Ordering information Installations Autonics BWPK 25 - 05 For direction of installation For reflection from the surface of wall and flat When installing as below, the light reflected from the surface of wall and flat is not shaded. Emitter and receiver should be installed NPN open collector output in same up/down direction. **PICKING SENSOR** Please check whether it operates normally or not PNP open collector output with a sensing target before using. (Interval distance: Min. 0.3m) **BWPK SERIES** Appearance Receive Number of optical axis 5 pcs М Sensing target Ν U Optical axis pitch 25mm pitch Picking sensor Emitter Receive Specification BWPK25-05 / BWPK25-05P Sensing target Transmitted beam type 0.1 to 3m Sensing typ Long mode Sensing distance Short mode 0.05 to 1m Sensing target Opaque materials of min. ø35mm Optical axis pitch For prevention of interference It may cause interference when installing more than 2 sets of the sensor. In order to avoid the interference Number of optical axis of the sensor, please install as following figures and use the interference pre Sensing width 100mm Power supply 12-24VDC ±10%(Ripple P-P: Max. 10%) •Transmission direction should be opposite between 2 sets Protection circui Receiver2 Emitter1 Receiver1 Emitter1 Emitter2 Receiver1 Emitter1 Emitter: Max. 60mA, Receiver: Max. 60mA NPN open collector output F Load current: Max. 150mA(Max. 30VDC), 4444 Residual voltage: Max. 1V PNP open collector output > Load current: Max. 150mA, Output voltage: Min. (Power supply-2.5)V Receiver2 Switching of Light ON/Dark ON Thank you very much for selecting Autonics products. Operation mode Short-circuit protection Built-in For your safety, please read the following before using. Response time Max. 30ms ■ Caution for your safety Light source Infrared LED(850nm modulated) Emitter2 Interference protection by transmission frequency selection nterference protection Cable Non-contact or contact input *Please keep these instructions and review them before using this unit. •NPN open collector output: Lighting(0-2V), Light out(5-30V or open) •PNP open collector output: Lighting(4-30V), Light out(0-3V or open) External picking input ※Please observe the cautions that follow; + + + + + + + ▲ Warning Serious injury may result if instructions are not followed. Ambient illumination Sunlight: Max. 10,000/x, Incandescent lamp: Max. 3,000/x ▲ Caution Product may be damaged, or injury may result if instructions are not followed. Ambient temperature -10 to +55°C, Storage: -20 to +60°C *The following is an explanation of the symbols used in the operation manual. 35 to 85%RH, Storage: 35 to 85%RH Emitter2 ▲Caution: Injury or danger may occur under special conditions The square wave noise by the noise simulator (Voltage: $\pm 240V$, Period: 10ms, Pulse width: 1 μ s) •Baffle should be installed between 2 sets Emitter1 Receiver1 Dielectric strength 1,000VAC 50/60Hz for 1minute Min. 20MΩ (at 500VDC megger) In case of using this unit with machinery(Ex: nuclear power control, medical equpment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device. It may cause a fire, human injury or damage to property. nsulation resistance 1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours Vibration Shock 500m/s2 (50G) in X, Y, Z directions for 3 times Baffle 2. This unit is not safety sensor protecting from damages of property or injury from dangerous parts of mechanical equipment, but it is the sensor detecting a normal object or irruption into the working olt should be installed out of the interference distance Case: PC/ABS, Lens: PMMA mechanical equipment, but it is the sensor detecting a normal object or irruption into the working area regardless of safety. 3. Do not use it as safety equipment for the cutter or press. 4. This unit does not follow any international safety standard. Please check the safety standard of the country the product is used. 5. Please note that we do not take any responsibilities for the problem related to overseas' laws or <Product liability(PL)> is happened by using as follows; OSafety equipment for protecting a band or other parts of worker at dangerous area. Emitter1 Receiver1 Allowable installation of distance(D) Emitter: ø4.0mm, 3P, 2m / Receiver: ø4.0mm, 4P, 2m (AWG 22, Core wire diameter: 0.08mm, No. of core wire: 60, Insulator out diameter: Ø1.2mm) Accessory 0.1 to 1m Flat bracket 2pcs, L-shaped bracket 2pcs, Protection bracket 2pcs Min. 0.2m Emitter2 Receiver2 Min. 1m Unit weight Approx. 0.25kg %The temperature or humidity mentioned in Environment indicates a non freezing or condensation environment %Bracket is sold separately. XIt may be a little different based on installation Safety equipment for protecting a hand or other parts of worker at dangerous area. ②Interlock on mechanical equipment. Safety sensor on mechanical equipment for stopping it when detecting a hand or other parts of worker. Dimensions ①Using for detecting a hand or other parts of worker at dangerous area and controlling door or window Function (Unit: mm) Switching function of Long/Short mode Operation mode Rated sensing 1. This unit shall not be used outdoors. It might shorten the life cycle of the product or give an electric shock. Use this product inside only. Do not use the product outdoors or location subject to temperatures or humidity outside. (Ex: rain, dirty, frost, sunlight, condensation, etc.) 2. Do not wire this in power ON status. It may cause an electric shock. 3. Please use this in the rated specifications. It may cause malfunction or the life cycle shorter. 4. Please ground Frame Ground(F.G.) terminal when supplying power by switching power. 5. Avoid using this unit where there are fluorescent light with high frequency, high speed start or signal light affecting to sensing ability. 6. It may be not able to shade the light by reflecting from surface of a wall when installing it in 0.3m from wall or flat parts. Please keep < ■ Installation >. 7. It may cause malfunction from interference when using them closely in parallel. Please keep < ■ Installation >. (Selectable sensing distance) witch(Emitter) Indicator(Green) The rated sensing distance is 3m Frequency B for Long mode, 1m for short mode. It minimizes interference setting as short mode when using more than Picking Indicator 3 sets closely together Short mode 1m Operation Interference protection function In case of using 2 pcs of sensor in serial or parallel in order to extend Frequency A, B witch indicator(Emitter) Emitter+Receive sensing width, it may cause sensing Sensor (A) error because of light interference. Frequency A(Green) Please keep <■ Installation >. 8. Please install emitter and receiver in same direction. The emitting light is not transferred to This function is operating a sensor in use bolt M4 for mounting or, set the tightening torqu transmission frequency A and another sensor in transmission frequency B to requency A) receiver if installed in opposite direction. 9. Avoid using this unit where there are severe vibration. of sensor, set the under 20kgf·cm. <Emiite <Receiver> It may cause a fire and malfunction Sensor ® Frequency A(Green) Bracket dimension Bracket mounting dimension avoid these sensing errors by the light 10. In cleaning the unit, do not use water or an oil-based detergent. It may cause an electric shock or fire. It may cause an electric shock or fire. 11. Please make power and output line shorten as possible, or it may cause malfunction by surge etc. (Transmission When mounting Flat bracket FREQ.B ① frequency B) 61.4 Switching function of Light ON/Dark ON Control output Operation mode switch(Receiver) Structure The control output is ON when it is light ON in Light ON mode and the 43.4 68 operation 46.4 control output is ON when it is It is ON when Light ON Light ON Frequency A indicator(Green) Stable indicator(Green) light OFF in Dark ON mode. It is it is light ON. available to select with user's Frequency B indicator(Green) It is ON when Dark ON 100 4 Switching function of Lighting 30 100 120 Picking indicator(Yellow) Picking indicator(Yellow) Picking indicator /Flashing of Picking indicator operation (Emitter+Receiver Picking indicator is lighting or flashing to make out work sensing operation more easily. Lighting indicator Lighting ∞ 4 6 <Receiver> <Emitter> Flashing indicator Operation mode switch L-shaped bracket(BK-BWPK-L) •When mounting L-shaped bracket Sold separately No Function Switch OFF Switch ON Selection of transmission frequency Frequency A Frequency B Troubleshooting 42.5 ② Selection of operation indicator Flashing indicat Lighting indica 6-ø4.8 Selection of sensing distance mode Long mode Malfunction Short mode Cause Troubleshooting Dark ON mode Supply rated power Receiver | Selection of operation mode Light ON mode Power Cable incorrect connection or disconnection Check the wiring. Non-operation ■ Timing diagram operation Rated connection failure Use it within rated sensing distance. Remove dirt by soft brush or cloth. Pollution by dirt of sensor cove 100 100 Stable light ON level Non-operation ON level in sometimes Connector connection failure Unstable light Use it within rated sensing distance. OFF level Out of rated sensing distance ON level rece Control output is OFF even though there is not a target Unstable light OFF level There is a strong electric wave or noise generator such as motor, electric generator nigh voltage line etc Protection bracket(BK-BWPK-P) •When mounting Protection bracket Sold separately Check the wiring. Control output line is shorten LED displays for over current Stable indicator 2-ø9.5 Over load Check the rated load capacity B A Caution for using (Red LED) OFF Picking 1. Please make the interval enough between 2 sets or exchange the positions of emitter and received in order to remove interference occurring by the emitter of another set when using emitter/receiver more than 2 sets closely. indicato OFF (Yellow LED) 130 44 Control output OFF 2. Please install this sensor at proper height(Min. approx. 0.3m) from flat part because malfunction 0 may be caused due to certain amount of light received by reflecting light when installing it close to 6 *The above diagram is the state of operation for Light ON mode, but in case of Dark ON mode, it is 0 opposite operation against Light ON mode 3. Avoid using this where there are fluorescent light with high frequency, high speed start or signal light 18 34 Special operation against cignification or some connecting picking input line and output line. (If not connecting these, picking indicator is OFF regardless of operation mode.) affecting to sensing ability. 4. Please use a single conduit or separated wiring as it may cause malfunction or mechanical problem Indicator display when installing the wiring of the sensor with high voltage lines. 5. Avoid using this unit where there are places with corrosive gas or dust, or it may cause malfunction. 5. Please make power and output line shorten as possible, or it may cause malfunction by surge etc. 7. Please clean the sensor cover with dry cloth when it is stained by dirt etc., but do not use organic Emitte Receiv ■ Input/Output circuit and connection diagram Indicator Indicator Contro materials such as thinners. <NPN open collector output type> <PNP open colle Red Picking indicator Green Red Picking indicato When using switching power supply as the source of supplying power, Frame Ground(F.G.) terminal shall be ownching +V bower supply 0V (SMPS) Switching \$ Power supply ¹/₁C(0.001 to 0.1μF/400V): 12-24VDC **\rightarrow** Senso FREQ. A operation • grounded and a condenser for removing noise shall be installed between 0V FREQ. B operation \$ Δ ***1**_@ and F.G. terminal. \Diamond Ø Stable light ON \$ ✡ ON 9. Installation environment (White)P.I. ① ※1 0 It shall be used indoor 2 Altitude max. 2,000m 3 Pollution degree 2 4 Installation category II1 \$ 1 ON Flashing function ON Ø Load XIt may cause malfunction if above instructions are not followed. (Brown)+V \Diamond lacktriangle \Diamond ✡ ON Unstable light ON ■ Major products rotection circuit Autonics Corporation Unstable light OFF OFF ■ Photoelectric sensors ■ Fiber optic sensors ■ Pressure sensors ■ Timers Proximity sensors circuit Stable light OFF • \Diamond OFF Black)OUT Satisfiable Partner For Factory Automation Load ■ Tressure sensors ■ Timers ■ Display units ■ Sensor controllers ■ Graphic/Logic panels ■ Field network devices $\mathbf{0}$ Over current • OFF (White)P.I. ① ※1 AD QUARTERS (Blue)0V otary encoders **The operations of 'Operation indicator' and 'Picking indicator(Red)' for stable light ON level, unstable Display classification list ower controllers anel meters VERSEAS SALES: X1)Picking input(P.I): Contact or transistor *1)Picking input(P.I): Contact or transistor Lighting Bidg. 402 3rd FI., Bucheon Techno Park, 193, Yakaae Wonmi-gu, Bucheon-si, Gyeonggi-do, 420-734, Korea TEL:82-32-610-2730 / FAX:82-32-329-0728 Temperature controllers light ON level, unstable light OFF level, and stable is ON, and picking indicator operates. is ON, and picking indicator operates ① **↓** ① **【** ② **【** ① **【**】 ①**←**↓ Light out light OFF level are for Light ON mode Switching power supplies emperature/Humidity transducers (In case of overcurrent, control output is OFF Flashing by 0.3sec ardless of operation mode.) Tachometer/Pulse(Rate) meters The proposal of a product improvement <PNP transiter> ■ Stepping motors/drivers/motion controllers ◆ Flashing simultaneously by 0.3 sec <Contact> <NPN transiter> <Contact> and development : product@autonics.com

*Picking indicator: When external picking input(P.I) is short-circuited with OUT(Black), it is operated

same as ON/OFF status of control output.

XThe above specification are changeable without notice anytime

■ Laser marking system(CO₂, Nd:YAG)■ Laser welding/soldering system

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