

Active Distributor ASi Safety, IP67



2 x connectors for profile cable

Periphery connection

1 x M12 cable socket, straight, 8 poles



(Figure similar)

Figure	Inputs Safety, SIL 3, Cat. 4	Safety signal inputs	Outputs digital	Input voltage (sensor supply) ⁽¹⁾	Output voltage (actuator supply) ⁽²⁾	Connection ⁽³⁾	ASi address ⁽⁴⁾	Special function	Art. no.
	1 x 2 channels	OSSDs	1 x electronic	out of AUX	out of AUX	1 x M12 cable socket, straight, 8 poles	1 single address	to connect Keyence GS-71PC / GS-11PC / GS-51PC ⁽⁵⁾ / GS-M51P / GS-ML51P / GS-M91P 16 or Sick MLP1-SMMF0AC to ASi	BWU5051

(1) **Input voltage (sensor supply):** inputs are supplied by ASi or by AUX (auxiliary 24 V power). If supplied by ASi, inputs shall not be connected to earth or to external potential.

(2) **Output voltage (actuator supply):** outputs are supplied by ASi or by AUX (auxiliary 24 V power). If supplied by ASi, outputs shall not be connected to earth or to external potential

(3) **Connection:** further connection options are available on request.

M12 cable socket, angled	M12 cable socket, straight	M8 cable socket, straight	round cable / connecting wires	Push in terminals
PUR line: oil resistant				
				

(4) **ASi address:** 1 AB address (max. 62 AB addresses/ASi network), 2 AB addresses (max. 31 modules with 2 AB addresses), Single addresses (max. 31 Single addresses/ASi network), mixed use allowed.

For modules with two nodes the second node is turned off as long as the first node is addressed to address "0".

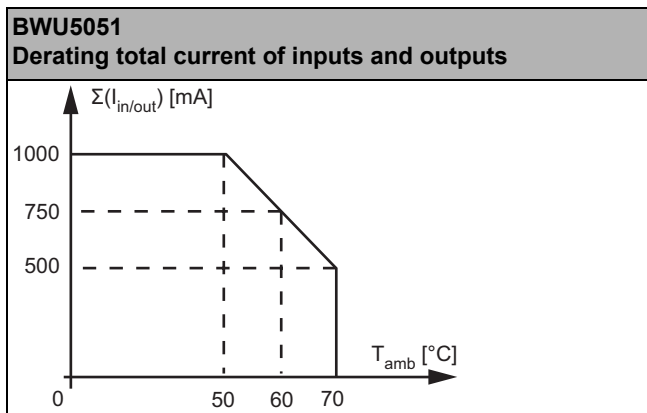
Upon request, nodes are available with specific ASi address profiles.

(5) Keyence GS-51PC: only detection of the actuator - locking via standard output cannot be used for safety purposes.

Article No.		BWU5051
General data		
Device type		safe input
Connection		
ASi/AUX connection		profile cable and piercing technology
Periphery connection		1 x M12 cable socket, straight, 8 poles
Round cable		1 m
		max. allowed tensile strain 10 N
ASi		
Profile		S-7.B.1, ID1=F
Address		1 single address
Required Master profile		≥M3
As of ASi specification		2.1
Operating voltage		30 V (21,6 ... 31,6 V)
Max. current consumption		60 mA
Max. current consumption without sensor/ actuator supply		60 mA
AUX		
Operating voltage		24 V (20 ... 30 V _{DC}) (PELV)
Max. current consumption		max. 1 A ⁽¹⁾
Input		
Number		1 x 2-channels safe input + 1 x standard input
Safety signal		OSSDs
Power supply		out of AUX
Sensor supply		short-circuit and overload protected according to EN 61131-2
Power supply of attached sensors	up to +50 °C	750 mA, Σ (In/Out) 1 A ⁽¹⁾
	at +60 °C	750 mA, Σ (In/Out) 750 mA ⁽¹⁾
	at +70 °C	500 mA, Σ (In/Out) 500 mA ⁽¹⁾
Switching threshold safe input		V _{in} > 11 V for High-Level, input current > 2,5 mA at 15 V
Switching threshold standard input		U < 5 V (low) U > 15 V (high) (data bit inverted)
OSSD test pulses		0 ... 50 Hz
OSSD test pulse width		U _{aux} ≥ 21,5 V = 0 ... 1 ms test pulses possible U _{aux} ≥ 17 V = 0 ... 0,8 ms test pulses possible U _{aux} < 17 V = 0 ... 0,6 ms
Start delay		< 22 ms
Output		
Number		1
Power supply		out of AUX
Output		short-circuit and overload protected according to EN 61131-2
Max. output current	up to +50 °C	750 mA, Σ (In/Out) 1 A ⁽¹⁾
	at +60 °C	750 mA, Σ (In/Out) 750 mA ⁽¹⁾
	at +70 °C	500 mA, Σ (In/Out) 500 mA ⁽¹⁾

Article No.	BWU5051
Display	
LED ASI/FLT (red/green)	green: ASi voltage on, ASi node online green/red: ASi voltage on, but ASi node offline green flashing/red: address 0 red/green flashing: peripheral fault ⁽²⁾ off: no ASi voltage
LED AUX (green)	on: 24 V _{DC} AUX off: no 24 V _{DC} AUX
LEDs S1, S2 (yellow)	state of inputs S1, S2
LED I1 (yellow)	state of input I1
LED O1, O2 (yellow)	state of output O1
Environment	
Applied standards	EN ISO 13849-1 PLe Kat4 EN ISO13 849-2 EN 62061 SIL 3 EN 62026-2 EN 61000-6-2 EN 61000-6-4 EN 60529
It can be used with a switched AUX cable, which is passively safe up to SIL3/PLe	no ⁽³⁾
Operating altitude	max. 2000 m
Ambient temperature	-30 °C ... +60 °C (up to max. +70 °C) ^{(1) (4)}
Storage temperature	-25 °C ... +85 °C
Intended environment	for indoor use only ⁽⁵⁾
Housing	plastic, for screw mounting, suitable for cable ducts (installation depth ≥19 mm)
Pollution Degree	2
Protection category	IP67 ⁽⁶⁾
Overvoltage category	II
Tolerable loading referring to humidity	according to EN 61131-2
Maximum tolerable shock and vibration stress	≤15g, T≤11 ms 10 ... 55 Hz, 0,5 mm amplitude
Insulation voltage	≥500 V
Weight	100 g
Dimensions (W / H / D) in mm	60 / 45 / 19

(1)



(2) **see table "Peripheral fault indication"**

(3) The module is not suitable for use in paths with a passively safe-switched AUX cable, since an exclusion of errors cannot be assumed for the connection of the two ASi and AUX potentials.
If the module is supplied from an unswitched AUX cable, this has no influence on the safety consideration for the paths with passively safe-switched AUX cable. In an ASi circuit, paths supplied from a passively safe-switched AUX cable and paths supplied from unswitched AUX potential can be used together.

- (4) Down to -25 °C with flexibly mounted cable, -30 °C only with fixed mounted cable.
 (5) Intended environment according to UL certificate for the use in the USA and Canada.
 (6) Manufacturer specification, IP rating not evaluated by UL.

UL-specifications (UL61010) BWU5051	
Model (1)	PBC.DBA1-5051
In general	UL mark does not provide UL certification for any functional safety rating or aspects of the above devices.
External protection	The supply source to these devices shall meet the requirements of Class 2 of NEC, or Limited Energy of UL/CSA 61010-1, -2-201 or Limited Power Source of UL/CSA 60950/62368-1.

(1) For reference see UL file E227214 "Programmable Controllers "Active Distributor Family""

Article no.	Peripheral fault indication		
	Overload sensor supply	Output short circuited	AUX voltage missing
BWU5051	–	•	•

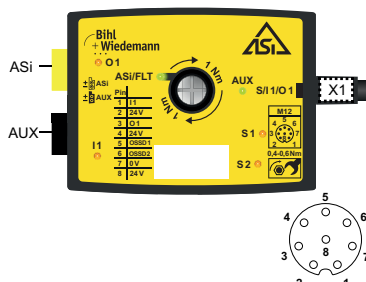
Programming	ASi bit assignment			
	D3	D2	D1	D0
	safe input			
BWU5051	OSSD2	OSSD2	OSSD1	OSSD1
	output			
BWU5051	–	–	–	O1
	parameter bit			
	P3	P2	P1	P0
BWU5051	not used	not used	I1 (inverted) (1)	0= off / 1= on (Watchdog)

(1) Parameter bit 1 should not be changed from default 1 to 0, otherwise the input cannot be read.

Pin assignment

Signal name	Explanation
Sx +, Sx -	safe input x
Ix	digital input x
Ox	digital output x
24V _{ext out}	power supply, out of external voltage, positive pole (AUX, actuator supply)
0V _{ext out}	power supply, out of external voltage, negative pole (AUX, actuator supply)
24V _{out of ASi}	power supply, out of ASi, positive pole (sensor supply)
0V _{out of ASi}	power supply, out of ASi, negative pole (sensor supply)
ASi +, ASi -	connection to ASi bus
n.c. (not connected)	not connected

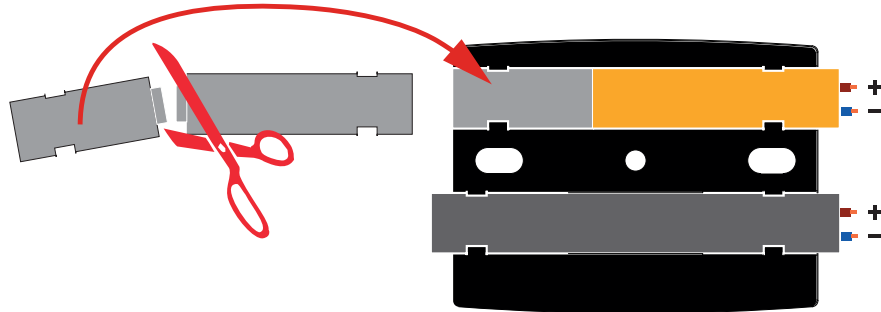
Connections: M12 cable sockets, straight, 8 poles

Article no.	connec.	Pin1 (WH)	Pin2 (BN)	Pin3 (GN)	Pin4 (YE)	Pin5 (GY)	Pin6 (PK)	Pin7 (BU)	Pin8 (RD)	
BWU5051	X1	I1 (1)	24 V _{ext out (2)}	O1	24 V _{ext out (2)}	OSSD 1	OSSD 2	0 V _{ext out}	24 V _{ext out (2)}	

(1) Data bit inverted.

(2) Pin2/Pin4/Pin8 internally bridged.

Line termination with sealing profile



(1) Manufacturer specification, IP rating not evaluated by UL.

Accessories:

- Sealing profile IP67 (IDC plug), 60 mm (art. no. BW3282)
- ASi-5/ASi-3 Address Programming Device (art. no. BW4925)
- Bihl+Wiedemann Safety Suite License - Safety Software for Configuration, Diagnostics and Commissioning (art. no. BW2916)