

TECHNICAL DATA SHEET

SAFETY LIGHT CURTAIN SENSOR Emitter and Receiver **DQBT series**



Contents

- Product application
- Resolution ratio
- Technical data
- Operation and display
- Dimensioned drawings
- Electrical connection
- Wiring diagram
- Accessories



Solutions

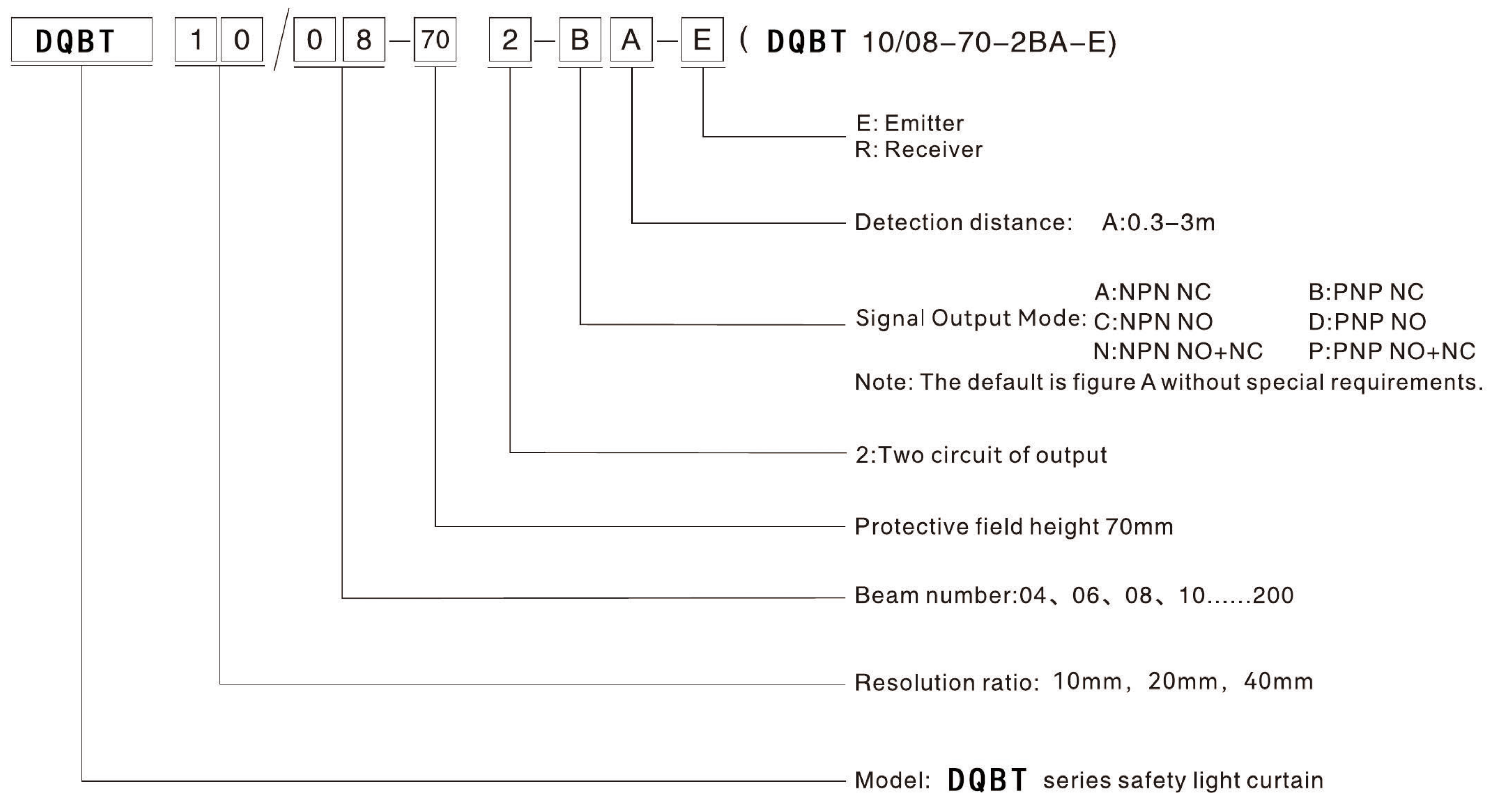


GB/T 19001-2016

Product application

- A. Light curtain can achieve full protection for the slider can be stopped at any position on the press machine.
- B. The light curtain can only achieve upper dead point protection if the slider can not be stopped at any position on the press machine.
- C. Realize the regional protection for the industry manipulator, injection molding machines, packaging equipment, automation equipment, assembly wires and other dangerous work area.
- D. Used to detect and alarm object.

The specifications of DQBT type safety light curtain are as follows:



Resolution ratio

Depending on the usage environment and requirements, it is important to choose the appropriate beam spacing

Finger protection



Detection capability
10/20mm
diameter

Hand protection



Detection capability
40mm
diameter

Technical data

Basic data of Receiver and Emitter

Standard packaging	
Product model	DQBT series
Standard configuration	One receiver, one emitter, two data lines, one right-angle rack, and one t-shaped screw
Light curtain form	Infrared radiation type
Application	Standard industrial environment

Features	
Resolution ratio	10mm, 20mm, 40mm
Check the accuracy	18mm, 28mm, 48mm
Number of beams	04、06、08、10.....200
Overall dimension	15mm*30mm*L, L is the length of emitter and receiver.
Detection distance	30-3000mm
Response time	≤15ms

Synchronization	Optical synchronization
Consumption current	≤200mA
Output mode	2-circuit of PNP, with current of 500mA and voltage below 1.5V, polarity, short circuit and over-cutting protection
Output status	ON (receiving indicator green light)
Indicator light	Transmitter: power indicator light (red); receiver: output indicator light on (green), blackout (red)
Wavelength	850nm
Type of light	Infrared light (NIR), invisible
Function	Automatic reset

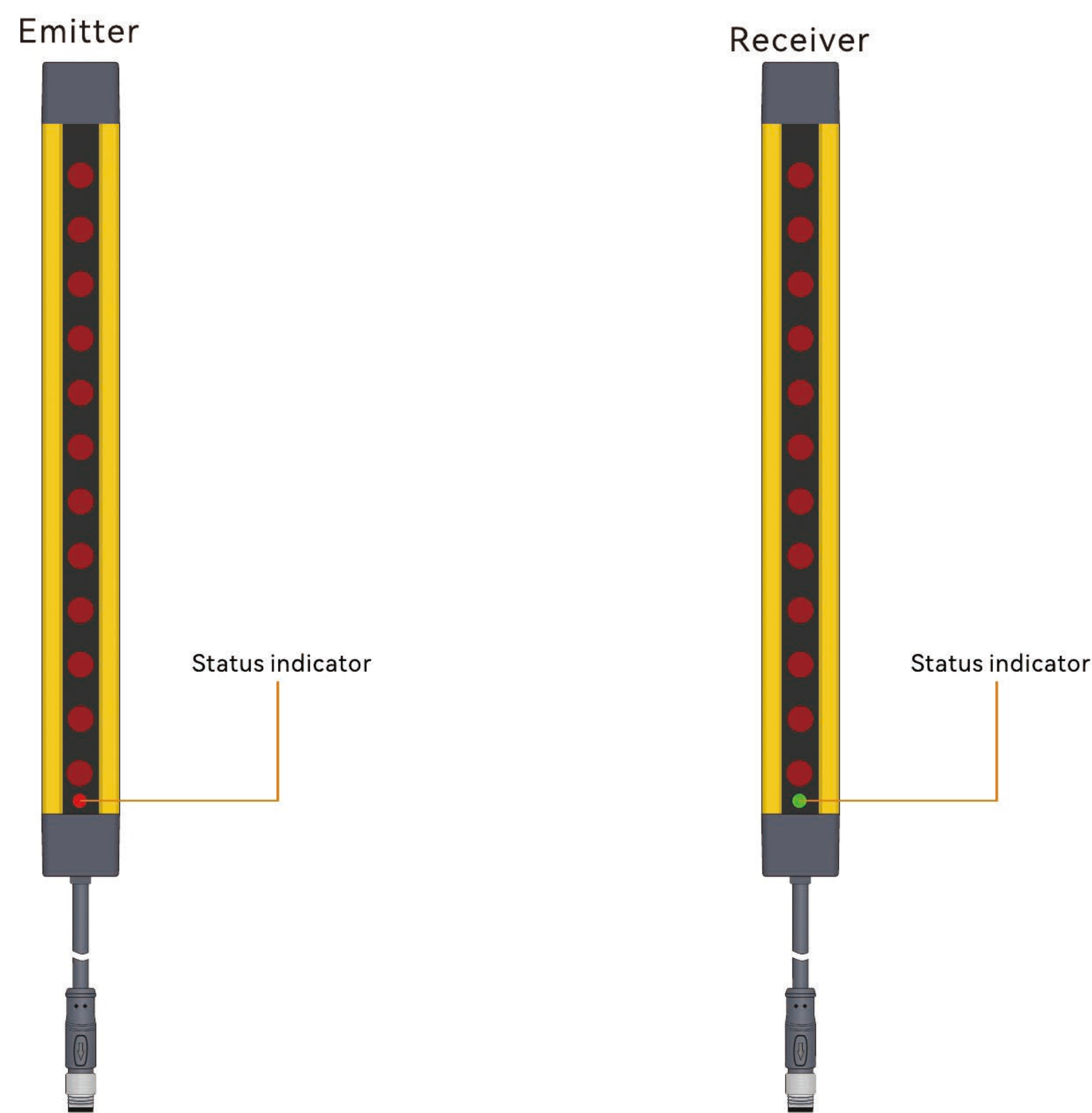
Mechanical data	
Housing material	Metal
Metal shell	Aluminium
Lens front screen material	Acrylic
Upper and lower cover materials	ABS reinforced nylon PA66+30% GF

Performance data	
Protection circuit	Short circuit protection Overvoltage protection
Supply voltage	24VDC, -20...20%
Maximum current consumption	150mA
Fuse	2A half time interval

Environmental data	
Protection grade	IP65
Resistance to ambient light	Incandescent light: illumination of light-receiving surface 3000Lx; Sunlight: illumination of light-receiving surface 10000Lx
Ambient temperature	Working temperature: - 10~+40 °C (but not frozen), storage temperature: - 25 ~+55 °C
Ambient humidity	Working time: 35~85% RH, saving time: 35~95% RH

Output	
Number of safe output circuits (OSSD)	2-circuit
Type	Safety circuit output circuit OSSD
Minimum switch voltage high	18V
Minimum switch voltage low	2.5V
Typical switching voltage	22.5V
Voltage type	DC
Maximum current load	380mA
Load inductance	two thousand
Load capacity	zero point three
Maximum residual current	0.2mA
Typical residual current	0.002MA
Voltage drop	1.5V
Safety switch output 1	Connection pin 4, WHITE OSSD1
Switching element	Transistor PNP
Safety switch output 2	Connection pin 3, BLACK OSSD2
Switching element	Transistor PNP
Electrical interface	
Number of interfaces	2 (receiver and emitter)
Type	Emitter with M8 connector 3-pin,Receiver with M8 connector 5-pin
Interface metal	Copper nickel plating
Plug material	GY384 gray 30P
Allowable typical conductor section	0.25mm ²
Maximum link cable	100m
Maximum allowable cable load	4.9A
Cable material	PVC
Certificate	
CE TÜV	No.E8A 104143 0001 Rev.00
ROHS certification	No.BSTDG180811032001CC
CE TYPE 4	No.ICR Polska/VC/HS221222
UL	No. 4790783741.1-S
ISO	No. HIC180327 GB/T 19001-2016 / ISO 9001:2015

Operation and display

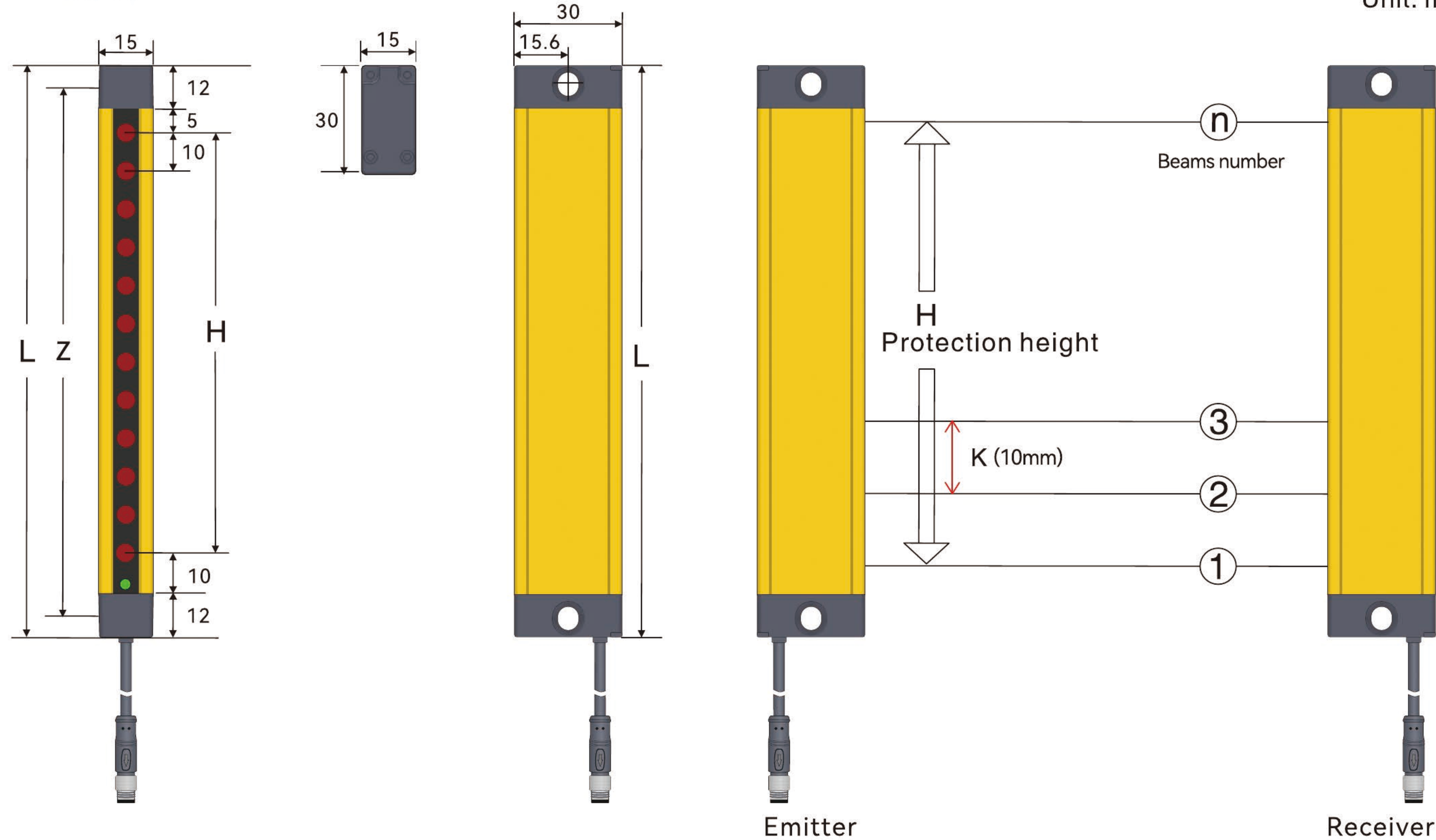


Normal operation of light curtain	LED Indicator status		Explain
Emitter		Red, always on	Turns on the power
		Receiver and emitter are red	Receiver and Emitter are not aligned
Receiver		Green	All light paths are connected
		Red	Light path shading
		Lights flashing	Interference or overstep detection range

Dimensioned drawings

1. DQBT 10mm series

Unit: mm



Remarks

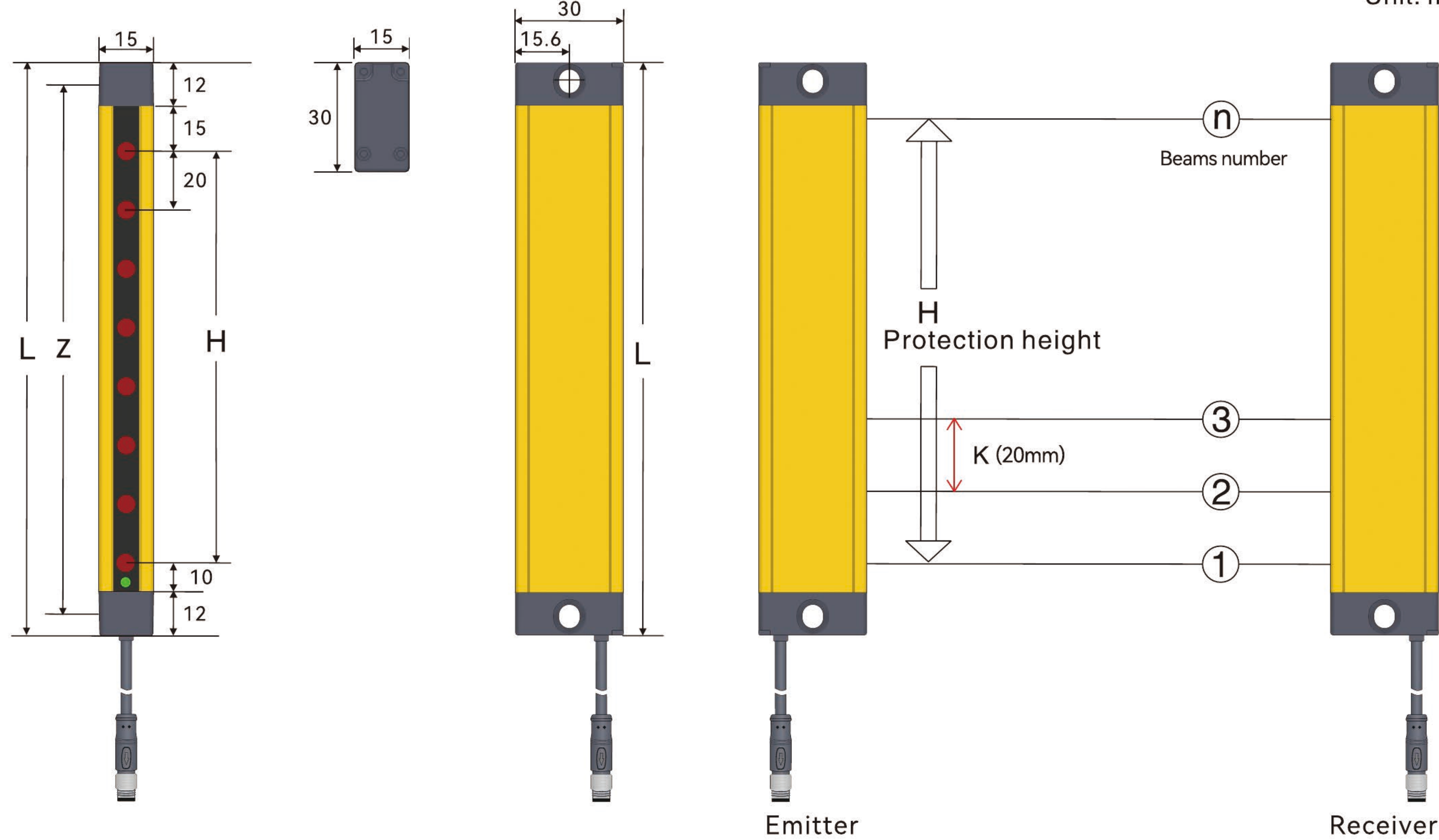
L:Total length of light screen H:Height of protected area K:Resolution ratio Z:Fixed hole center distance
L=12+5+H+10+12 H= (n-1) * 10 Z=L-11mm n:Beams number

DQBT 10mm specification list

Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	NPN / PNP	
10mm (K)	8	70	109	DQBT10-08-70	2	PNP	0.3-3m
	10	90	129	DQBT10-10-90	2	PNP	0.3-3m
	12	110	149	DQBT10-12-110	2	PNP	0.3-3m
	14	130	169	DQBT10-14-130	2	PNP	0.3-3m
	16	150	189	DQBT10-16-150	2	PNP	0.3-3m
	18	170	209	DQBT10-18-170	2	PNP	0.3-3m
	20	190	229	DQBT10-20-190	2	PNP	0.3-3m
	22	210	249	DQBT10-22-210	2	PNP	0.3-3m
	24	230	269	DQBT10-24-230	2	PNP	0.3-3m
	26	250	289	DQBT10-26-250	2	PNP	0.3-3m
	28	270	309	DQBT10-28-270	2	PNP	0.3-3m
	30	290	329	DQBT10-30-290	2	PNP	0.3-3m
	32	310	349	DQBT10-32-310	2	PNP	0.3-3m
	34	330	369	DQBT10-34-330	2	PNP	0.3-3m
	36	350	389	DQBT10-36-350	2	PNP	0.3-3m
	38	370	409	DQBT10-38-370	2	PNP	0.3-3m
	40	390	429	DQBT10-40-390	2	PNP	0.3-3m
	42	410	449	DQBT10-42-410	2	PNP	0.3-3m
	44	430	469	DQBT10-44-430	2	PNP	0.3-3m
	46	450	489	DQBT 10/46-450	2	PNP	0.3-3m
	48	470	509	DQBT 10/48-470	2	PNP	0.3-3m
	50	490	529	DQBT 10/50-490	2	PNP	0.3-3m
	52	510	549	DQBT10/52-510	2	PNP	0.3-3m
	...	...	...	...	2	PNP	0.3-3m
	196	1950	1989	DQBT10/196-1950	2	PNP	0.3-3m
	198	1970	2009	DQBT10/198-1970	2	PNP	0.3-3m
	200	1990	2029	DQBT10/200-1990	2	PNP	0.3-3m

2. DQBT 20mm series

Unit: mm



Remarks

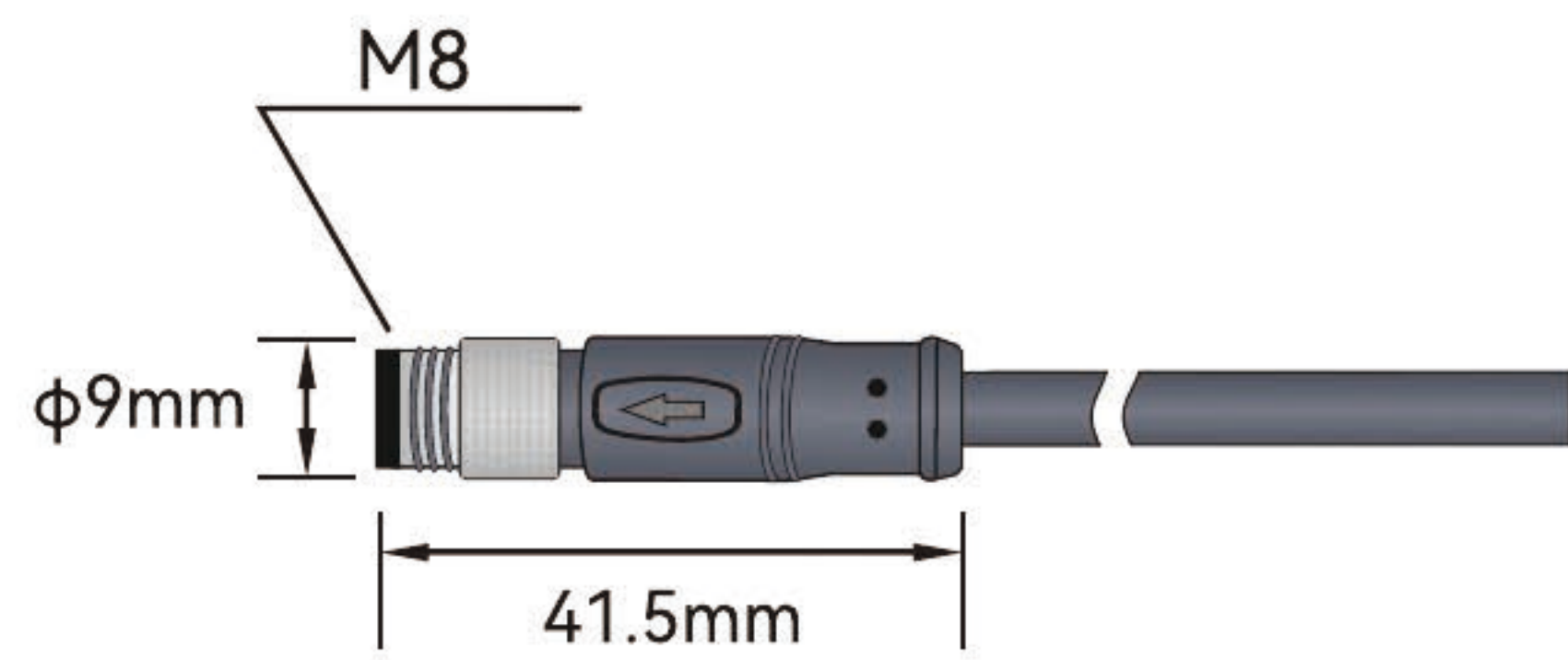
L:Total length of light screen H:Height of protected area K:Resolution ratio Z:Fixed hole center distance
L=12+15+H+10+12 H= (n-1) * 20 Z=L-11mm n:Beams number

DQBT 20mm specification list

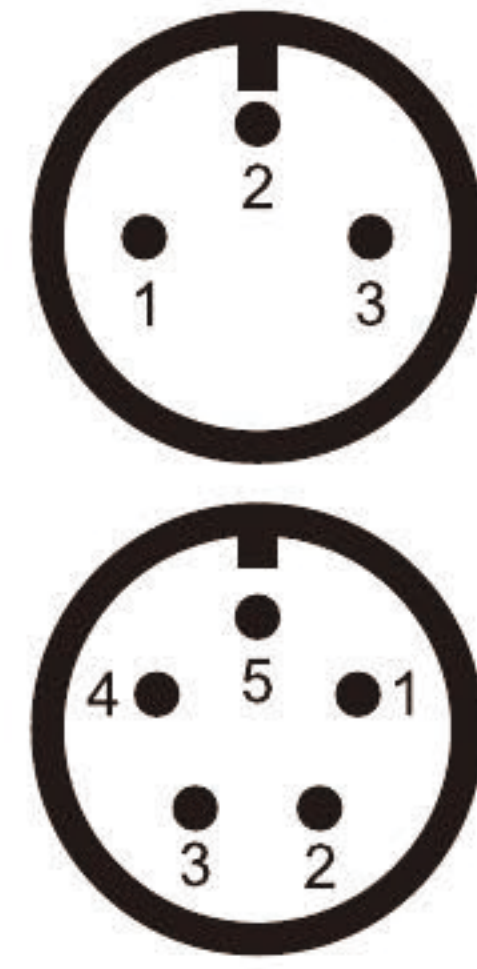
Resolution	Light beam	Protection height (H)	Total height (L)	Product model	Signal output mode		Detection range
					Outputs	NPN / PNP	
20mm (K)	6	100	149	DQBT20-06-100	2	PNP	0.3-3m
	8	140	189	DQBT20-08-140	2	PNP	0.3-3m
	10	180	229	DQBT20-10-180	2	PNP	0.3-3m
	12	220	269	DQBT20-12-220	2	PNP	0.3-3m
	14	260	309	DQBT20-14-260	2	PNP	0.3-3m
	16	300	349	DQBT20-16-300	2	PNP	0.3-3m
	18	340	389	DQBT20-18-340	2	PNP	0.3-3m
	20	380	429	DQBT20-20-380	2	PNP	0.3-3m
	22	420	469	DQBT20-22-420	2	PNP	0.3-3m
	24	460	509	DQBT20/24-460	2	PNP	0.3-3m
	26	500	549	DQBT20/26-500	2	PNP	0.3-3m
	28	540	589	DQBT20/28-540	2	PNP	0.3-3m
	30	580	629	DQBT20/30-580	2	PNP	0.3-3m
	32	620	669	DQBT20/32-620	2	PNP	0.3-3m
	34	660	709	DQBT20/34-660	2	PNP	0.3-3m
	36	700	749	DQBT20/36-700	2	PNP	0.3-3m
	38	740	789	DQBT20/38-740	2	PNP	0.3-3m
	40	780	829	DQBT20/40-780	2	PNP	0.3-3m
	42	820	869	DQBT20/42-820	2	PNP	0.3-3m
	44	860	909	DQBT20/44-860	2	PNP	0.3-3m
	46	900	949	DQBT20/46-900	2	PNP	0.3-3m
	48	940	989	DQBT20/48-940	2	PNP	0.3-3m
	50	980	1029	DQBT20/50-980	2	PNP	0.3-3m
	52	1020	1069	DQBT20/52-1020	2	PNP	0.3-3m
	...	...	...	...	2	PNP	0.3-3m
	196	3900	3949	DQBT20/196-3900	2	PNP	0.3-3m
	198	3940	3989	DQBT20/198-3940	2	PNP	0.3-3m
	200	3980	4029	DQBT20/200-3980	2	PNP	0.3-3m

Electrical connection

Cable description:



3-pin and 5-pin M8 cable connector straight
3m waterproof cable

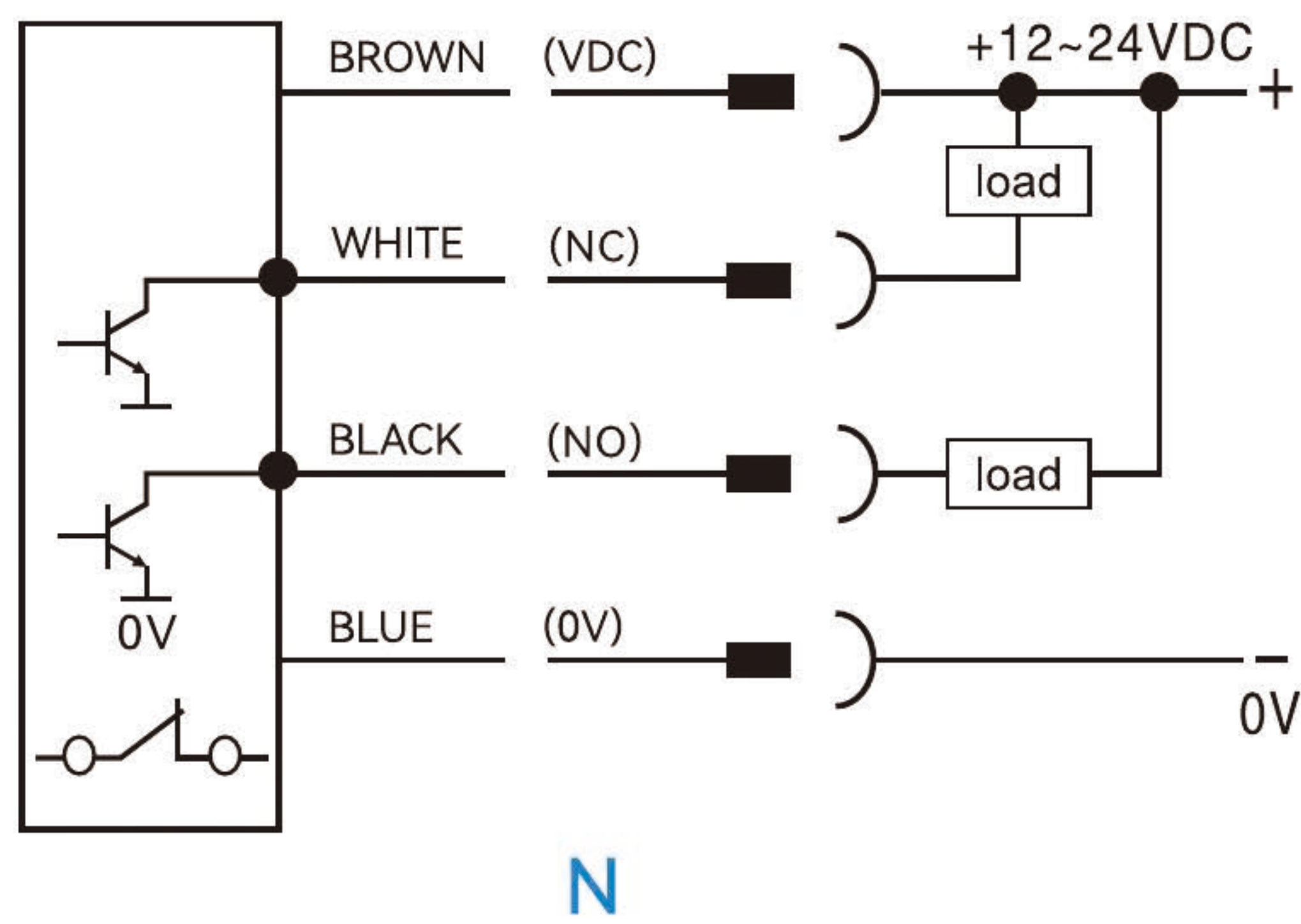


Emitter Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
-	-	-
-	-	-
3	YELLOW	Ground wire

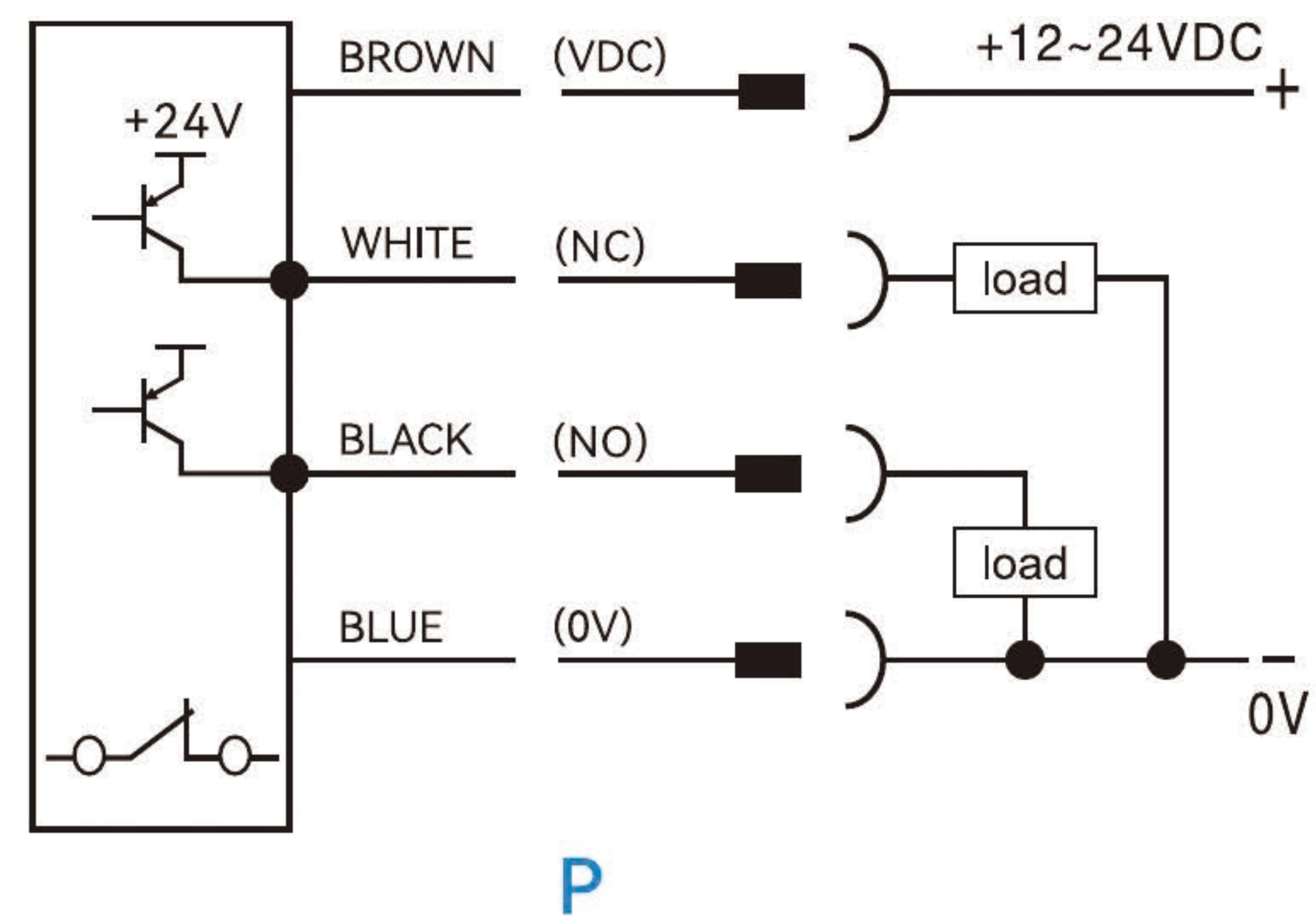
Receiver Wiring diagram		
Pin number	Line color	Name
1	BROWN	24V DC
2	BLUE	0V
3	BLACK	OSSD 2
4	WHITE	OSSD 1
5	YELLOW	Ground wire

1. DQBT signal output selection (actual output of transistor working normally)

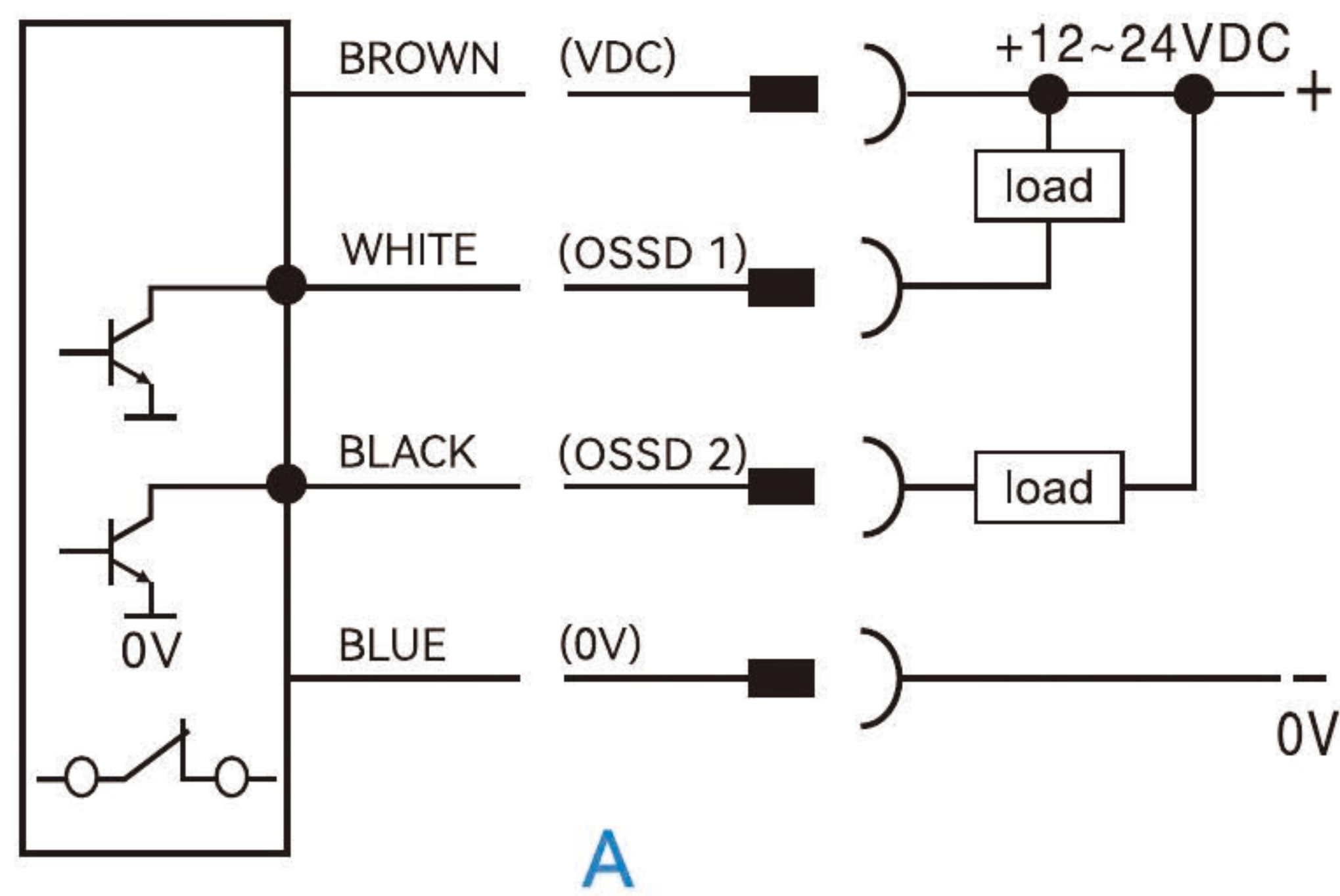
NPN NO+NC



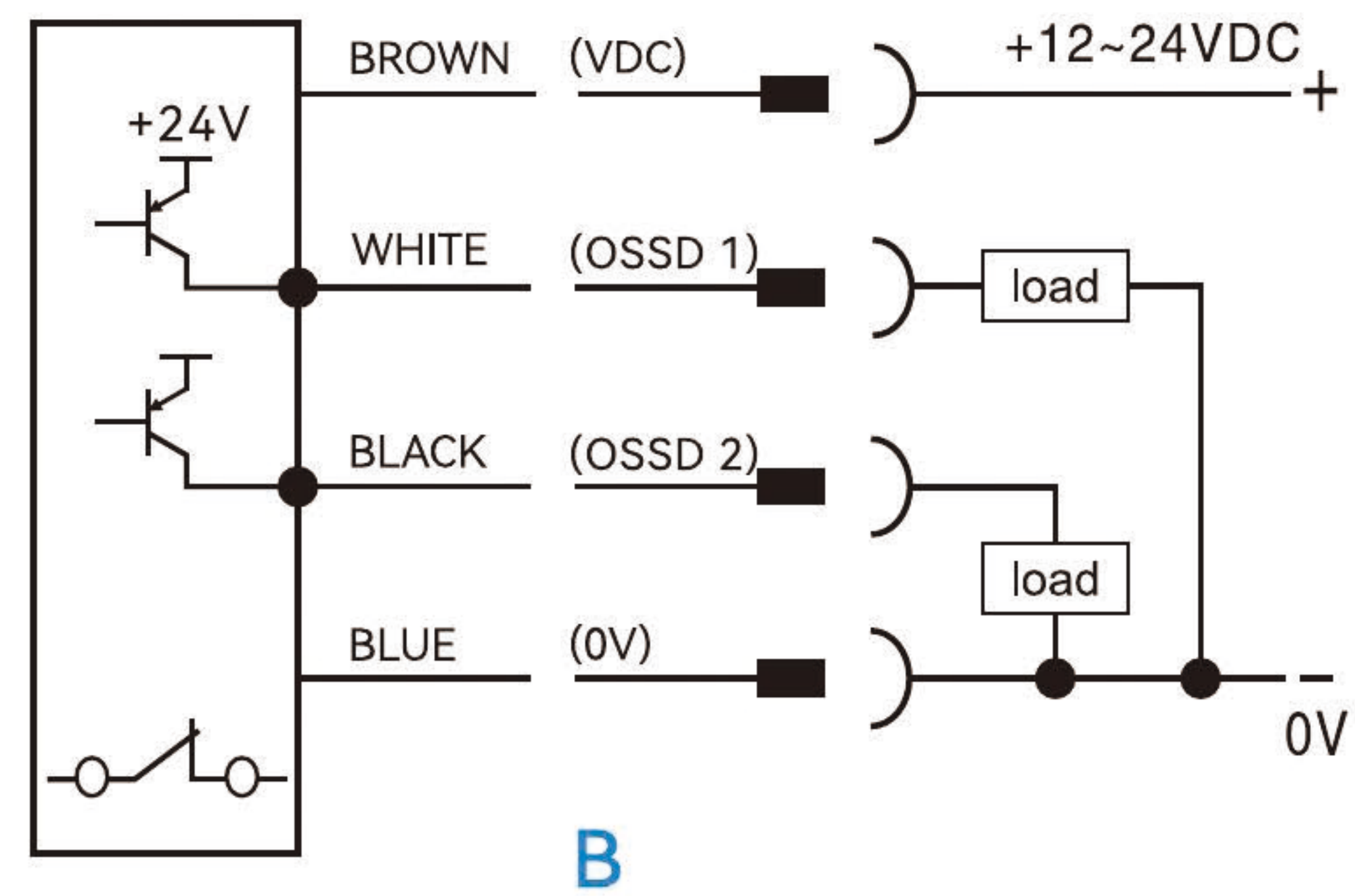
PNP NO+NC



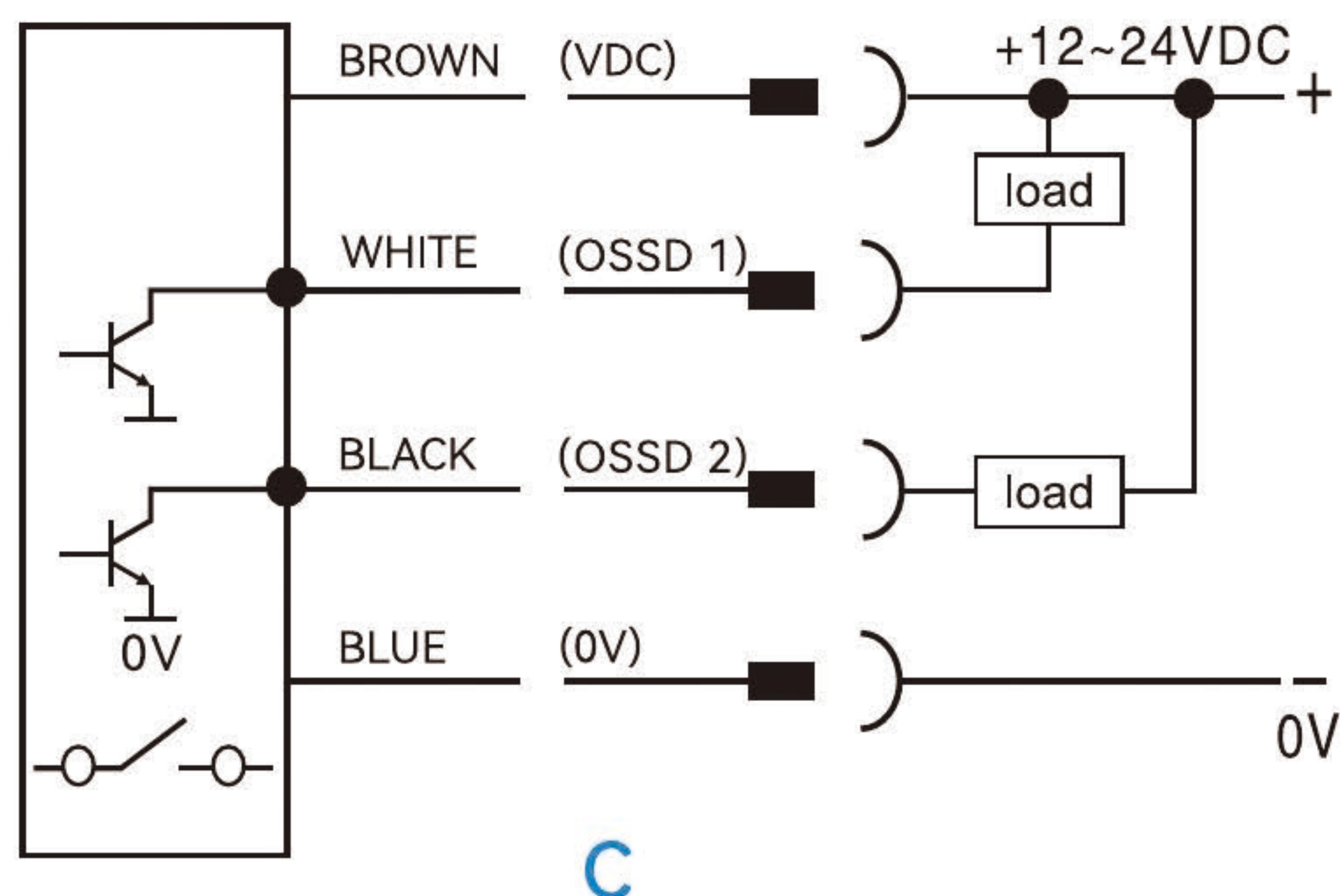
NPN NC



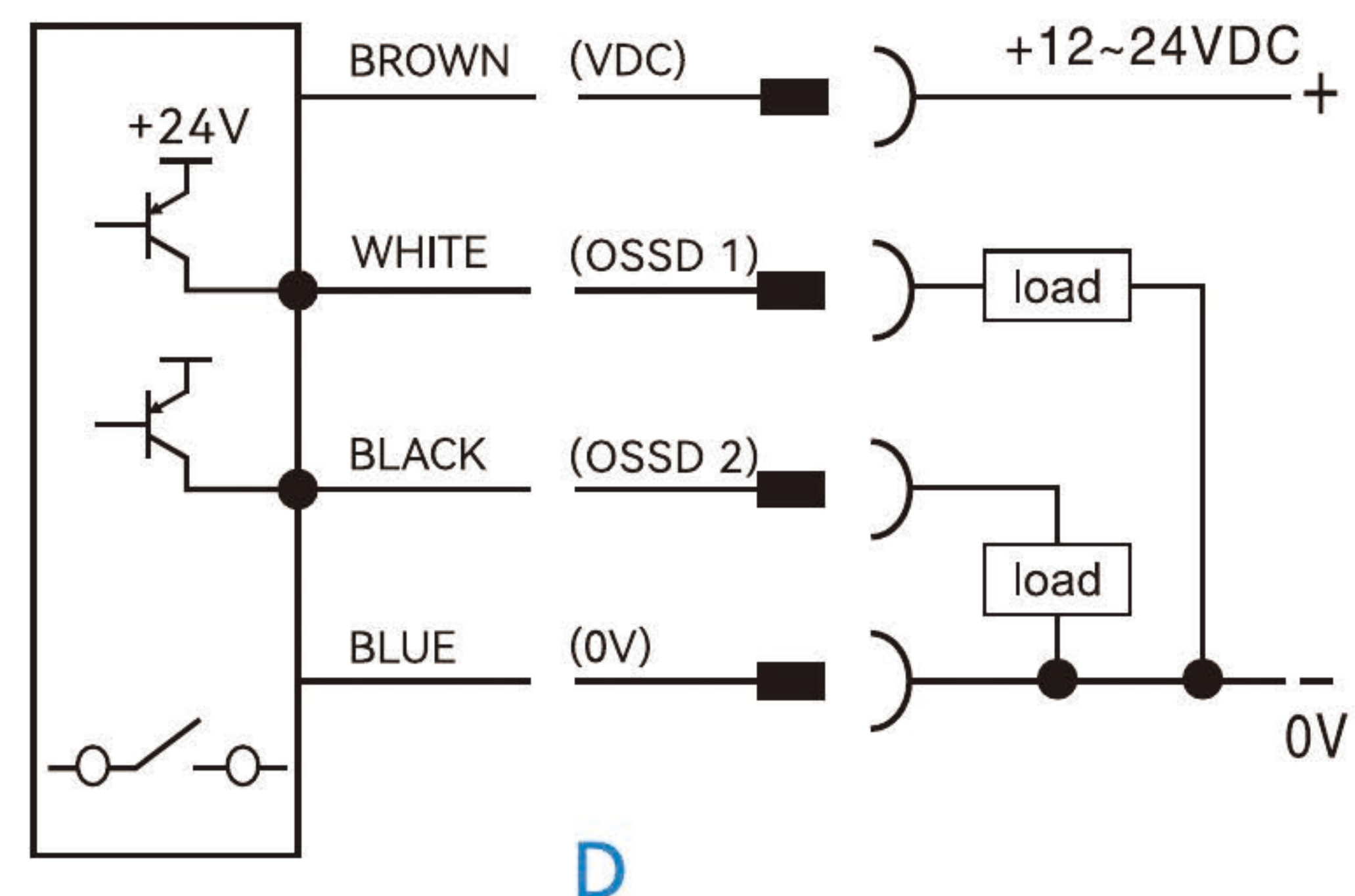
PNP NC



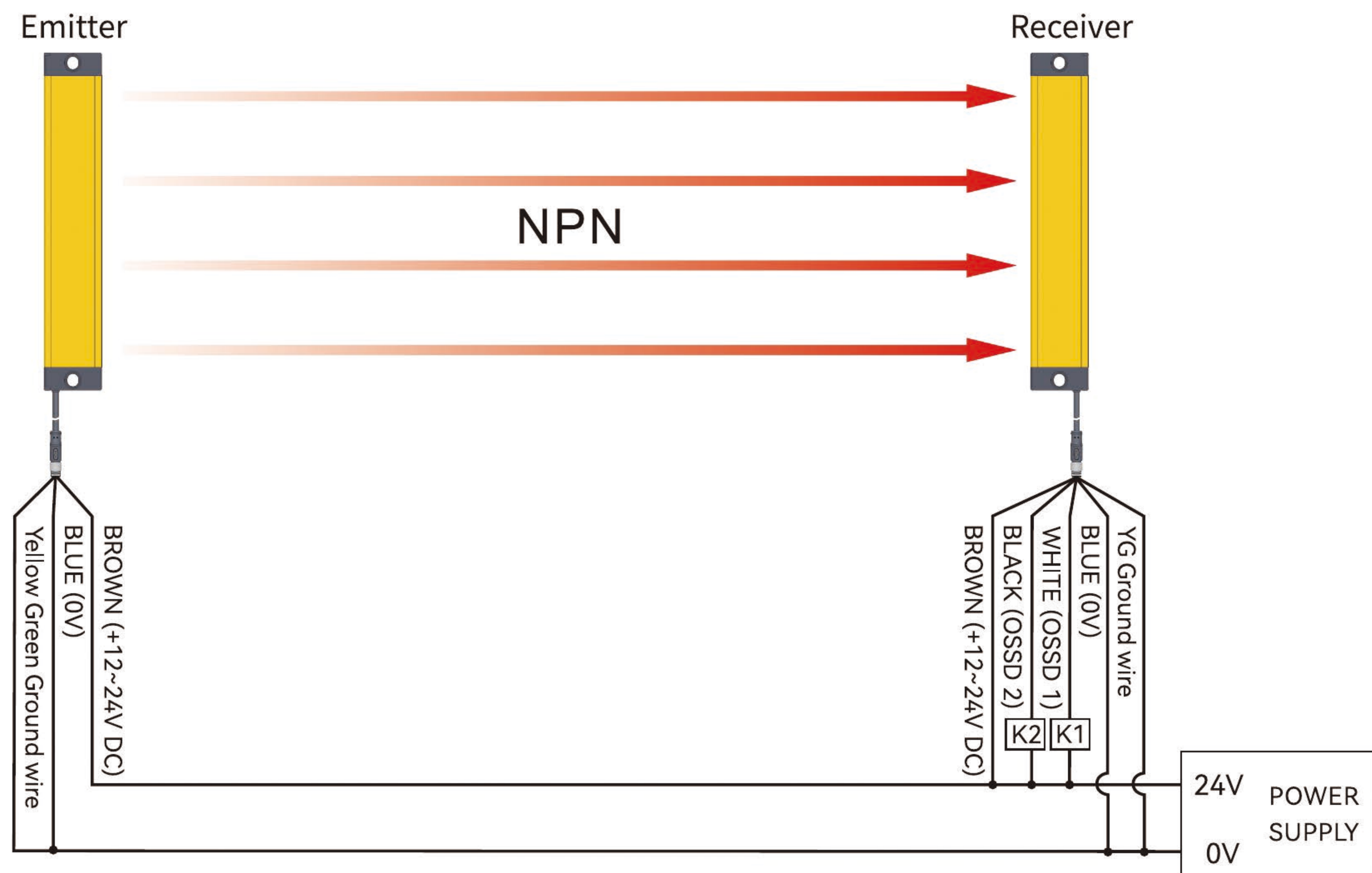
NPN NO



PNP NO

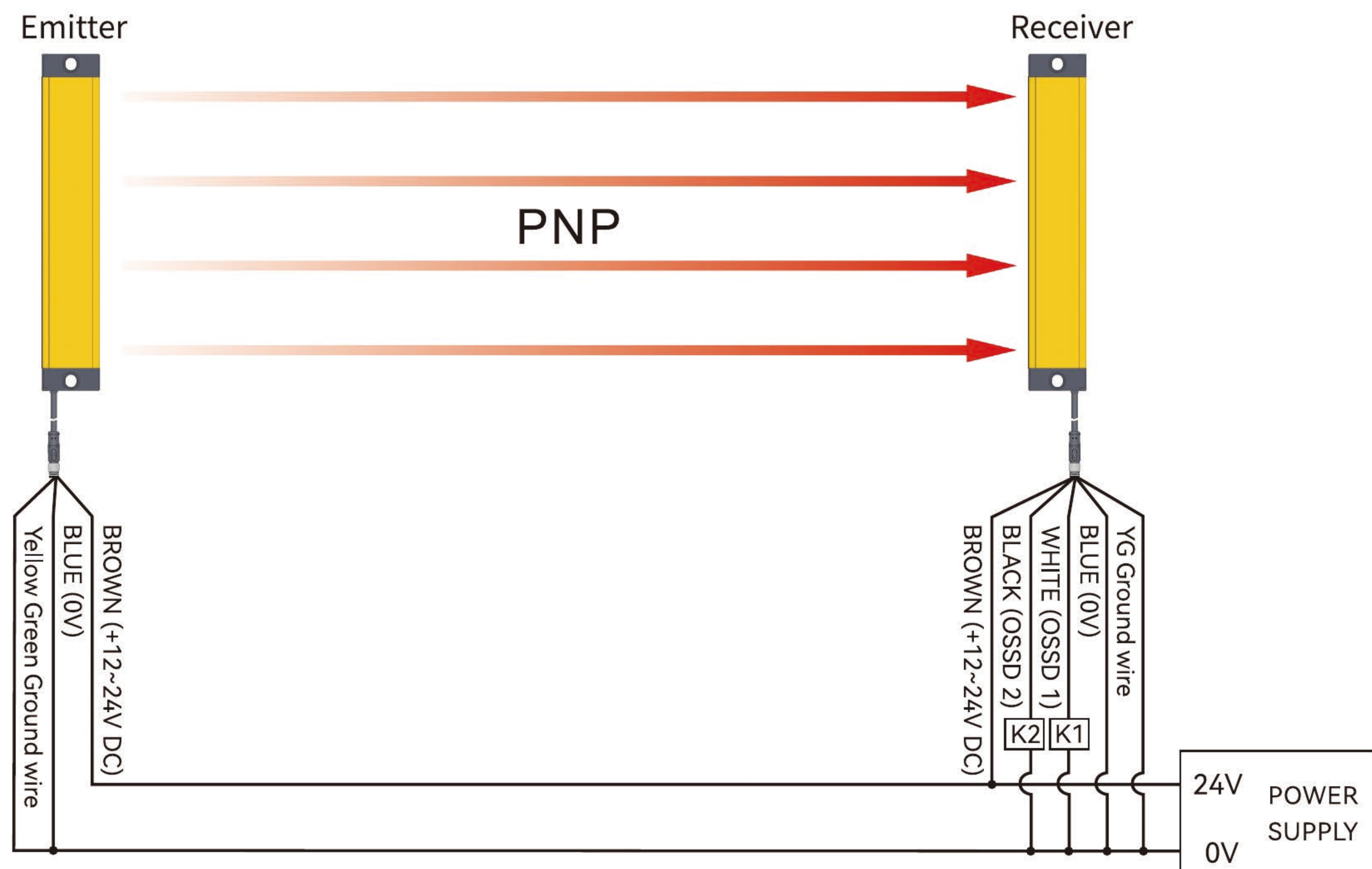


2. NPN output wiring diagram



This picture is an example of NPN output wiring

3. PNP output wiring diagram

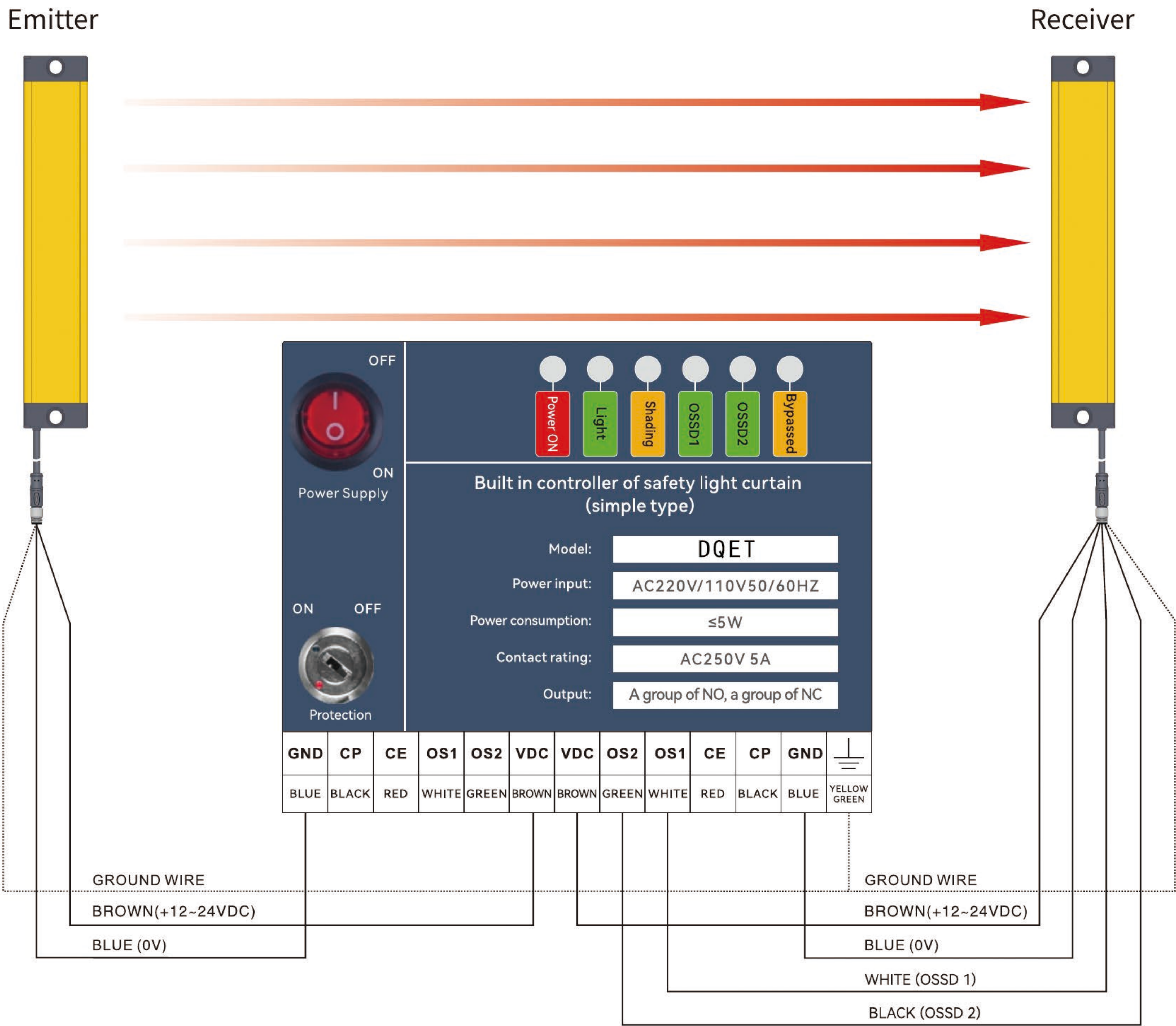


This picture is an example of PNP output wiring

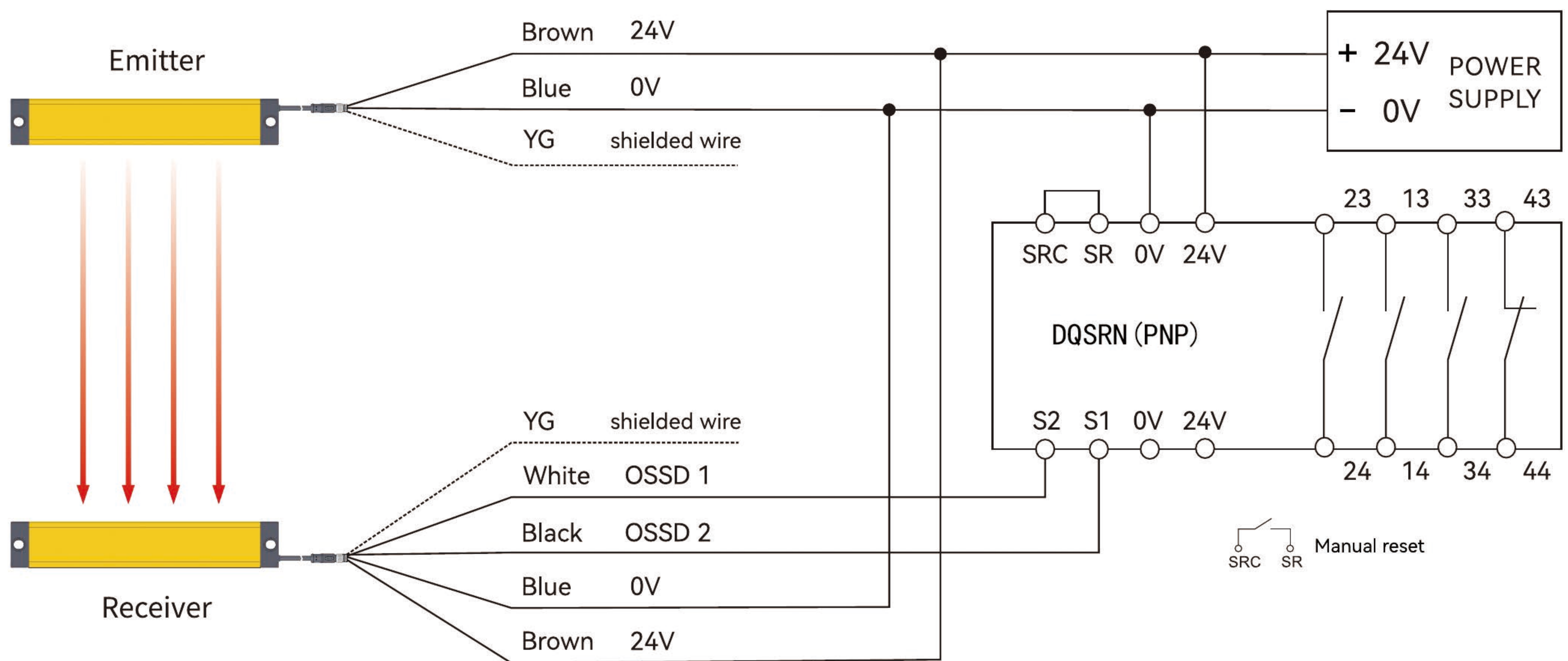
4. Selection of safety light curtain controller

Name	Order separately	Model	Descriptions
Built-in controller		DQET	Used to monitor the signal processing of DQET series light curtain, and output one group of NO and one group of NC.
Safety relay		DQSRP	DQSRP safety relays have three groups of NO and one group of NC, with strong control capabilities. They are suitable for various signal monitoring in industrial places with high safety requirements, including emergency stop signals, safety door opening and closing signals, safety light curtain signals, and two-handed button signals.
Safety relay	 Multifunctional switching switch	DA31P	Equipped with a mode switch, it can be used for most safety components, such as light curtains, safety switches, carpet contacts, two handed switches, etc. Automatic/manual reset paddles for quick configuration. Dual channel monitoring circuit, safe and reliable.
Light curtain relay		DQET-1	Output conversion between NC and NO for DQBT series light curtain.

4.1 Wiring diagram of DQET built-in controller

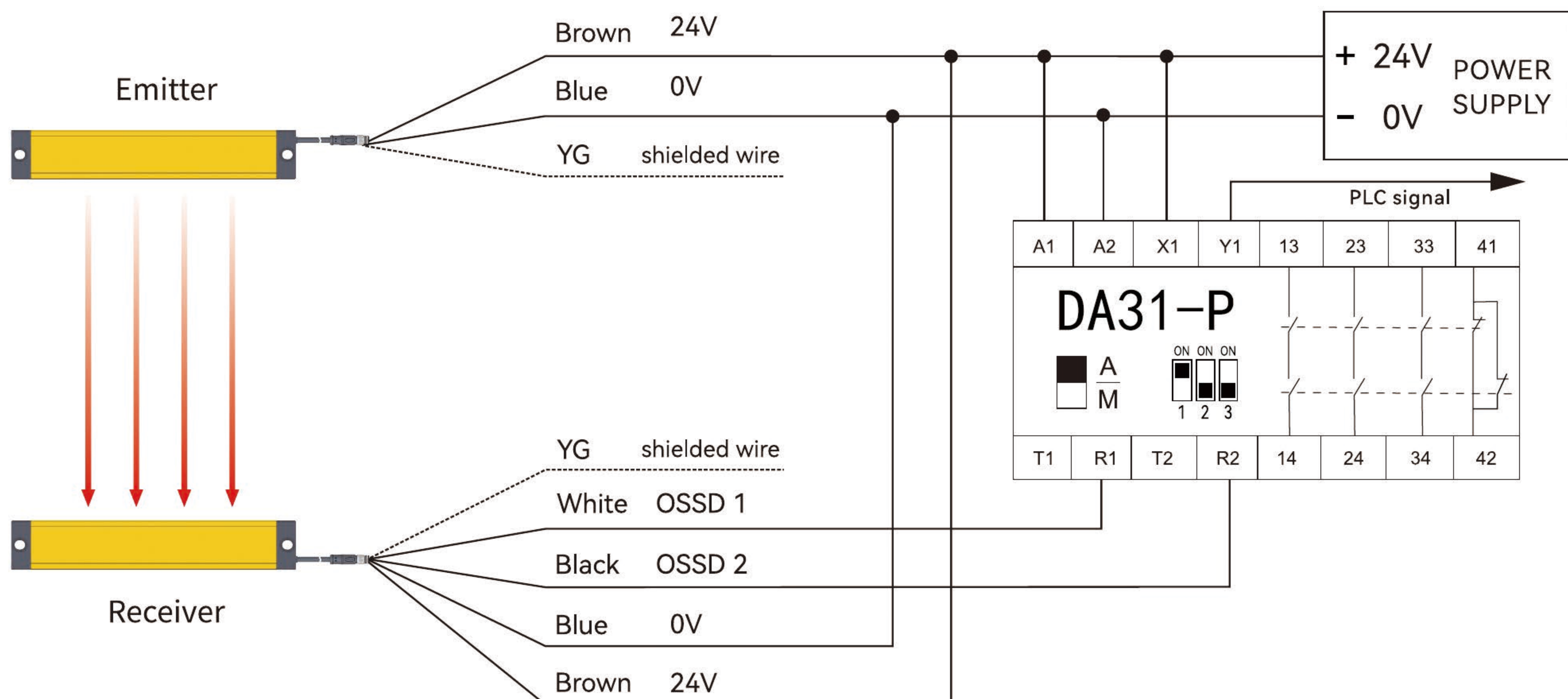


4.2 Wiring diagram of DQSRN (PNP) safety relay

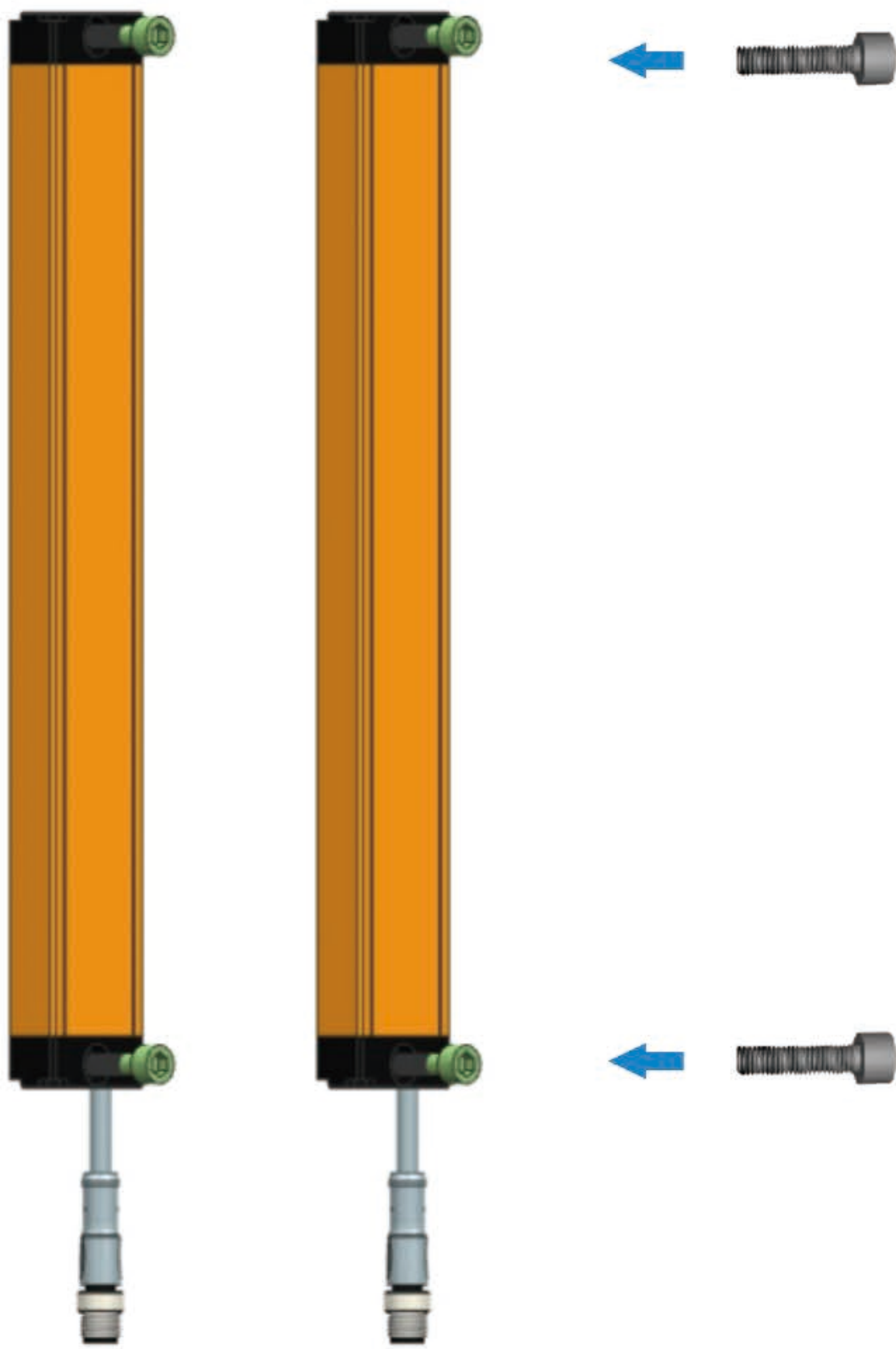


4.3 Wiring diagram of DA31-P safety relay

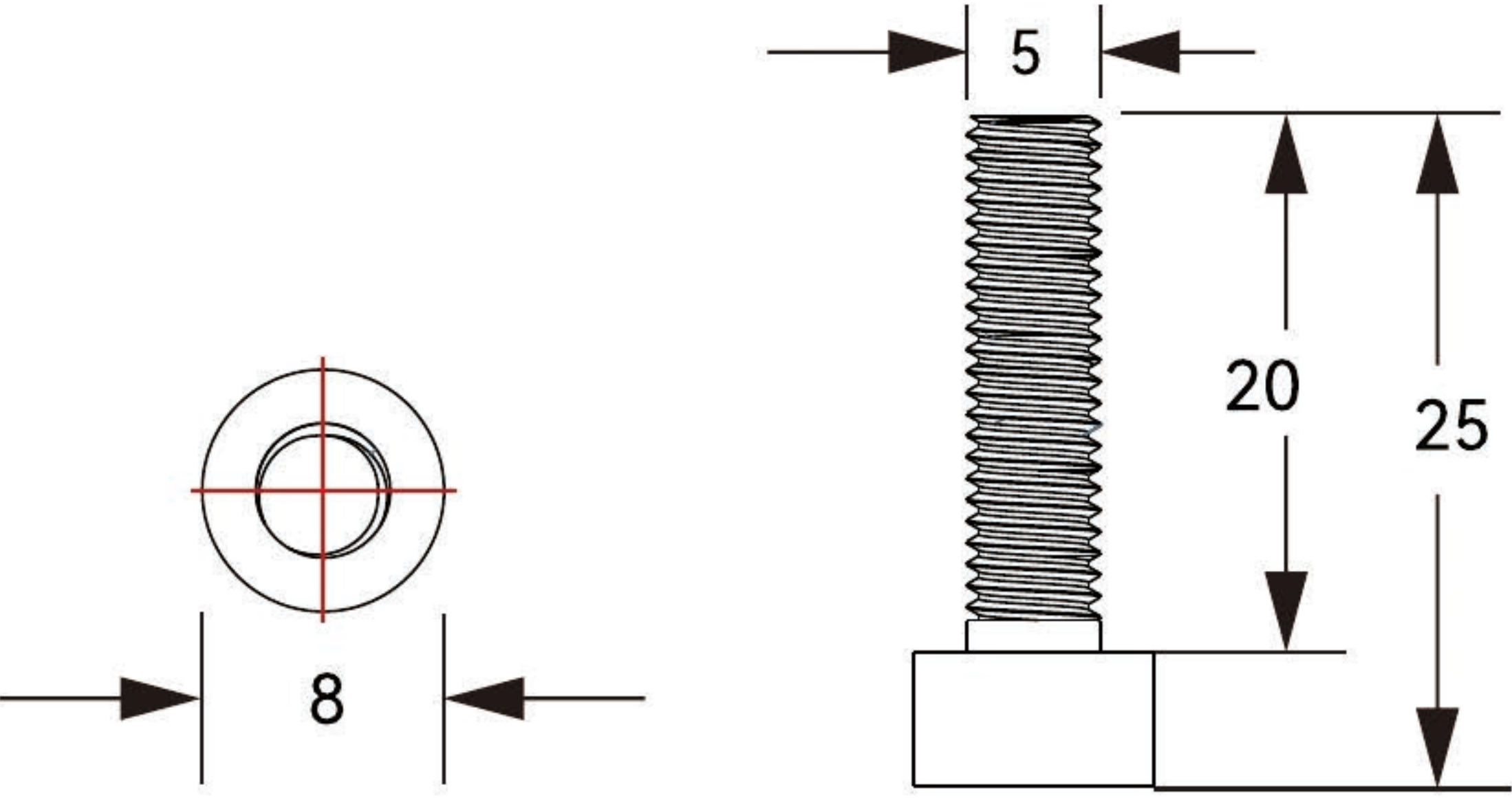
Dual channel light curtain PNP switch safety input, with automatic reset and PLC signal output.



Accessories



Installation method for fixing hole screws
(Original accessories)

Circular screw	Model: DQBZ-01
	
Unit: mm	