

Azbil

Технические характеристики

Оптическое ВОЛОКНО

HPF, HPX

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Цифровые оптические датчики HPX-AG, HPX-EG

HPX-AG 00 -1S -L05 (typical model number example)

Basic model No.	Model	Output	Code	Features
HPX-AG	00			Standard
	01			Remote tuning
	02			Alarm output
	03			Tuning error
	04			Advanced function timer
	05			LED light emission control (remote power control)
	06			Dual output, dual preset values
	07			Active zone setting
	08			Differential setting
	09			Data bank (4 sets of settings)
	10			Data bank (8 sets of settings)
	11			Synchronous external input
		NPN	PNP	
		-1S	-2S	Code lead-out*1
		-3S	-4S	Reduced wiring (main unit)*1
		-5S	-6S	Reduced wiring (expansion unit)*1
		(Blank)		2 m code (standard)
		-L05		5 m code

Note: Please refer to the compatibility list for compatible cables.



Note: For models that comply with UL and S-mark standards, please contact Yamatake Corporation.

*1	Model	Code lead-out	Reduced wiring	
			Main unit	Expansion unit
	AG00	●	●	●
	AG01	●	●	●
	AG02	●		
	AG03	●		
	AG04		●	●
	AG05		●	●
	AG06		●	●
	AG07		●	●
	AG08		●	●
	AG09		●	●
	AG10			●
	AG11		●	●

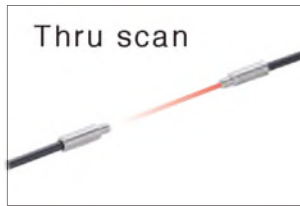
HPX-EG 00 -1S -L02 (typical model number example)

Basic model No.	Model	Output	Code	Features
HPX-EG	00			Standard
	01			Remote tuning
		NPN	PNP	
		-1S	-2S	Code lead-out
		-3S	-4S	Reduced wiring (main unit)
		-5S	-6S	Reduced wiring (expansion unit)
		(Blank)		1 m code (standard)
		-L02		2 m code
		-L05		5 m code






Amplifier unit accessories

Product name	Appearance	Features / Applications	Model
Dedicated mounting bracket 1 pc		This dedicated bracket can be used instead of a DIN rail to mount a single amplifier. It is not included with the amplifier.	HPX-PA04
End plates 2 pcs		End plates used when mounting on a DIN rail. They are not included with the amplifier.	HPX-PA03

Scanning range








Unit: mm

Type	Model	Amp model	HP(5ms)	nL(1ms)	SF(500 μ s)	FT(250 μ s)	HS(50 μ s)
Standard fiber 	HPF-T003	HPX-AG	1,200	800	640	350	200
		HPX-EG	—	340	290	200	—
Unbreakable fiber 	HPF-T024	HPX-AG	140	95	75	40	23
		HPX-EG	—	41	35	24	—
Heat resistant 	HPF-T018	HPX-AG	615	410	325	175	100
		HPX-EG	—	115	100	65	—
Chemical resistant 	HPF-T029	HPX-AG	4,500	3,000	2,400	1,310	750
		HPX-EG	—	1,230	1,050	720	—
Area sensor 	HPF-T021T	HPX-AG	3,600	2,400	1,920	1,050	600
		HPX-EG	—	935	850	550	—



Unit: mm

Type	Model	Amp model	HP(5ms)	nL(1ms)	SF(500 μ s)	FT(250 μ s)	HS(50 μ s)
Standard fiber 	HPF-D002	HPX-AG	400	300	240	130	65
		HPX-EG	—	130	110	70	—
Unbreakable fiber 	HPF-D029	HPX-AG	25	19	15	8	4
		HPX-EG	—	8	7	4	—
Heat resistant 	HPF-D023	HPX-AG	170	130	100	55	28
		HPX-EG	—	55	50	32	—
Chemical resistant 	HPF-D014	HPX-AG	170	130	100	55	28
		HPX-EG	—	55	50	32	—
Coaxial 	HPF-D035	HPX-AG	95	95	80	43	21
		HPX-EG	—	41	35	22	—

Specifications

HPX-AG

Specifications

Code lead-out typeType		HPX-AG**-1S	HPX-AG**-2S
Reduced wiring type	Main unit	HPX-AG**-3S	HPX-AG**-4S
	Expansion unit	HPX-AG**-5S	HPX-AG**-6S
Light emitter		Red four-element LED (650 nm)	
Power		12-24 Vdc \pm 10 % (ripple: 10 % max.)	
Output type		NPN open collector	PNP open collector
Current consumption		750 mW or less (30 mA consumption current with power supply voltage of 24 V)	
Control output	Switching current	Code lead-out typeType	Single output model 100 mA or less Dual output model 50 mA or less
		Reduced wiring type	Single output model 50 mA or less Dual output model 30 mA or less
	Residual voltage	2 V or less	3 V or less
	Output withstand voltage	26.4V	
External input	ON	0-1 V DC (short-circuit current approx. 0.1 mA)	8-26.4 V DC (short-circuit current approx. 0.1 mA)
	OFF	Open or connection to + side of power supply	Open or connection to positive side of power supply
Response time		50 μ s(High Speed)/250 μ s(Fast)/500 μ s(Semi Fast)/1ms(Normal)/5ms(High Power)* ²	
Mutual interference prevention		8 units	
Expansion unit addition		Up to 15 expansion units can be connected.	
Indicator		Output indicator (Turn on with output on)	
Ambient light immunity		Incandescent light: 5,000 lux max. Sunlight: 20,000 lux max.	
Operating temperature		-20 to + 55* ¹	
Operating humidity		35-85 % RH (without condensation)	
Vibration resistance		10-55 Hz, 1.5 mm peak-to-peak amplitude, 2 hours each in X, Y and Z directions	
Shock resistance		500 m/s ² , 3 times each in X, Y and Z directions	
Protection circuits		Short-circuit protection circuit for power, malfunction prevention circuit at power ON (approx. 300 ms), power reverse connection protection circuit	
Case material		Body: PC resin. Cover: PC resin	
Weight		Code lead-out typeType:Approx. 75 g Reduced wiring type(main unit):Approx. 75 g Reduced wiring type(Expansion unit):Approx. 40 g	

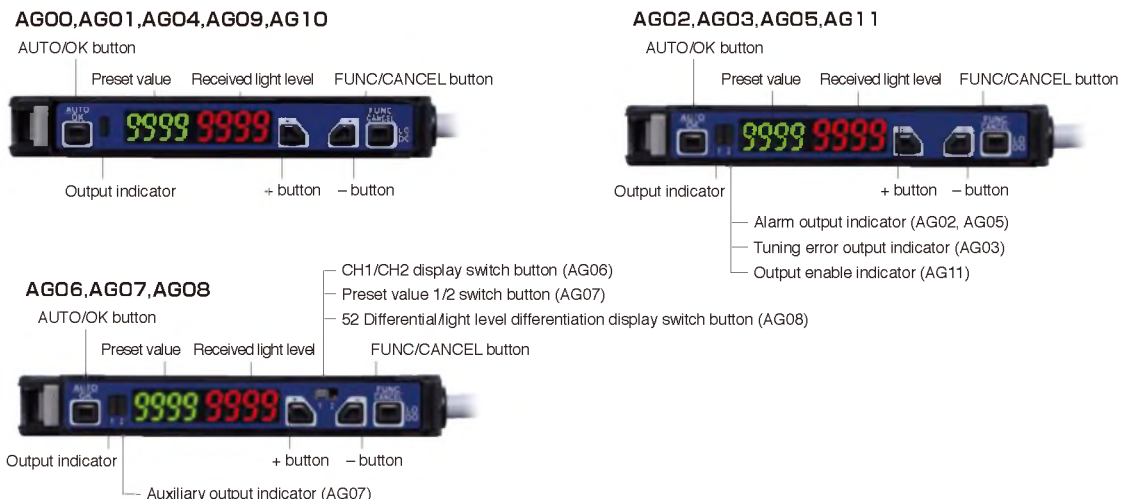
*1. The operating temperature varies depending on the number of gang-mounted sensor units as follows. 1 or 2 units: -20 to +55°C; 3 units: -20 to +50°C; 4 or 5 units: -20 to +45°C; 6 units: -20 to +40°C

*2. The HPX-AG06 and HPX-AG07 do not have Fast or High Speed settings for the response time. After Semi Fast, the next fastest speed is Semi-High Speed (140 μ s). For details on the response time for the HPX-AG08 (differential setting model), please contact Yamatake Corporation. PNP High Speed output is 58 μ s.

Input/output

Model	HPX-AG00-**-	HPX-AG01-**-	HPX-AG09-**-	HPX-AG10-**-	HPX-AG06-**-	HPX-AG02-**-
	HPX-AG07-**-	HPX-AG04-**-			HPX-AG08-**-	HPX-AG03-**-
	HPX-AG11-**-					HPX-AG05-**-
Control output	1 output	1 output	1 output	1 output	2 outputs	2 outputs
External output	—	1 input	2 inputs	3 inputs	—	1 input

■ Detailed View of the Operating Panel



HPX-EG

Specifications

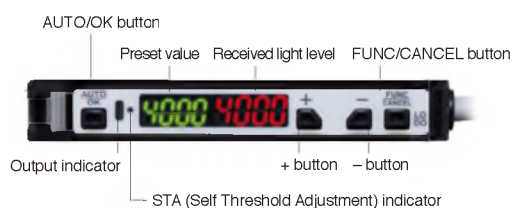
Code lead-out typeType		HPX-EG**-1S	HPX-EG**-2S
Reduced wiring type	Main unit	HPX-EG**-3S	HPX-EG**-4S
	Expansion unit	HPX-EG**-5S	HPX-EG**-6S
Light emitter		Red four-element LED (635nm)	
Power		12-24 Vdc \pm 10 % (ripple: 10 % max.)	
Output type		NPN open collector	PNP open collector
Current consumption		750 mW or less (30 mA consumption current with power supply voltage of 24 V)	
Control output	Switching current	Code lead-out typeType	100 mA or less
		Reduced wiring type	50 mA or less
	Residual voltage	2 V or less	3 V or less
	Output withstand voltage	26.4V	
External input	ON	0-2 V DC (short-circuit current approx. 0.1 mA)	7.2-26.4 V DC (short-circuit current approx. 0.1 mA)
	OFF	Open or connection to + side of power supply	Open or connection to positive side of power supply
Response time		250 μ s(Fast)/500 μ s(Semi Fast)/1ms(Normal)	
Mutual interference prevention		2 units	
Expansion unit addition		Up to 15 expansion units can be connected.	
Indicator		Output indicator (Turn on with output on)	
Ambient light immunity		Incandescent light: 5,000 lux max. Sunlight: 20,000 lux max.	
Operating temperature		-20 to + 55*1	
Operating humidity		35-85 % RH (without condensation)	
Vibration resistance		10-55 Hz, 1.5 mm peak-to-peak amplitude, 2 hours each in X, Y and Z directions	
Shock resistance		500 m/s ² , 3 times each in X, Y and Z directions	
Protection circuits		Short-circuit protection circuit for power, malfunction prevention circuit at power ON (approx. 300 ms)	
Case material		Body: PC resin. Cover: PC resin	
Weight		Code lead-out typeType:Approx. 45 g Reduced wiring type(main unit):Approx. 45 g	

*1. The operating temperature varies depending on the number of gang-mounted sensor units as follows.
 1 or 2 units: -20 to +55°C; 3 units: -20 to +50°C; 4 or 5 units: -20 to +45°C; 6 units: -20 to +40°C

Input/output

Model	HPX-EG00-**-	HPX-EG01-**-
Control output	1 output	1 output
External output	—	1 input

■ Detailed View of the Operating Panel

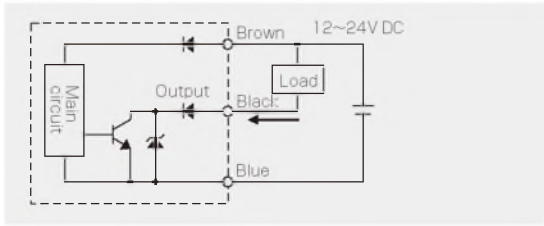


Wiring diagram for the amplifier

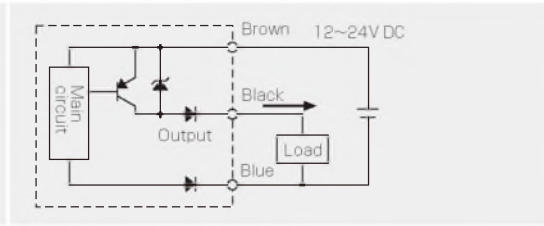
The output switching device is FET.
 Reduced wiring type expansion units are not equipped with a power wires (brown and blue) since power is supplied through the main unit.

- HPX-AG00 / AG07
- HPX-EG00

NPN open collector output

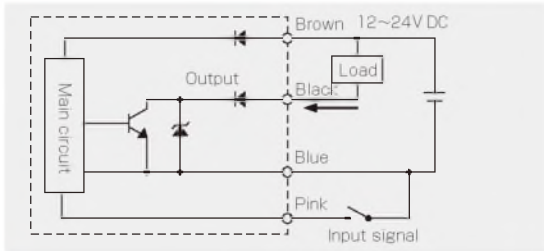


PNP open collector output

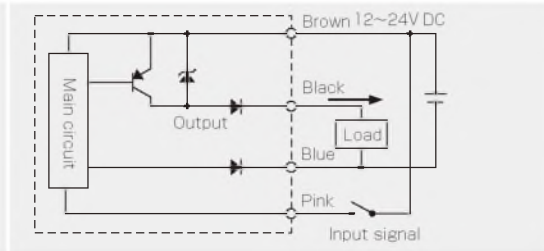


- HPX-AG01 / AG04 / AG11
- HPX-EG01

NPN open collector output



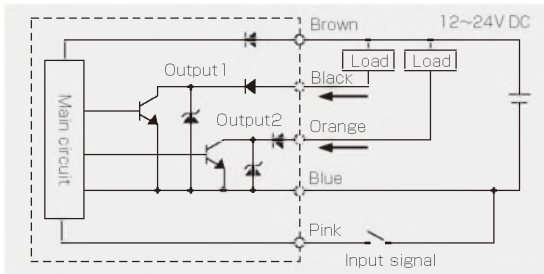
PNP open collector output



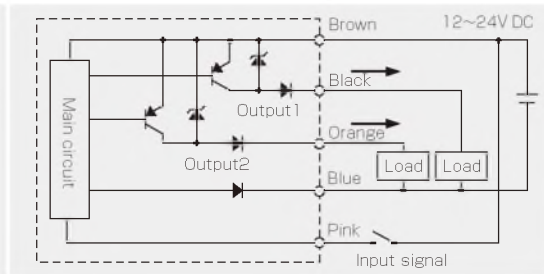
Model	Input signal (pink)
AG01	Remote tuning input
AG04	Latch cancellation input
AG11	Synchronous external input
EG01	External input

- HPX-AG02 / AG03 / AG05

NPN open collector output



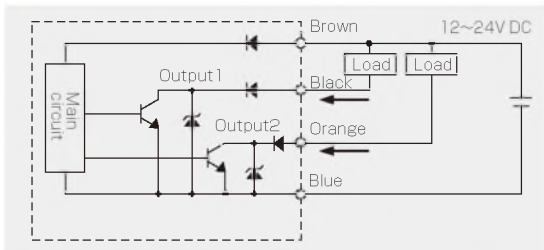
PNP open collector output



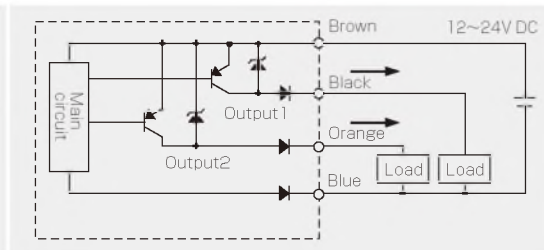
Model	Input signal (pink)
AG02	Remote tuning input
AG03	Remote tuning input
AG05	Light emission LED control input

- HPX-AG06 / AG08

NPN open collector output

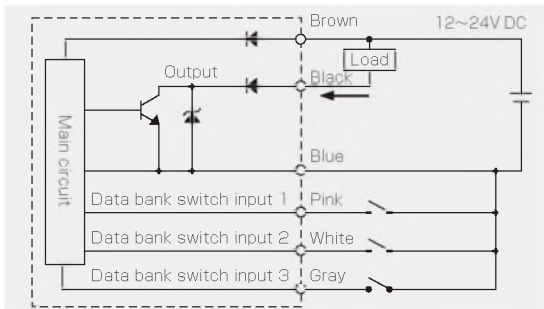


PNP open collector output

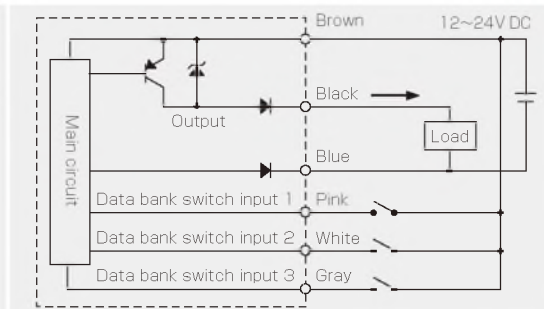


- HPX-AG09 / AG10

NPN open collector output



PNP open collector output



Note: The HPX-AG09-* does not have data bank switch input 3.

Operation

HPX-AG

Sensing type

Sensing types	Response time	Maximum display value	
HP 3 6 7 5 0 HP 2 6 7 5 HP 1 6 7 nl 2 2 5 0 0 nl 1 2 5	High Power	5ms	9999
SF 3 1 2 5 0 SF 2 1 2 5 FE 3 1 0 0 0 FE 2 1 0 0 FE 1 1 0	Normal	1ms	9999
SH 3 7 0 0 SH 2 7 0 SH 1 7	Semi Fast	500µs	5000
HS 3 7 0 0 HS 2 7 0 HS 1 7	Fast	250µs	4000
	Semi High Speed	140µs	4000
	High Speed	NPN: 50µs PNP: 58µs	4000

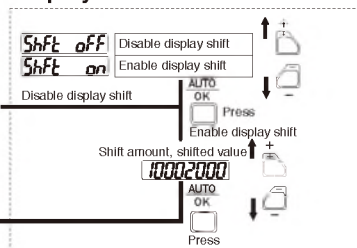
Timer type

Timer types
t-fn --
t-fn on-d
t-fn of-d
t-fn shot
t-fn on-s
t-fn on-of
t-fn HRrE
t-fn Lch

Indication type

Menu	Indication type	Display (green)	Display (red)
nl	Normal display	Preset value	Incoming light level
Pcnt	Percent	Preset value	Relative value *
PH	Peak light level	PH Peak value	Incoming light level
bH	Bottom light level	bh Bottom value	Incoming light level
Pb-H	Peak and bottom light levels	PH bh	Peak value Bottom value

Displayed value shift function



Monitor sleep mode

SLEP off	Disable monitor sleep
SLEP on	Enable monitor sleep

Display hold time

Hold nl	Hold time 2s
Hold Long	Hold time 10s
Hold Inf	Permanent hold

Key lock type

Loc Full	Lock all keys
Loc Tune	Block all key operations except for tuning

Display inversion

rfv Abcd	Do not invert
ngj pqrs	Invert

Initialization

In It no	Do not initialize
In It YES	Initialize

Alarm output *1

ALr --	No selection
ALr LEul	Light level drop alarm output
ALr SEbY	Stability safety margin alarm output

Data bank *1

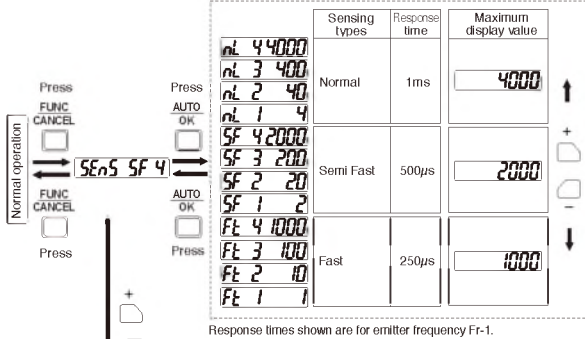
bnr r-bn	Designation of data bank number by external input
bnr bn-7	Data bank 7 selection
bnr bn-6	Data bank 6 selection
...	...
bnr bn-0	Data bank 0 selection

Synchronous external input *1

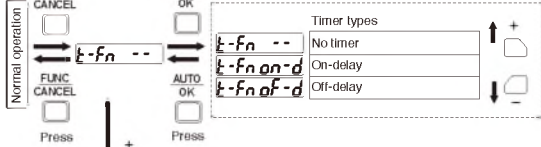
Sync of-E	Off-enable
Sync on-E	On-enable

HPX-EG

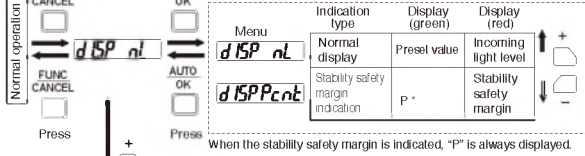
Sensing type



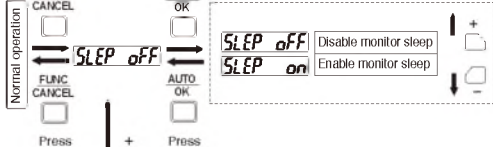
Timer type



Indication type



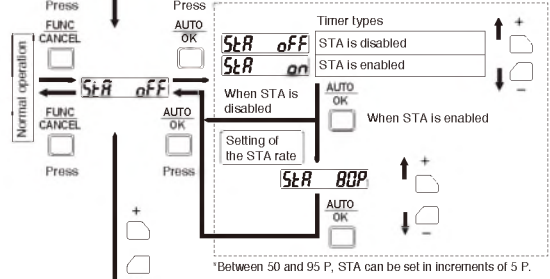
Monitor sleep mode



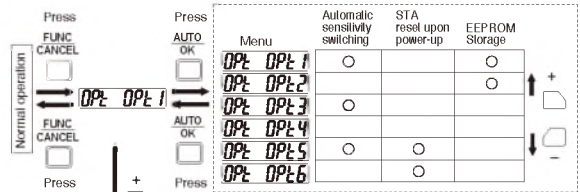
Display inversion



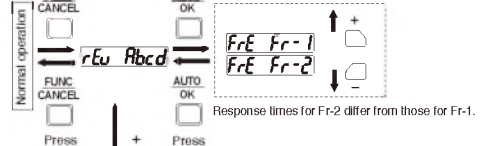
Self Threshold Adjustment(STA)



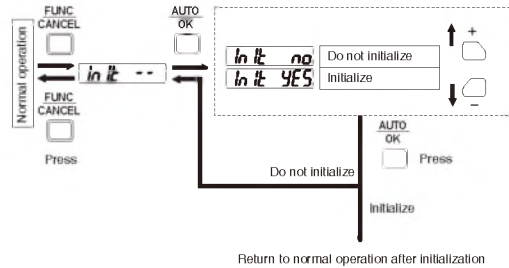
Option



Emitter frequency switching



Initialization



Аналоговый выход НРХ-МА

The HPX-MA series features analog output and high-resolution detection, making it ideal for a wide variety of applications.

Features

- Sensitivity selector allows detection ranging from high resolution to high sensitivity
- A 3-revolution potentiometer enables adjustment of the output range according to the detection range
- Separate high-speed response mode for high-speed detection



Потенциометр НРХ

High sensitivity over a long scanning distance of 800 mm (Thru Scan Model), easy-to-use functions & structure, and high reliability.

Features

- Quick response (50 s) plus mark detection
- Self-diagnostic LED's plus self-diagnostic output
- Fine-tuning of sensitivity using multi-turn potentiometer with indicator



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