as prescribed in specifications or instruction manuals, or depending on the design margin of your machine or equipment, you are required to renew any Yamatake products every 5 to 10 years unless otherwise specified in specifications or instruction manuals.</p> <p>Field instruments (sensors such as pressure/flow/level sensors, regulating valves, etc.) will reach the end of their life due to aged deterioration of parts.</p> <p>For those parts that will reach the end of their life due to aged deterioration, recommended replacement cycles are prescribed. You are required to replace parts based on such recommended replacement cycles.</p>			
		<p><b>6 Other precautions</b></p> <p>Prior to your use of Yamatake products, you are required to understand and comply with specifications (e.g., conditions and environment of use), precautions, warnings/cautions/notices as set forth in the technical documents prepared for individual Yamatake products, such as catalogs, specifications, and instruction manuals to ensure the quality, reliability, and safety of those products.</p>			
		<p><b>7 Changes to specifications</b></p> <p>Please note that the descriptions contained in any documents provided by Yamatake are subject to change without notice for improvement or for any other reason.</p> <p>For inquires or information on specifications as you may need to check, please contact our branch offices or sales offices, or your local sales agents.</p>			
		<p><b>8 Discontinuance of the supply of products/parts</b></p> <p>Please note that the production of any Yamatake product may be discontinued without notice.</p> <p>For repairable products, we will, in principle, undertake repairs for five (5) years after the discontinuance of those products. In some cases, however, we cannot undertake such repairs for reasons, such as the absence of repair parts.</p> <p>For field instruments, we may not be able to undertake parts replacement for similar reasons.</p>			
		<p><b>9 Scope of services</b></p> <p>Prices of Yamatake products do not include any charges for services such as engineer dispatch service. Accordingly, a separate fee will be charged in any of the following cases:</p> <ol style="list-style-type: none"> <li>(1) Installation, adjustment, guidance, and attendance at a test run</li> <li>(2) Maintenance, inspection, adjustment, and repair</li> <li>(3) Technical guidance and technical education</li> <li>(4) Special test or special inspection of a product under the conditions specified by you</li> </ol> <p>Please note that we cannot provide any services as set forth above in a nuclear energy controlled area (radiation controlled area) or at a place where the level of exposure to radiation is equivalent to that in a nuclear energy controlled area.</p>			
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