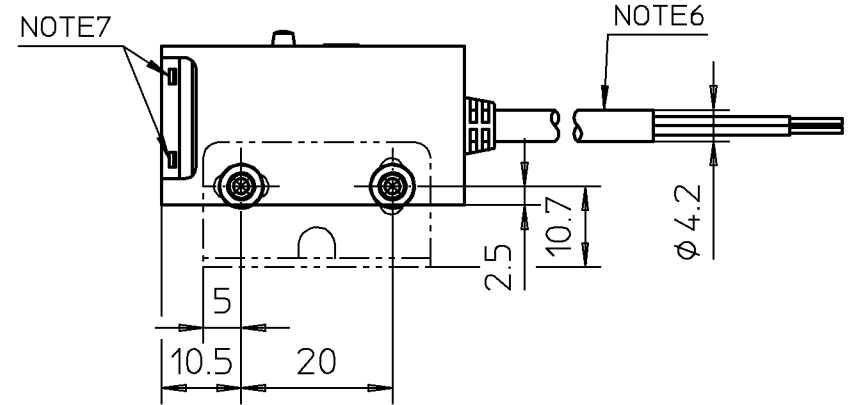
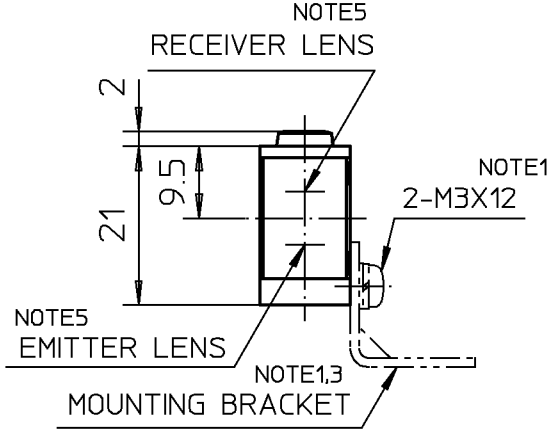
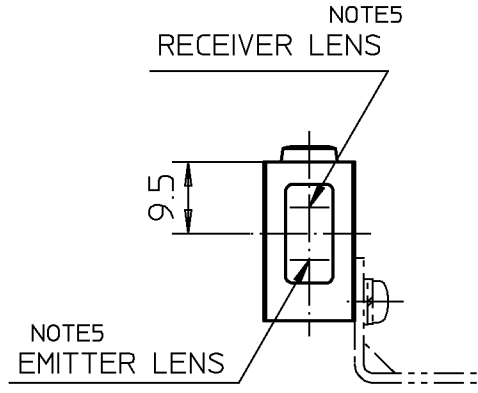
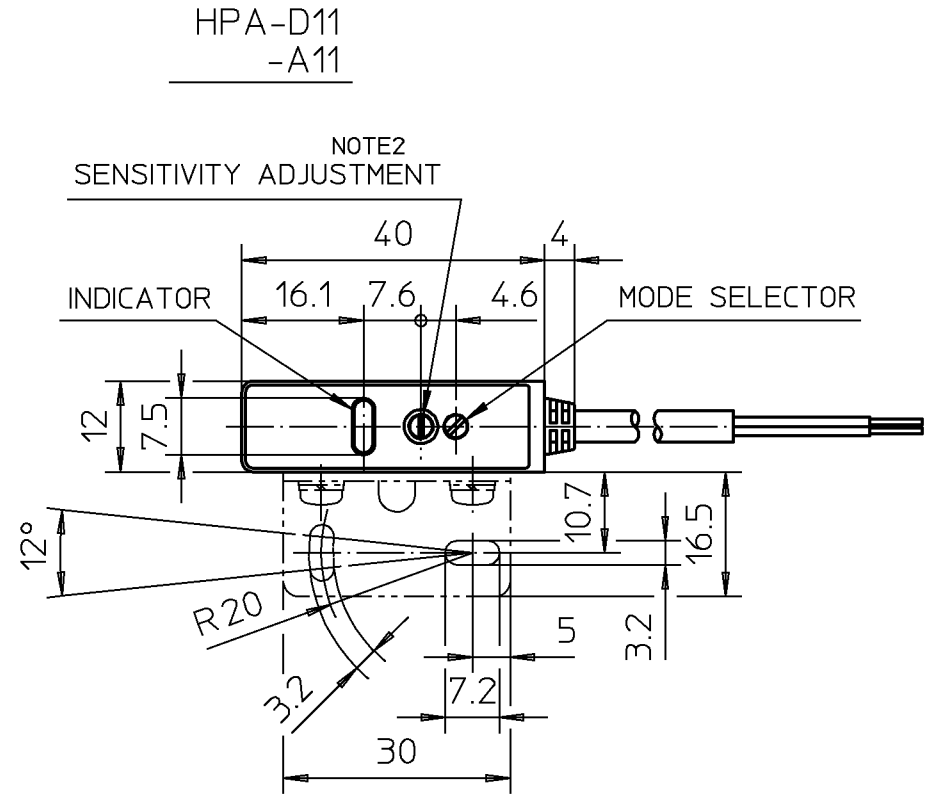
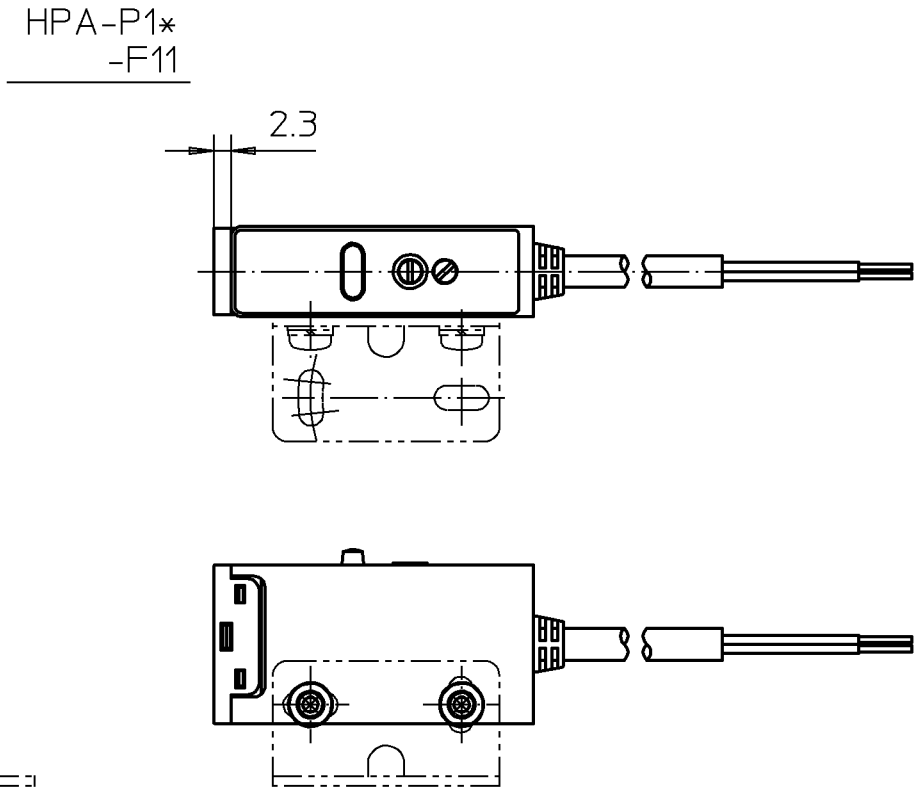


SR. No.	Yamatake Corporation		製品仕様書 SPECIFICATIONS						
	THROUGH SCAN			POLARIZED RETROREFLECTIVE SCAN	POLARIZED RETROREFLECTIVE SCAN FOR TRANSPARENT OBJECTS	DIFFUSE SCAN LIGHT SOURCE : RED	DIFFUSE SCAN LIGHT SOURCE : INFRARED	SELF-DIAGNOSIS/ SET MODE	OUTPUT
	SET	EMITTER	RECEIVER						
	HPA-T13	HPA-E13	HPA-R13	HPA-P13	—	—	—	PROVIDED	OPEN COLLECTOR OF
	HPA-T11	HPA-E11	HPA-R11	HPA-P11	HPA-F11	HPA-D11	HPA-A11	NOT PROVIDED	NPN TRANSISTOR



- 7 ATTACH THE OPTIONAL ACCESSORY HERE. (HPA-U**)
- 6 CABLE : OIL RESIST 0.2mm²
COLOR : GRAY (EXCEPT THROUGH SCAN EMITTER)
: BLACK (THROUGH SCAN EMITTER ONLY)
- 5 LENS DIAMETER : φ8
- 4 MATERIAL
PHOTOELECTRIC SWITCH
CASE : PBT RESIN/BLACK
- LENS : POLYARYLATE RESIN (THROUGH, DIFFUSE SCAN)
: PMMA RESIN (POLARIZED RETRO. SCAN)
- MOUNTING BRACKET : Al t1.2
- 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.

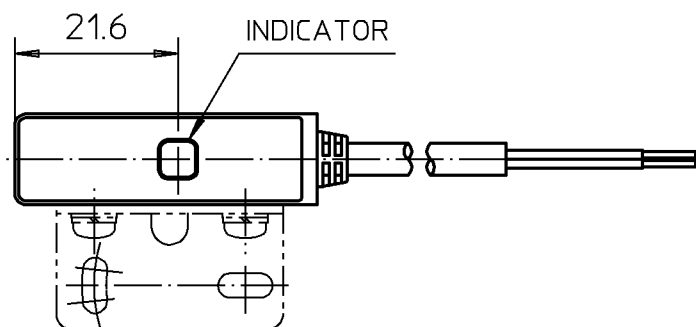
05	JE096-2229	9-30-'96	T.K.	T.N.
04	JE095-2280	10-27-'95	T.K.	T.N.
03	JE094-2183	7-26-'94	M.T.	T.N.
02	JE094-2093	4-14-'94	Y.M.	Y.N.
01	JE093-2293	9-27-'93	T.K.	T.N.
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

作成DR T.Koike 9-13-'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	
日付 DATE 9,21,'93	名称 NAME	PHOTOELECTRIC SWITCH	
改番 REV.	図番 NO.	AD41063E	改番 REV. 1/4

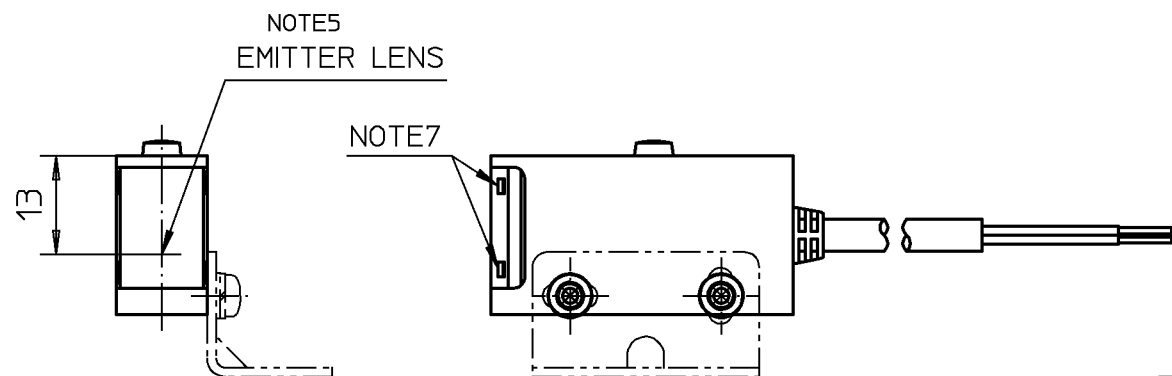
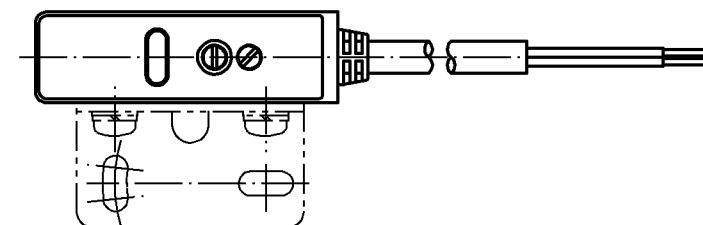
4
3 05
2 02
頁 改番

SR. No.

HPA-E11

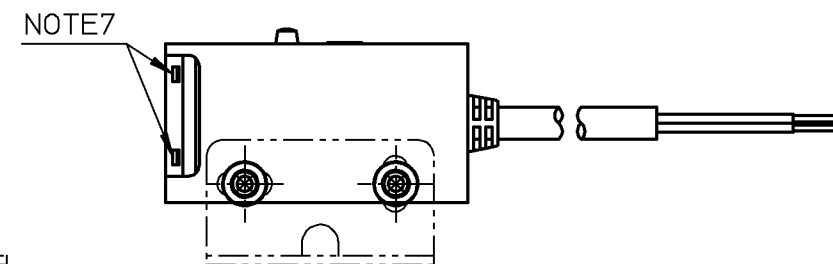
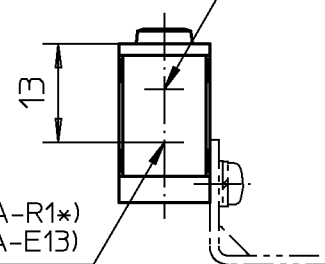


HPA-E13
HPA-R1*



FRONT INDICATOR (HPA-R1*)

NOTE5
RECEIVER LENS (HPA-R1*)
EMITTER LENS (HPA-E13)



作成DR T.Koike 9-13-'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 PHTOELECTRIC SWITCH	図番 NO. AD41063E	改番REV 02	2/4
尺度SCALE 1:1		記入のない公差 TOL. UNLESS NOTED ±0.8 ±2°						

02	来歴 RECORD	日付 DATE	担当 BY	検閲 APPD.
----	--------------	------------	----------	-------------

SR. No.

Yamatake Corporation

製品仕様書
SPECIFICATIONS

CATALOG LISTING	HPA-T11	HPA-T13	HPA-P11	HPA-P13	HPA-F11	HPA-D11	HPA-A11
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)		0.3 TO 1m (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 1.5mm 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 STANDAEED)						
WEIGHT	APPROX.55g (ONLY SENSOR WITH CABLE 2m)						
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-T13	HPA-P13
LIGHT SOURCE	POWER:APPROX. 50% LESS THAN NORMAL OPERATION LED BLINKING	
OUTPUT	OUTPUT & SD OUTPUT : OFF	
OTHER	E13 · GREEN INDICATOR 'ON'	

CABLE

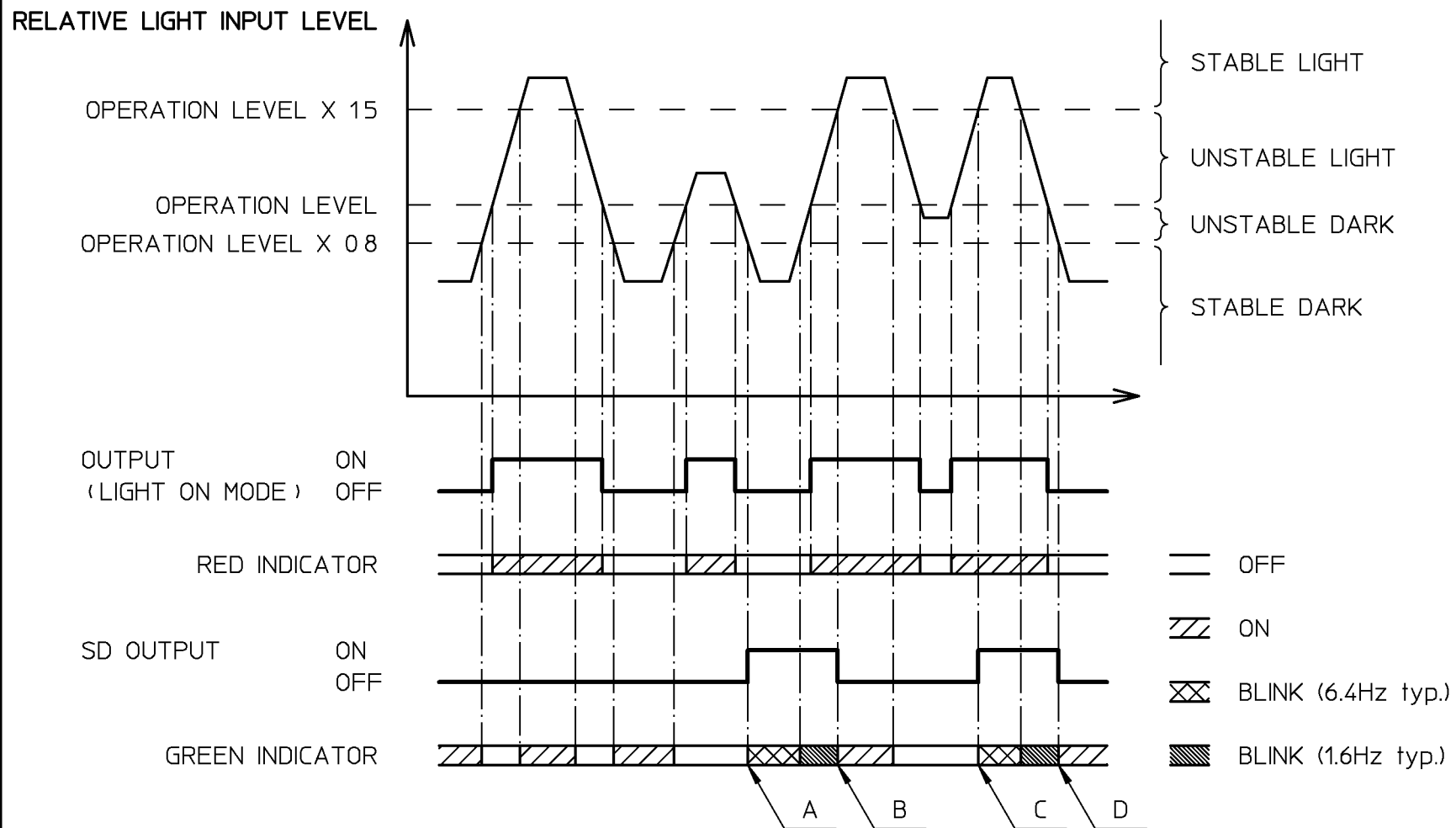
CATALOG LISTING	CABLE LENGTH
HPA-***	2000min.
HPA-***-L05	5000min.
HPA-***-L10	10000min.

頁 改番

05	~			
03	~			
01	~			
改番 REV.	来歴 RECORD	: 日付 DATE	担当 BY	検閲 APPD.

作成DR T.Koike 9-13-'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 05	3/4
	AD41063E		

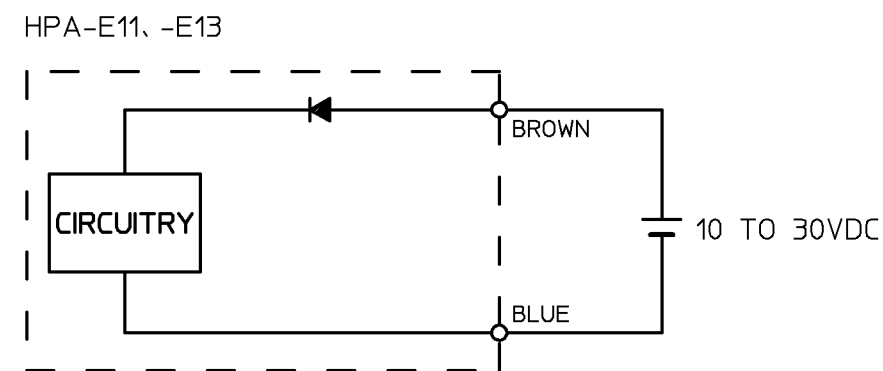
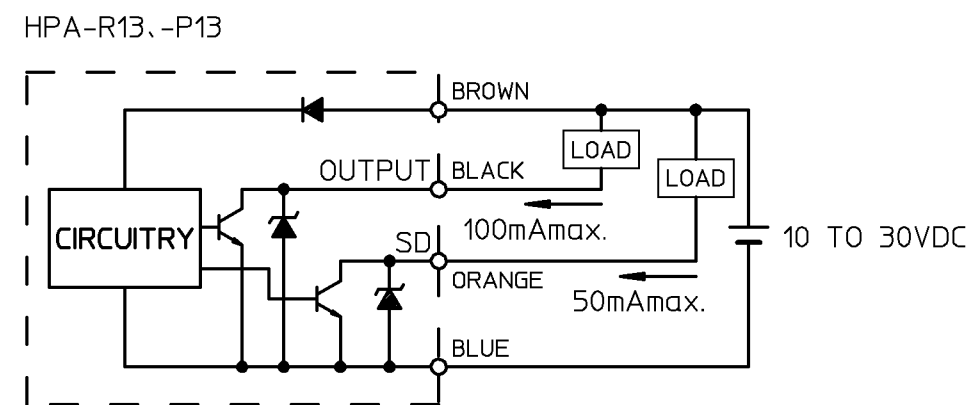
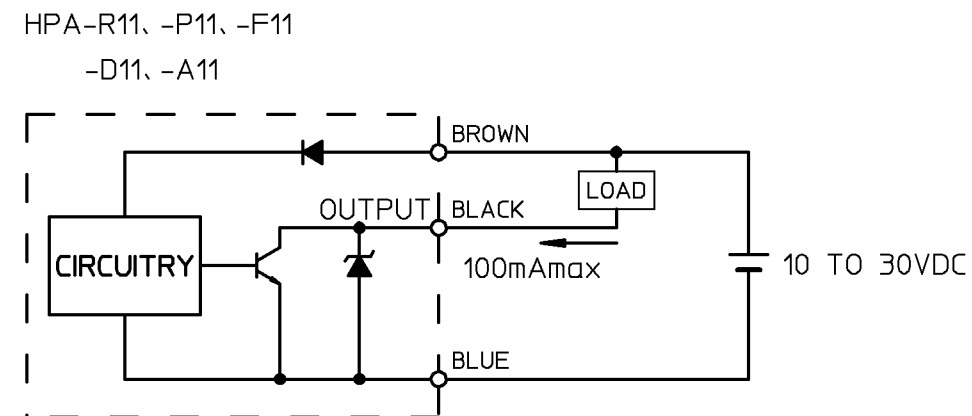
SR. No.



- 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



作成DR T.Koike 9-13-'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. 00	来歴RECORD	日付DATE	担当BY	検閲APPD.	形番MODEL HPA SERIES	名称NAME PHOTOELECTRIC SWITCH	尺度SCALE	記入のない公差TOL. UNLESS NOTED
									図番NO. AD41063E	改番REV. 00	4/4	