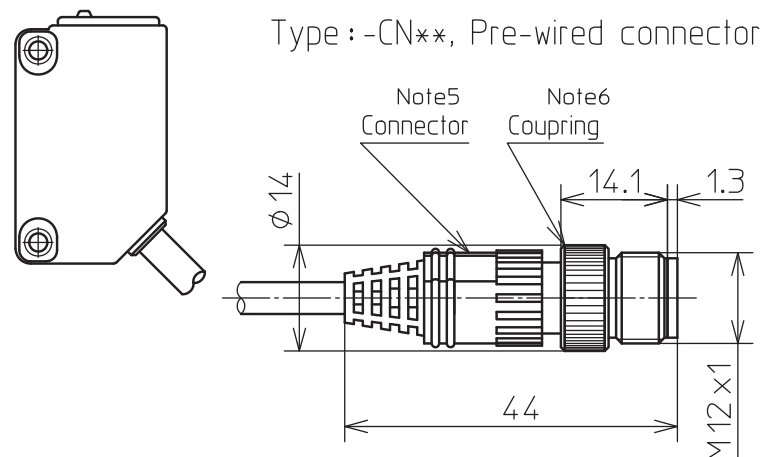
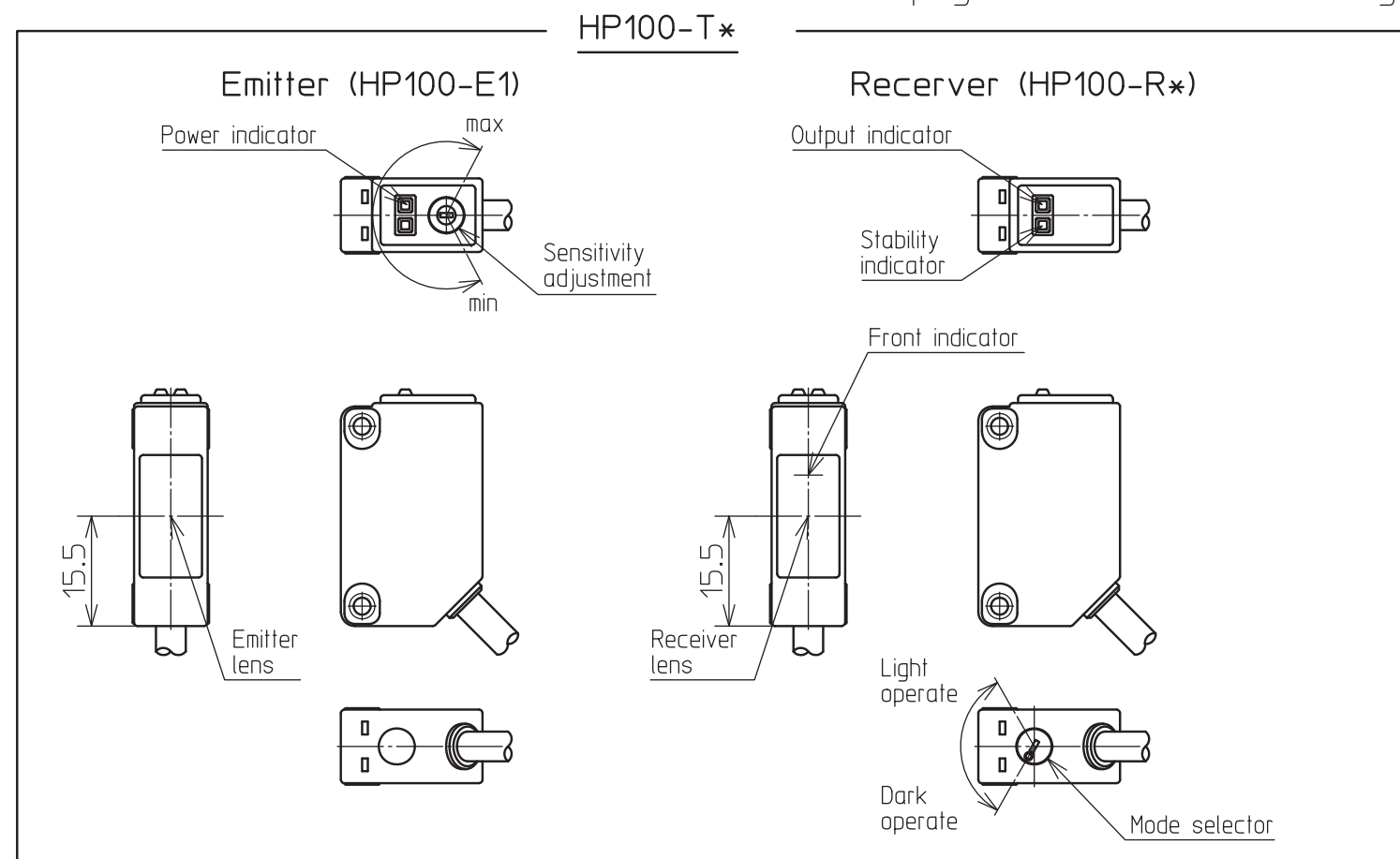
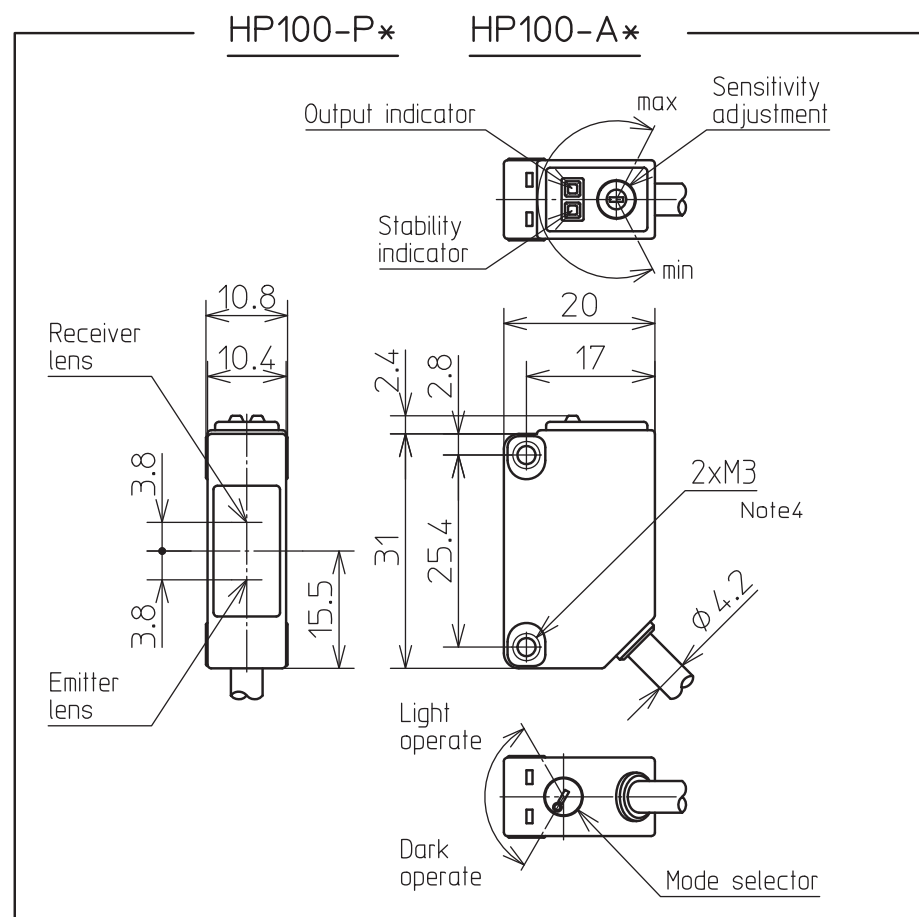


| Polarized retroreflective scan | Diffuse scan | Through scan |          |          | Output                           |
|--------------------------------|--------------|--------------|----------|----------|----------------------------------|
|                                |              | Set          | Emitter  | Receiver |                                  |
| HP100-P1                       | HP100-A1     | HP100-T1     | HP100-E1 | HP100-R1 | Open collector of NPN transistor |
| HP100-P2                       | HP100-A2     | HP100-T2     | HP100-E1 | HP100-R2 | Open collector of PNP transistor |

See page2 for details of catalog listing.

**DIMENSIONS**



**Cord length**

| Catalog listing | Cord length | Wiring type              |
|-----------------|-------------|--------------------------|
| HP100-**-LP5    | 500min      | with cord                |
| HP100-**-L05    | 5,000min    |                          |
| HP100-**-CN03   | 300min      | with pre-wired connector |
| HP100-**-CN05   | 500min      |                          |
| HP100-**-CN1    | 1,000min    |                          |

- Note 1. MATERIAL (Photoelectric switch) Case: PBT resin/Black  
Cover: PMMA resin  
(Connector) Body: Polyester elastomer/Gray  
Pin: Brass Au plated  
Coupling: Brass Ni plated
2. Cord: Oil Resist 0.2mm<sup>2</sup>  
Color Gray (except through scan emitter)  
Black (through scan emitter only)
3. Lens diameter:  $\phi 7.3$
4. Please tighten the mounting screw at the torque less than 0.5N·m.  
Using the screw that enters the product more than 7mm.
5. Please use the "PA5" series (DC type) of our VA connector.
6. Screw the coupling by hand.(0.4 TO 0.6N·m)
7. 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°C

|      |      |      |      |
|------|------|------|------|
| ≤3   | ≤6   | ≤30  | ≤120 |
| ±0.2 | ±0.3 | ±0.5 | ±0.8 |

記入のない公差 TOL. UNLESS NOTED  
REFER ABOVE TABLE FOR TOL. UNLESS NOTED.

|            |              |             |          |             |
|------------|--------------|-------------|----------|-------------|
| 05         | ECOP10-1118  | Jul.22 '10  | T.Hosoi  | R.Akimoto   |
| 04         | EC008-1594   | Jun. 4 '08  | T.Koike  | M.Tanaka    |
| 03         | EC007-0214   | Feb. 16 '07 | T.Koike  | T. Nakao    |
| 02         | EC006-0435   | Feb. 23 '06 | T.Koike  | T. Nakao    |
| 01         | EC005-1045   | Dec. 15 '05 | T. Nakao | T. Koike    |
| 改番<br>REV. | 来歴<br>RECORD | 日付<br>DATE  | 担当<br>BY | 検閲<br>APPD. |

|                                     |                                |                                  |                     |           |                |              |                      |        |
|-------------------------------------|--------------------------------|----------------------------------|---------------------|-----------|----------------|--------------|----------------------|--------|
| 作成DR.<br>Y.Mochizuki<br>April.28'05 | 検図CHK.<br>T.Nakao<br>May.30'05 | 認可APPD.<br>S.Suzuki<br>May.31'05 | 日付DATE<br>May.31'05 | 図番<br>NO. | 尺度SCALE<br>1:1 | 形番<br>MODEL  | 名称<br>NAME           | 改番REV. |
|                                     |                                |                                  |                     | AD42920E  |                | HP100 series | Photoelectric switch | 05     |

SR. No.

# Azbil Corporation

## 製品仕様書 SPECIFICATIONS

### Catalog listing

| Polarized retroreflective scan | Diffuse scan    | Through scan    |                 |                 | Cord length | Wiring type              | Output                           | Packing   |
|--------------------------------|-----------------|-----------------|-----------------|-----------------|-------------|--------------------------|----------------------------------|---|
|                                |                 | Set             | Emitter         | Receiver        |             |                          |                                  |   |
| HP100-P1-LP5                   | HP100-A1-LP5    | HP100-T1-LP5    | HP100-E1-LP5    | HP100-R1-LP5    | 500min.     | with cord                | Open collector of NPN transistor | Packing 1 unit<br>(In case of Through scan set, Emmitter and Receiver are included)                 |
| HP100-P1                       | HP100-A1        | HP100-T1        | HP100-E1        | HP100-R1        | 2000min.    |                          |                                  |   |
| HP100-P1-L05                   | HP100-A1-L05    | HP100-T1-L05    | HP100-E1-L05    | HP100-R1-L05    | 5000min.    |                          |                                  |   |
| HP100-P2-LP5                   | HP100-A2-LP5    | HP100-T2-LP5    | HP100-E1-LP5    | HP100-R2-LP5    | 500min.     |                          |                                  |   |
| HP100-P2                       | HP100-A2        | HP100-T2        | HP100-E1        | HP100-R2        | 2000min.    |                          |                                  |   |
| HP100-P2-L05                   | HP100-A2-L05    | HP100-T2-L05    | HP100-E1-L05    | HP100-R2-L05    | 5000min.    |                          |                                  |   |
| HP100-P1-CN03                  | HP100-A1-CN03   | HP100-T1-CN03   | HP100-E1-CN03   | HP100-R1-CN03   | 300min.     | with pre-wired connector | Open collector of NPN transistor |   |
| HP100-P1-CN05                  | HP100-A1-CN05   | HP100-T1-CN05   | HP100-E1-CN05   | HP100-R1-CN05   | 500min.     |                          |                                  |   |
| HP100-P1-CN1                   | HP100-A1-CN1    | HP100-T1-CN1    | HP100-E1-CN1    | HP100-R1-CN1    | 1000min.    |                          |                                  |   |
| HP100-P2-CN03                  | HP100-A2-CN03   | HP100-T2-CN03   | HP100-E1-CN03   | HP100-R2-CN03   | 300min.     |                          |                                  |   |
| HP100-P2-CN05                  | HP100-A2-CN05   | HP100-T2-CN05   | HP100-E1-CN05   | HP100-R2-CN05   | 500min.     |                          |                                  |   |
| HP100-P2-CN1                   | HP100-A2-CN1    | HP100-T2-CN1    | HP100-E1-CN1    | HP100-R2-CN1    | 1000min.    |                          |                                  |   |
| HP100-P1-LP5-Q                 | HP100-A1-LP5-Q  | HP100-T1-LP5-Q  | HP100-E1-LP5-Q  | HP100-R1-LP5-Q  | 500min.     | with cord                | Open collector of NPN transistor | Packing 10 units<br>(In case of Through scan set, Emmitter and Receiver are included each 10 units) |
| HP100-P1-Q                     | HP100-A1-Q      | HP100-T1-Q      | HP100-E1-Q      | HP100-R1-Q      | 2000min.    |                          |                                  |   |
| HP100-P1-L05-Q                 | HP100-A1-L05-Q  | -               | HP100-E1-L05-Q  | HP100-R1-L05-Q  | 5000min.    |                          |                                  |   |
| HP100-P2-LP5-Q                 | HP100-A2-LP5-Q  | HP100-T2-LP5-Q  | HP100-E1-LP5-Q  | HP100-R2-LP5-Q  | 500min.     |                          |                                  |   |
| HP100-P2-Q                     | HP100-A2-Q      | HP100-T2-Q      | HP100-E1-Q      | HP100-R2-Q      | 2000min.    |                          |                                  |   |
| HP100-P2-L05-Q                 | HP100-A2-L05-Q  | -               | HP100-E1-L05-Q  | HP100-R2-L05-Q  | 5000min.    |                          |                                  |   |
| HP100-P1-CN03-Q                | HP100-A1-CN03-Q | HP100-T1-CN03-Q | HP100-E1-CN03-Q | HP100-R1-CN03-Q | 300min.     | with pre-wired connector | Open collector of NPN transistor |   |
| HP100-P1-CN05-Q                | HP100-A1-CN05-Q | HP100-T1-CN05-Q | HP100-E1-CN05-Q | HP100-R1-CN05-Q | 500min.     |                          |                                  |   |
| HP100-P1-CN1-Q                 | HP100-A1-CN1-Q  | HP100-T1-CN1-Q  | HP100-E1-CN1-Q  | HP100-R1-CN1-Q  | 1000min.    |                          |                                  |   |
| HP100-P2-CN03-Q                | HP100-A2-CN03-Q | HP100-T2-CN03-Q | HP100-E1-CN03-Q | HP100-R2-CN03-Q | 300min.     |                          |                                  |   |
| HP100-P2-CN05-Q                | HP100-A2-CN05-Q | HP100-T2-CN05-Q | HP100-E1-CN05-Q | HP100-R2-CN05-Q | 500min.     |                          |                                  |   |
| HP100-P2-CN1-Q                 | HP100-A2-CN1-Q  | HP100-T2-CN1-Q  | HP100-E1-CN1-Q  | HP100-R2-CN1-Q  | 1000min.    |                          |                                  |   |

|         |           |           |       |          |
|---------|-----------|-----------|-------|----------|
| 05      | ~         | ~         | ~     | ~        |
| 04      | ~         | ~         | ~     | ~        |
| 03      | ~         | ~         | ~     | ~        |
| 02      | ~         | ~         | ~     | ~        |
| 改番 REV. | 来歴 RECORD | : 日付 DATE | 担当 BY | 検閲 APPD. |

|                                   |   |                      |                                |
|-----------------------------------|---|----------------------|--------------------------------|
| 作成DR.<br>T.Koike<br>Feb.23 '06    |  | 尺度 SCALE<br>~        | 記入のない公差 TOL. UNLESS NOTED<br>~ |
| 検図CHK.<br>T.Nakao<br>Feb.24 '06   | 形番<br>MODEL   | HP100 series         |                                |
| 認可APPD.<br>S.Suzuki<br>Feb.28 '06 | 名称<br>NAME  | Photoelectric switch |                                |
| 日付 DATE                           | 図番<br>NO.   | AD42920E             | 改番 REV. 2/05                   |

SP. No.

# Azbil Corporation

## 製品仕様書 SPECIFICATIONS

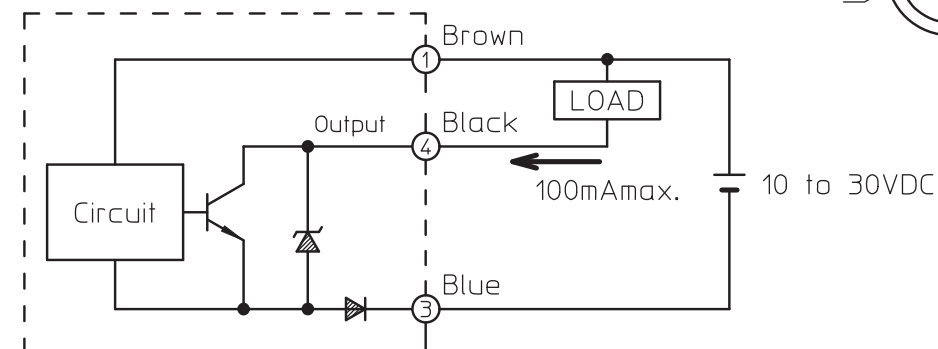
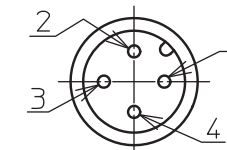
### SPECIFICATIONS

|  |  |          |   |              |   |                               |
|--|--|----------|---|--------------|---|-------------------------------|
| Catalog listing  | HP100-P1   | HP100-P2 | HP100-T1  | HP100-T2     | HP100-A1                                      | HP100-A2                      |
| Scanning type  | Polarized retroreflective scan   |          | Through scan                                      |              | Diffuse scan                                  |                               |
| Supply voltage   | 10 to 30VDC (ripple 10% max.)  |          |   |              |   |                               |
| Current consumption  | 13mA max.  |          | 27mA max.<br>Emitter:16mA max. Receiver:11mA max. |              | 16mA max.                                     |                               |
| Scanning distance  | 0.05 to 5m (Reflector:FE-RR8)  |          | 15m   |              | 1m  |                               |
| Target   | Opaque materials more than $\phi 80$<br>(Reflector:FE-RR8)   |          | Opaque materials more than $\phi 9$               |              | White paper (KODAK Graycard 90%)<br>300×300mm |                               |
| Operating angle  | Sensor : 0.5 to 10° / Reflector : 20° min.   |          | 2 to 20°  |              |   |                               |
| Hysteresis   |  |          |   |              |   | 20% max. of scanning distance |
| Operating mode   | Convertible light operated / dark operated (with mode selector)  |          |   |              |   |                               |
| Output mode  | HP100-*1 : Open collector of NPN transistor (N-MOS FET is used for output device)<br>HP100-*2 : Open collector of PNP transistor (P-MOS FET is used for output device)                       |          |   |              |   |                               |
| Output   | Load current:100mA (resistive load), Output withstand voltage:30V<br>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 HP100-E1 : Orange 'ON' with output / Green 'ON' with atable light and stable dark<br>HP100-E1 : Orange 'ON' with power on<br>HP100-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)  |          |   |              |   |                               |
| Storage temperature  | -40 to +70°C (without condensation)  |          |   |              |   |                               |
| Humidity   | 35 to 85%RH (without condensation)   |          |   |              |   |                               |
| Insulation resistance  | 20M $\Omega$ min. (at 500VDC)  |          |   |              |   |                               |
| Dielectric strength  | 1000VAC 50/60Hz 1minute  |          |   |              |   |                               |
| Vibration  | 10 to 55Hz 1.5mm double amplitude 2hours in each direction of X,Y,Z  |          |   |              |   |                               |
| Shock  | 500m/s <sup>2</sup> 10times in each direction of X,Y,Z   |          |   |              |   |                               |
| Sealing  | IP67 (IEC standard)  |          |   |              |   |                               |
| Weight   | Approx.55g (only sensor with cable 2m)   |          |   |              |   |                               |
| Protection   | False pulse protection (8ms typ.), wrong wiring protection   |          |   |              |   |                               |
| EMC: EMC Directive (2004/108/EC), Applied harmonized standard: IEC60947-5-2:2007 |  |          |   |              |   |                               |
| EMS (Electromagnetic susceptibility)   |  |          |   |              |   |                               |
| Electro discharge  | Contact:Level3 (6kV), Air:Level3 (8kV) (EN61000-4-2:1995+A1:1998+A2:2001)  |          |   |              |   |                               |
| Radiated RF electromagnetic fields   | Level3 (10V/m : 80MHz to 1GHz)<br>Level2 (3V/m : 1.4GHz to 2GHz) (EN61000-4-3:2006)  |          |   |              |   |                               |
| Electrical fast transients   | DC power ports:Level3 (2kV / 5kHz), Signal ports:Level4 (2kV / 5kHz)<br>(EN61000-4-4:1995+A1:2001+A2:2001)   |          |   |              |   |                               |
| Conducted disturbances induced by RF fields                                      | Level3 (10V : 150kHz to 80MHz) (EN61000-4-6:1996+A1:2001)  |          |   |              |   |                               |
| EMI (Electromagnetic interference)   |  |          |   |              |   |                               |
| Emission   | Group1 ClassA (CISPR11:2003+A1:2004+A2:2006)   |          |   |              |   |                               |

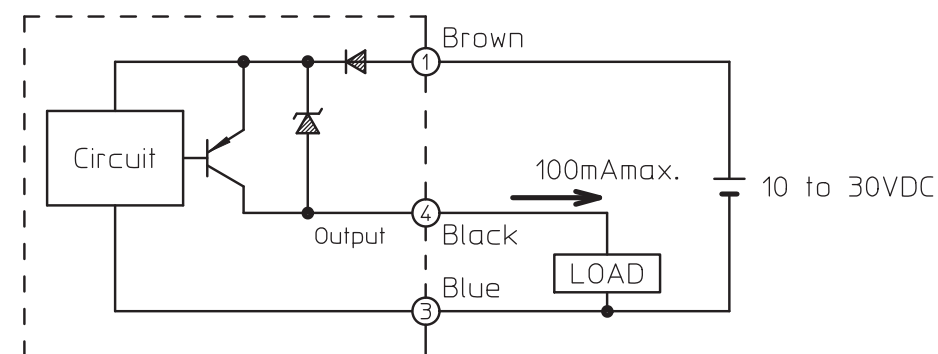
### WIRING

NPN Type : Polarized retroreflective scan  
Through scan receiver  
Diffuse scan

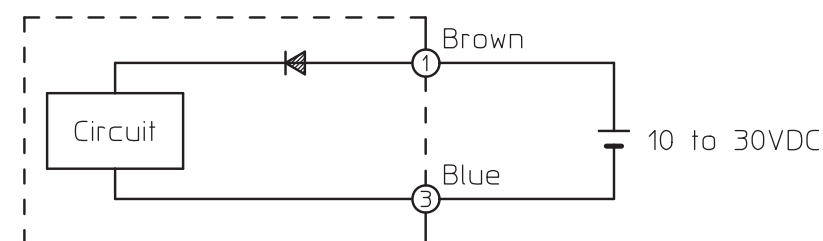
pre-wired connector  
pin layout



PNP Type : Polarized retroreflective scan  
Through scan receiver  
Diffuse scan



Through scan emitter



|            |              |              |          |             |
|------------|--------------|--------------|----------|-------------|
| 05         | ~            | ~            | ~        | ~           |
| 04         | ~            | ~            | ~        | ~           |
| 03         | ~            | ~            | ~        | ~           |
| 02         | ~            | ~            | ~        | ~           |
| 01         | ~            | ~            | ~        | ~           |
| 改番<br>REV. | 来歴<br>RECORD | : 日付<br>DATE | 担当<br>BY | 検閲<br>APPD. |

|                                     |                                |                                  |                     |              |                               |
|-------------------------------------|--------------------------------|----------------------------------|---------------------|--------------|-------------------------------|
| 作成DR.<br>Y.Mochizuki<br>April,28'05 | 検図CHK.<br>T.Nakao<br>May,30'05 | 認可APPD.<br>S.Suzuki<br>May,31'05 | 日付DATE<br>May,31'05 | 尺度SCALE<br>~ | 記入のない公差TOL. UNLESS NOTED<br>~ |
| 形番<br>MODEL                         | HP100 series                   |                                  |                     |              |                               |
| 名称<br>NAME                          | Photoelectric switch           |                                  |                     |              |                               |
| 図番<br>NO.                           | AD42920E                       | 改番REV.<br>05                     | 3                   |              |                               |

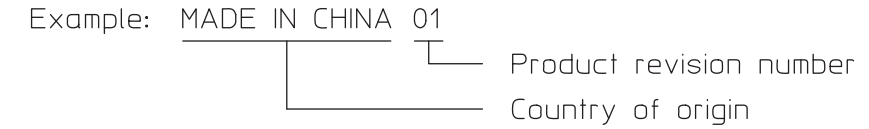
SR. No.

Product revision change record

|   | Date      | Catalog listing                  | Product rev. No. | Content of change  |
|---|-----------|----------------------------------|------------------|--|
| 1 | 11.22.'05 | All                              | 01               | Add UL and EMC specifications.<br>Change current consumption.            |
| 2 | 2.16.'07  | HP100-A*                         | 02               | Modification of optical characteristics.<br>No specification is changed. |
| 3 | 6.4.'08   | HP100-P*<br>HP100-A*<br>HP100-R* | 02<br>03<br>02   | The shape of mode selector   |

Product revision

The 2-digit product revision number is shown after the country of origin on the case.



As for through scan, product revision number is applied on each emitter(HP100-E\*) and receiver(HP100-R\*).  
Revision number is not applied on set listings(ex. HP100-T\*)

| Catalog listing    | Product rev. No. |
|--------------------|------------------|
| HP100-P1 (-Q)      | 02               |
| HP100-P1-L * (-Q)  | 02               |
| HP100-P1-CN * (-Q) | 02               |
| HP100-P2 (-Q)      | 02               |
| HP100-P2-L * (-Q)  | 02               |
| HP100-P2-CN * (-Q) | 02               |
| HP100-A1 (-Q)      | 03               |
| HP100-A1-L * (-Q)  | 03               |
| HP100-A1-CN * (-Q) | 03               |
| HP100-A2 (-Q)      | 03               |
| HP100-A2-L * (-Q)  | 03               |
| HP100-A2-CN * (-Q) | 03               |
| HP100-E1 (-Q)      | 01               |
| HP100-E1-L * (-Q)  | 01               |
| HP100-E1-CN * (-Q) | 01               |
| HP100-R1 (-Q)      | 02               |
| HP100-R1-L * (-Q)  | 02               |
| HP100-R1-CN * (-Q) | 02               |
| HP100-R2 (-Q)      | 02               |
| HP100-R2-L * (-Q)  | 02               |
| HP100-R2-CN * (-Q) | 02               |

|            |              |              |          |             |
|------------|--------------|--------------|----------|-------------|
| 05         | ~            | ~            | ~        | ~           |
| 04         | ~            | ~            | ~        | ~           |
| 03         | ~            | ~            | ~        | ~           |
| 02         | ~            | ~            | ~        | ~           |
| 01         | ~            | ~            | ~        | ~           |
| 改番<br>REV. | 来歴<br>RECORD | : 日付<br>DATE | 担当<br>BY | 検閲<br>APPD. |

|                                  |             |                      |                                |
|----------------------------------|-------------|----------------------|--------------------------------|
| 作成DR.<br>T.Nakao<br>Dec.15 '05   |             | 尺度SCALE<br>~         | 記入のない公差 TOL. UNLESS NOTED<br>~ |
| 検図CHK.<br>T.Koike<br>Dec.16 '05  | 形番<br>MODEL | HP100 series         |                                |
| 認可APPD<br>S.Suzuki<br>Dec.19 '05 | 名称<br>NAME  | Photoelectric switch |                                |
| 日付DATE                           | 図番<br>NO.   | AD42920E             | 改番REV.<br>05 / 4               |

|         |   |      |                         |      |    |       |
|---------|---|------|-------------------------|------|----|-------|
| SP. NO. | Azbil Corporation   |      | 製品仕様書<br>SPECIFICATIONS |      |    |       |
|         | <b>Terms and Conditions</b>   |      |                         |      |    |       |
|         | <p>We would like to express our appreciation for your purchase and use of azbil products.<br/>         You are required to acknowledge and agree upon the following terms and conditions for your purchase of azbil 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><br/>         Azbil 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><br/>         In the event that azbil product has any failure attributable to azbil during the aforementioned warranty period, azbil 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.<br/>         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 azbil product<br/>         (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 azbil product;</p>   |      |                         |      |    |       |
|         | <p>(3) Failure caused by any modification or repair made by any person other than azbil or azbil's subcontractors;</p>  |      |                         |      |    |       |
|         | <p>(4) Failure caused by your use of azbil 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 azbil's shipment did not allow azbil to predict; or</p>   |      |                         |      |    |       |
|         | <p>(6) Failure that arose from any reason not attributable to azbil, 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 azbil shall not be liable for any damages, including direct, indirect, special, incidental or consequential damages in connection with or arising out of azbil products.</p>  |      |                         |      |    |       |
|         | <p><b>2 Ascertainment of suitability</b></p>  |      |                         |      |    |       |
|         | <p>You are required to ascertain the suitability of azbil 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 azbil 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<br/>         Although azbil is constantly making efforts to improve the quality and reliability of azbil products, there exists a possibility that parts and machinery may break down.<br/>         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></p>   |      |                         |      |    |       |
|         | <p>Azbil products other than those explicitly specified as applicable (e.g. azbil Limit Switch For Nuclear Energy) shall not be used in a nuclear energy controlled area (radiation controlled area).<br/>         Any azbil products shall not be used for/with medical equipment.<br/>         In addition,<br/>         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 azbil product for any purposes specified in (1) through (6) below.<br/>         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>* Nuclear energy/radiation related facilities<br/>         [For use outside nuclear energy controlled areas]<br/>         [For use of azbil Limit Switch For Nuclear Energy]</p>   |      |                         |      |    |       |
|         | <p>* Machinery or equipment for space/sea bottom</p>  |      |                         |      |    |       |
|         | <p>* Transportation equipment<br/>         [Railway, aircraft, vessels, vehicle equipment, etc.]</p>  |      |                         |      |    |       |
|         | <p>* Antidisaster/crime-prevention equipment</p>  |      |                         |      |    |       |
|         | <p>* Burning appliances</p>   |      |                         |      |    |       |
|         | <p>* Electrothermal equipment</p>   |      |                         |      |    |       |
|         | <p>* Amusement facilities</p>   |      |                         |      |    |       |
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|         |   | REV. | RECORD                  | DATE | BY | APPD. |

| SP.NO. |      | Azbil Corporation  |        | 製品仕様書<br>SPECIFICATIONS |    |       |
|--------|------|--|--------|-------------------------|----|-------|
|        |      | <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 azbil 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 azbil 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 azbil 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 azbil 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 azbil 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 azbil 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 azbil are subject to change without notice for improvement or for any other reason.</p> <p>For inquiries 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 azbil 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 azbil 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> <p>(1) Installation, adjustment, guidance, and attendance at a test run</p> <p>(2) Maintenance, inspection, adjustment, and repair</p> <p>(3) Technical guidance and technical education</p> <p>(4) Special test or special inspection of a product under the conditions specified by you</p> <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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