

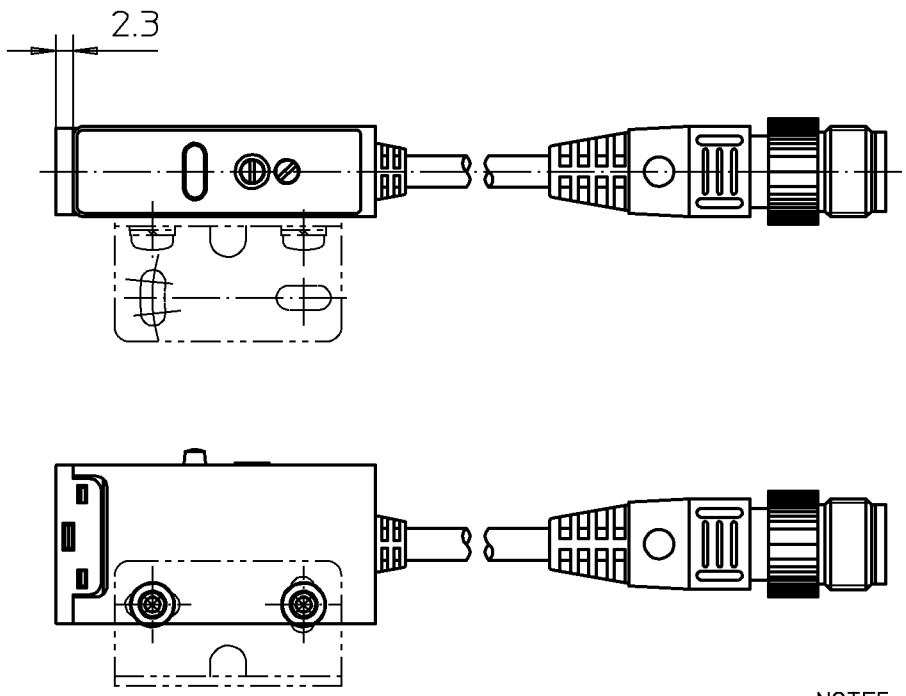
SR. No.

Yamatake Corporation

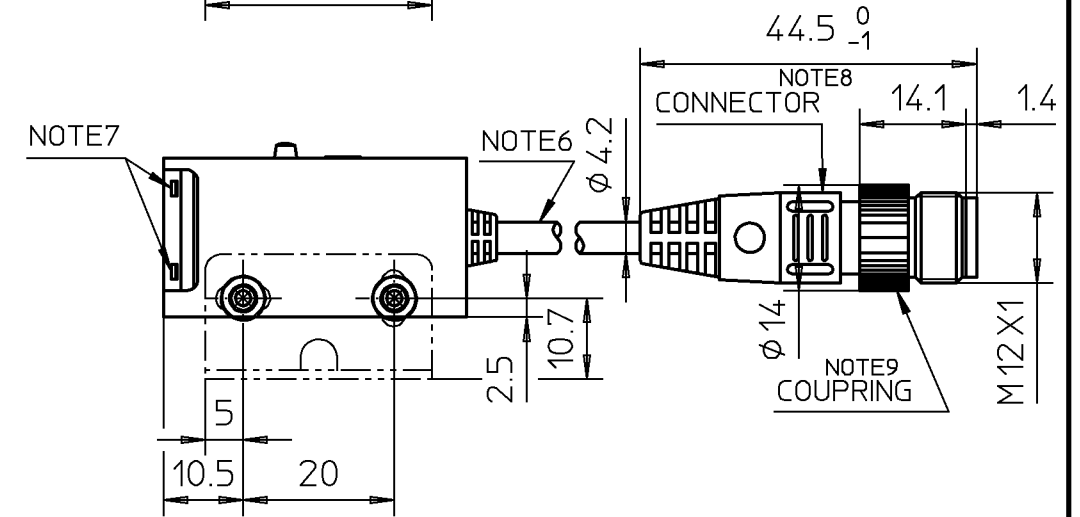
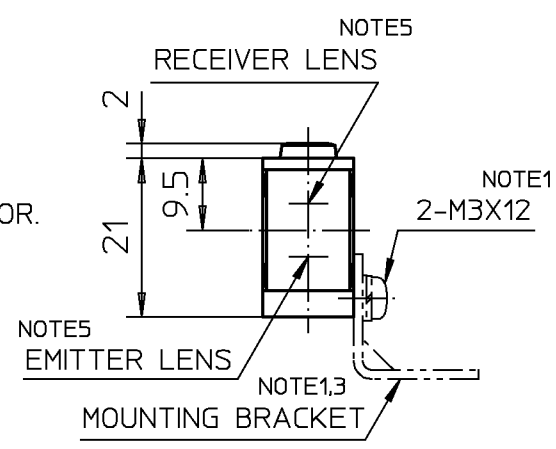
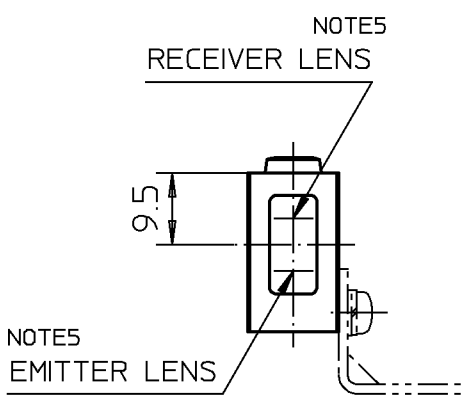
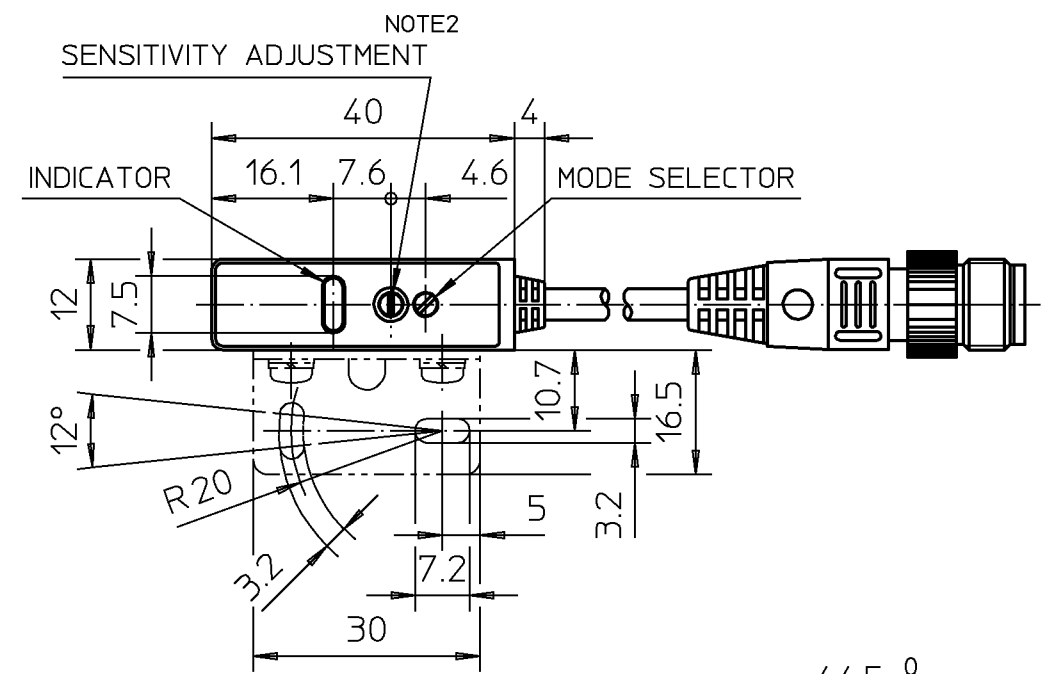
製品仕様書
SPECIFICATIONS

	THROUGH SCAN		POLARIZED RETROREFLECTIVE SCAN	DIFFUSE SCAN LIGHT SOURCE : RED	DIFFUSE SCAN LIGHT SOURCE : INFRARED	SELF-DIAGNOSIS/ SET MODE	OUTPUT
SET	EMITTER	RECEIVER					
HPA-T53	HPA-E53	HPA-R53	HPA-P53	—	—	PROVIDED	OPEN COLLECTOR OF
HPA-T51	HPA-E51	HPA-R51	HPA-P51	HPA-D51	HPA-A51	NOT PROVIDED	NPN TRANSISTOR

HPA-P5*



HPA-D51
-A51



- 9 SCREW THE COUFRING BY HAND.
(0.4 TO 0.6N·m (4 TO 6kgf·cm))
- 8 PLEASE USE THE "PA5" SERIES (DC TYPE) OF OUR VA CONNECTOR.
- 7 ATTACH THE OPTIONAL ACCESSORY HERE (HPA-U**)
- 6 CABLE · OIL RESIST 0.2mm²
- 5 LENS DIAMETER : φ8
- 4 MATERIAL
 - PHOTOELECTRIC SWITCH
 - CASE : PBT RESIN/BLACK
 - LENS : POLYARYLATE RESIN (THROUGH, DIFFUSE SCAN)
 - : PMMA RESIN (POLARIZED RETRO. SCAN)
 - CONNECTOR
 - HOUSING POLYESTER ELASTOMER/LIGHT GRAY
 - PIN BRASS,Au PLATED
 - COUFRING : BRASS,Ni PLATED
 - MOUNTING BLACKET : Al 11.2

- 3 MOUNTING BRACKET CAN BE USED ON BOTH SIDE.
- 2 SCREW DRIVER FOR SENSITIVITY ADJUSTMENT IS INCLUDED.

NOTE 1 MOUNTING BRACKET AND SCREWS ARE INCLUDED.

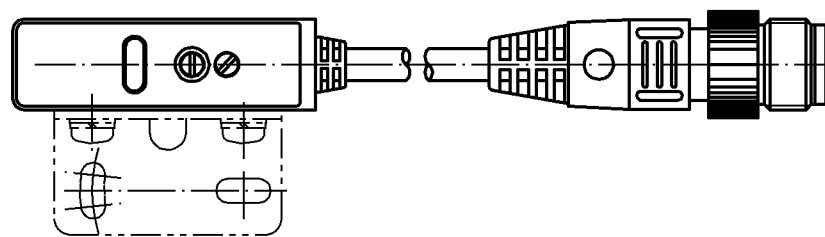
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04	JE096-2229	10-18 '96	T.K.	T.N.
03	JE095-2280	10-27-'95	T.K.	T.N.
02	JE094-2183	7-26 '94	M.T.	T.N.
01	JE093-2293	9-27-'93	T.K.	T.N.
改番 REV.	来歴 RECORD	日付 DATE	担当 BY	検閲 APPD.

作成DR T.Kaike 9-16-'93	検図CHK. T.Nakao 9-20-'93	認可APPD S.Nonaka 9-21-'93	日付DATE 9,21,'93	形番 MODEL HPA SERIES	名称 NAME PHOTOELECTRIC SWITCH	図番 NO. AD41125E	改番REV 05	1/4
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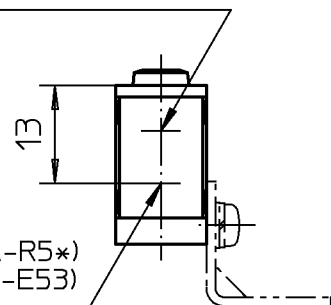
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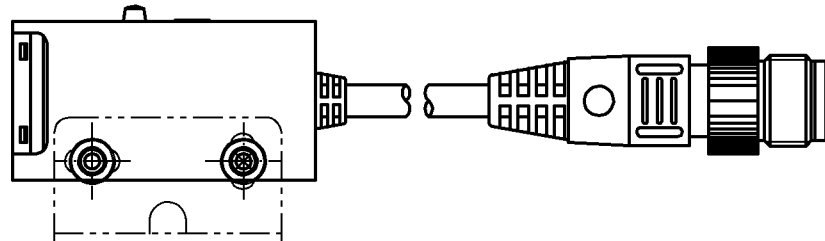
HPA-E53
HPA-R5*



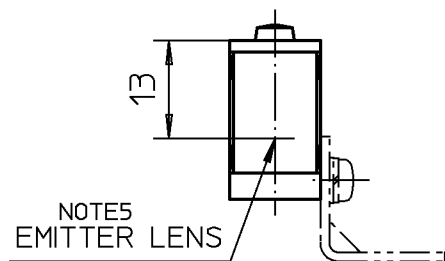
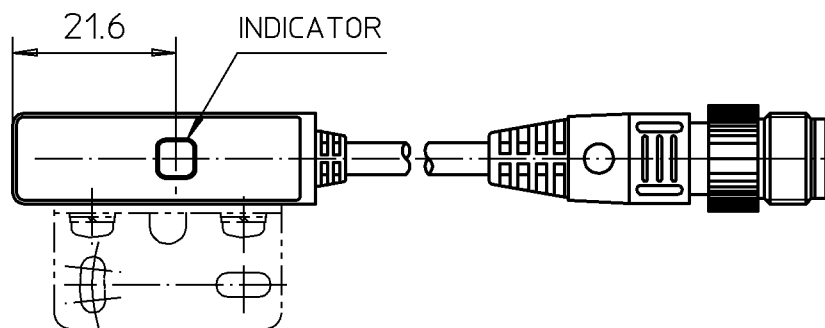
FRONT INDICATOR (HPA-R5*)



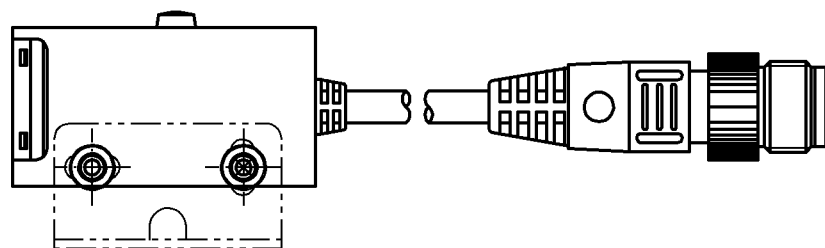
NOTES
RECEIVER LENS (HPA-R5*)
EMITTER LENS (HPA-E53)



HPA-E51



NOTES
EMITTER LENS



作成DR T.Koike 9-16-'93		尺度 SCALE	記入のない公差 TOL. UNLESS NOTED
検図CHK. T.Nakao 9-20-'93		1:1	±0.8 ±2°
認可APPD. S.Nonaka 9-21-'93	形番 MODEL	HPA SERIES	
	名称 NAME	PHOTOELECTRIC SWITCH	
改番 REV.	来歴 RECORD	日付 DATE	担当 BY
		日付 DATE 9-21-'93	検閲 APPD.
		図番 NO.	改番 REV. 2/4
		AD41125E	

SR. No.	Yamatake Corporation		製品仕様書 SPECIFICATIONS				
	CATALOG LISTING	HPA-T51	HPA-T53	HPA-P51	HPA-P53	HPA-D51	HPA-A51
	SCANNING TYPE	THROUGH SCAN		POLARIZED RETROREFLECTIVE SCAN		DIFFUSE SCAN	
	SUPPLY VOLTAGE	10 TO 30VDC (RIPPLE 10% MAX)					
	CURRENT CONSUMPTION	50mA max.(*2) EMITTER:20mA max. RECEIVER:30mA max		40mA max.(*2)			
	SCANNING DISTANCE	10m		0 TO 4m (REFLECTOR:FE-RR8)		0.2m	0.8m
	TARGET	OPAQUE MATERIALS MORE THAN $\phi 8$		OPAQUE MATERIALS MORE THAN $\phi 80$ (REFLECTOR:FE-RR8)		WHITE PAPER(*1) 10X10cm	WHITE PAPER(*1) 20X20cm
	OPERATING ANGLE	2 TO 20°		SENSOR:1 TO 5° / REFLECTOR:40°min.			
	HYSTERESIS	20% max. OF SCANNING DISTANCE					
	OPERATING MODE	'LIGHT ON'/'DARK ON' SELECTIVE (BY MODE SELECTOR)					
	OUTPUT MODE	OPEN COLLECTOR OF NPN TRANSISTOR					
	OUTPUT	LOAD CURRENT 100mA (RESISTIVE LOAD), OUTPUT WITHSTAND VOLTAGE 30V, SATURATION VOLTAGE:1V max. (AT 100mA LOAD CURRENT) SHORT CIRCUIT PROTECTION					
	SELF-DIAGNOSIS OUTPUT (SD OUTPUT)	NOT PROVIDED	PROVIDED	NOT PROVIDED	PROVIDED	NOT PROVIDED	
		LOAD CURRENT:50mA (RESISTIVE LOAD), OUTPUT WITHSTAND VOLTAGE:30V, SATURATION VOLTAGE:1V max. (AT 50mA LOAD CURRENT) SHORT CIRCUIT PROTECTION					
	RESPONSE TIME	0.5ms max.		1ms max.		0.5ms max.	5ms max.
	LIGHT SOURCE	RED LED				INFRARED LED	
	INDICATOR	EXCEPT E11 & E13:RED 'ON' WITH RECEPTION OF LIGHT. GREEN 'ON' WITH STABLE LIGHT OR STABLE DARK. GREEN 'BLINK' WITH SELF-DIAGNOSIS E11:RED 'ON' WITH POWER ON E13:RED 'ON' WITH POWER ON GREEN 'ON' WITH SET MODE.					
	AMBIENT LIGHT	INCANDESCENT LIGHT:5000lx max. / SUNLIGHT:20000lx max.					
	OPERATING TEMPERATURE	-25 TO +60°C (SET MODE:+5 TO +30°C)					
	STORAGE TEMPERATURE	-40 TO +70°C					
	HUMIDITY	35 TO 85%RH (WITHOUT CONDENSATION)					
	INSULATION RESISTANCE	20M Ω min (AT 500VDC)					
	DIELECTRIC STRENGTH	1000VAC 50/60Hz 1MINUTE					
	VIBRATION	10 TO 55Hz 15mm DOUBLE AMPLITUDE 2HOURS IN EACH DIRECTION OF X,Y,Z					
	SHOCK	500m/s ² (ABOUT 50G) 10TIMES IN EACH DIRECTION OF X,Y,Z					
	SEALING	IP67 (IEC STANDARD)					
	INSERTION & PULLING FORCE OF CONNECTOR	0.4 TO 4N (0.04 TO 0.4kgf) (PER PIN)					
	INSERTION & PULLING CYCLE OF CONNECTOR	50 TIMES min.					
	WEIGHT	APPROX.30g (ONLY SENSOR WITH CABLE 30cm)					
	PROTECTION	FALSE PULSE PROTECTION (70ms typ.), REVERSE POLARITY PROTECTION					
	EMC	EN61000-4-2:1995		LEVEL 3			
		ENV50140:1993		LEVEL 3			
		ENV50204:1995		LEVEL 3			
		EN61000-4-4:1995		LEVEL 3			
		IEC255-5:1977		LEVEL 3			
		ENV50141:1993		LEVEL 2			

*1 KODAK GRAYCARD 90%
*2 APPROX. 30mA INCREASE IN SET MODE

SET MODE		
CATALOG LISTING	HPA-T53	HPA-P53
LIGHT SOURCE	POWER:APPROX. 50% LESS THAN NORMAL OPERATION LED BLINKING	
OUTPUT	OUTPUT & SD OUTPUT : OFF	
OTHER	E53 · GREEN INDICATOR 'ON'	

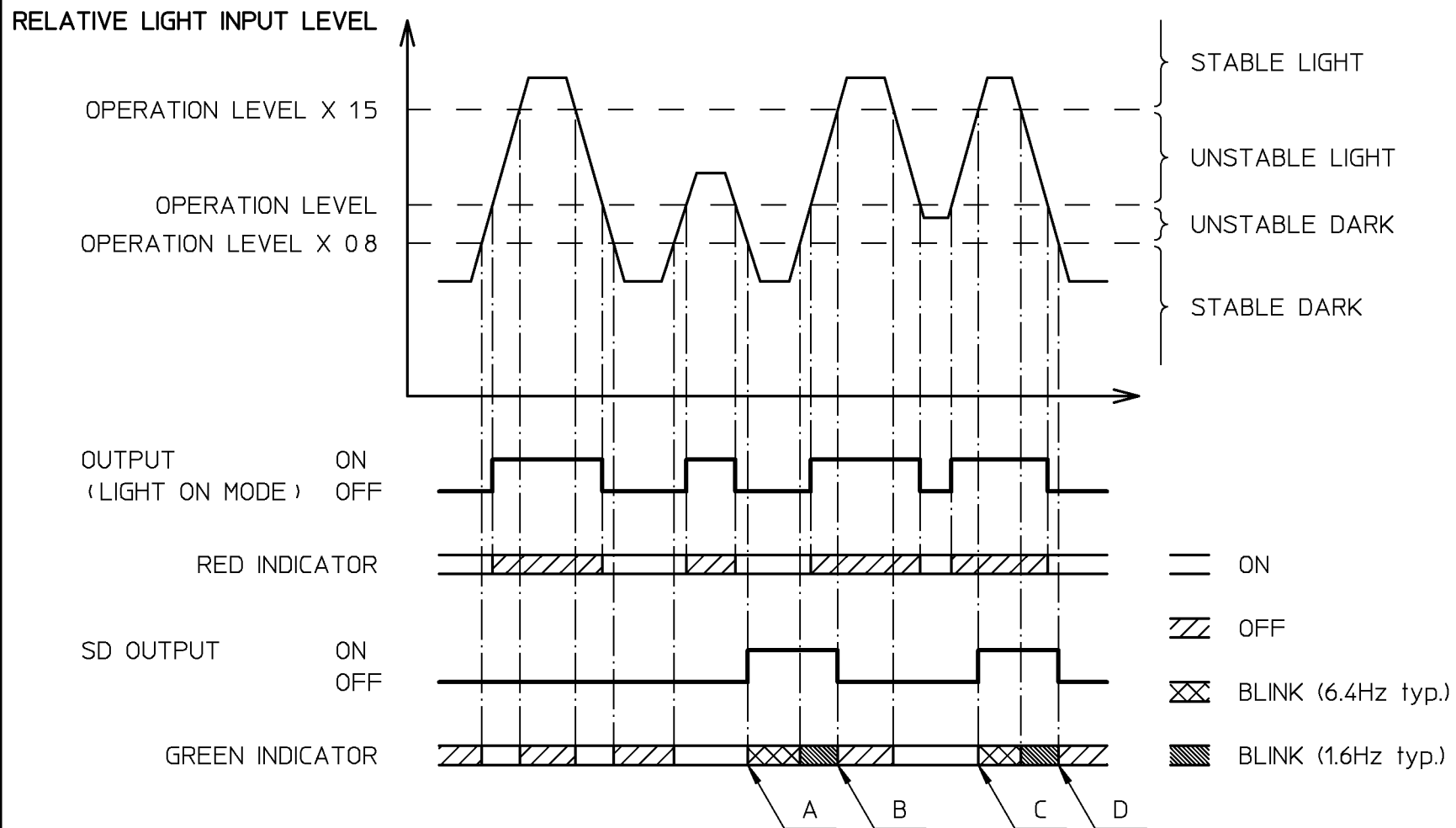
CABLE	
CATALOG LISTING	CABLE LENGTH
HPA-***	300min.
HPA-***-LP5	500min.
HPA-***-L01	1000min.

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02	~			
01	~			
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

作成DR T.Koike 9-16-'93		尺度 SCALE	記入のない公差 TOL. UNLESS NOTED
検図CHK. T.Nakao 9-20-'93	形番 MODEL	HPA SERIES	
認可APPD. S.Nonaka 9-21-'93	名称 NAME	PHOTOELECTRIC SWITCH	
日付 DATE 9.21.'93	図番 NO.	改番 REV 04	3/4

SR. No.

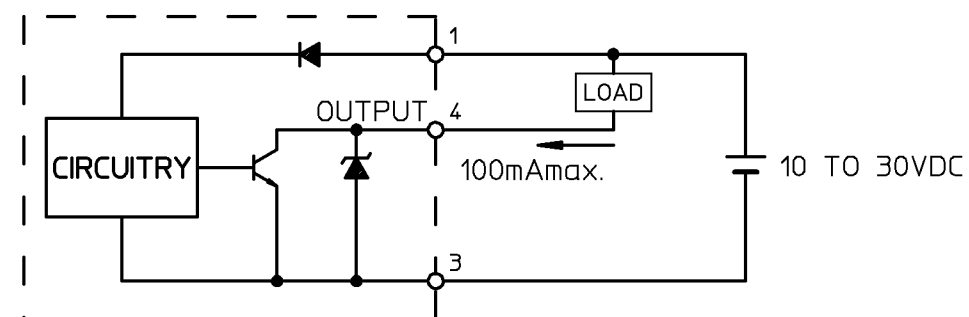


- A INPUT LEVEL CHANGES STABLE DARK → UNSTABLE LIGHT → STABLE DARK, GREEN INDICATOR TURNS TO SELF-DIAGNOSIS INDICATOR (BLINKING).
- B INPUT LEVEL INCREASES FROM STATE 'A' TO STABLE LIGHT, GREEN INDICATOR TURNS TO STABLE INDICATOR (ON OR OFF).
- C INPUT LEVEL CHANGES STABLE LIGHT → UNSTABLE DARK → STABLE LIGHT, GREEN INDICATOR TURNS TO SELF-DIAGNOSIS INDICATOR (BLINKING).
- D INPUT LEVEL DECREASES FROM STATE 'C' TO STABLE DARK, GREEN INDICATOR TURNS TO STABLE INDICATOR (ON OR OFF).

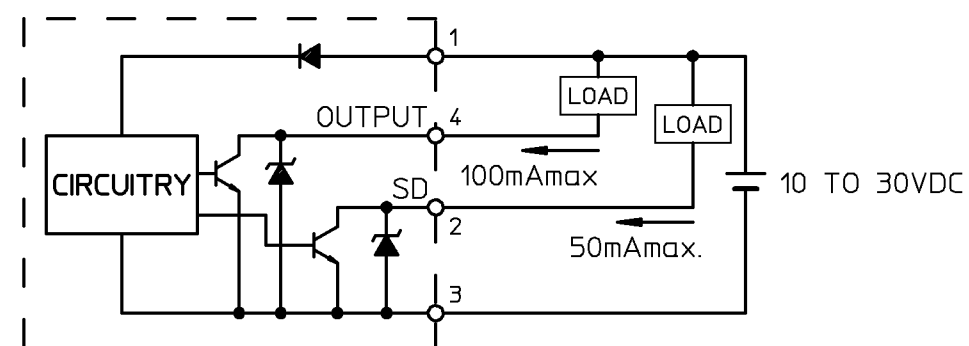
Fig. 1 OPERATION OF OUTPUT AND INDICATOR

CONNECTION

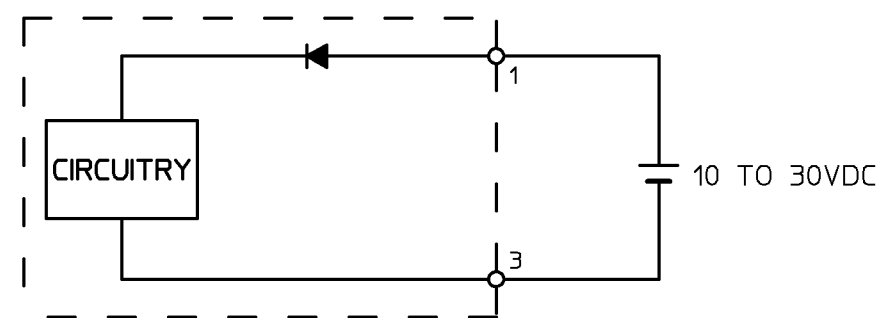
HPA-R51, -P51
-D51, -A51



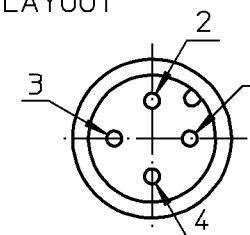
HPA-R53, -P53



HPA-E51, -E53



PIN LAYOUT



作成DR T.Koike 9-16-'93	検図CHK. T.Nakao 9-20-'93	認可APPD. S.Nonaka 9-21-'93	日付DATE 9-21-'93	改番REV. 4/4	<p>形番 MODEL HPA SERIES</p> <p>名称 NAME PHOTOELECTRIC SWITCH</p> <p>図番 NO. AD41125E</p>	<p>尺度SCALE</p> <p>記入のない公差TOL. UNLESS NOTED</p>
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