

Biometric switch

Harmony[®] XB5S

Catalog

August 2019



Quick access to product information

Get technical information about your product

References

Modicon TM3
I/O expansion modules for Modicon controllers
Analog I/O modules

Number and type of channels	Input range	Output range	Resolution	Aperture time (typical)	Reference	Weight (kg)
2 voltage/current inputs	-15...+15 VDC 0...25 mA A, 25 mA	-	16 bits of 15 bits + sign	200 ns	TM3A12H	0.110
4 voltage/current inputs	-15...+15 VDC 0...25 mA A, 25 mA	-	12 bits of 11 bits + sign	200 ns	TM3A12H	0.110
4 voltage/current or temperature inputs	-15...+15 VDC 0...25 mA A, 25 mA	-	16 bits of 15 bits + sign	200 ns	TM3A12H	0.110
4 differential temperature inputs	-15...+15 VDC 0...25 mA A, 25 mA	-	16 bits of 15 bits + sign	200 ns	TM3A12H	0.110

Each commercial reference presented in a catalog contains a hyperlink. Click on it to obtain the technical information of the product:

- Characteristics, Dimensions and drawings, Mounting and clearance, Connections and schemas, Performance curves
- Product image, Instruction sheet, User guide, Product certifications, End of life manual

Find your catalog



- > With just 3 clicks, you can reach the Industrial Automation and Control catalogs, in both English and French
- > Download Digi-Cat with this [link](#)

- Updated quarterly
- Embeds product selectors and configurators, 360° images, training centers,
- Optimized search by commercial reference

Select your training



- > Find the right [Training](#) for your needs on our Global website
- > Locate the training center with the selector tool, using this [link](#)

General contents

Harmony® XB5S Biometric switch

Control and signaling units selection guide

page 2

Biometric switch selection guide

page 4

■ Presentation

page 6

□ Mounting

page 6

□ Environment

page 6

■ Description

page 7

■ References

page 7

□ Complete units

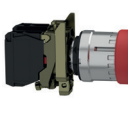
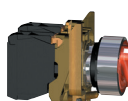
page 7

□ Accessories

page 7

■ Product reference index

page 8

Type of products		Pilot lights	Pushbuttons, selector switches and pilot lights			Biometric switches
						
						
						
						
Description of range		■ LED pilot lights	■ Pushbuttons ■ Multiple-headed pushbuttons ■ Emergency Stop pushbuttons ■ Selector switches and key switches ■ Illuminated pushbuttons ■ Pilot lights			Fingerprint readers 24V ~ ■ Stand-alone biometric switches ■ Stand-alone USB biometric switches ■ USB biometric switches dedicated to Schneider HMI (1)
Features	Products	Monolithic, compact, low consumption	Complete units or sub-assemblies (body + head)			Monolithic
	Bezel	Double insulated	Double insulated (3)	Metal, chromium plated or black	Double insulated	Double insulated, dark grey
	Shape of head	Circular	Circular, square or rectangular	Circular	Circular or square	–
Drilling or cut-out for fixing		Ø 8 mm and Ø 12 mm/0.315 in. and 0.472 in.	Ø 16 mm/0.630 in.	Ø 22 mm/0.866 in.		
Degree of protection	Conforming to IEC 60529	IP 40 IP 65 with seal	IP 65	IP 66, IP 67, IP 69, and IP 69K		IP 65 (control button)
	Conforming to UL 508 and CSA C22-2 N° 14	–	Enclosure type 4, 4X and 13			Enclosure type 12
Cabling		Tags for 2.8 x 0.5 mm/0.110 x 0.020 in. connectors or threaded connector	Faston connectors Solder pins for printed circuit boards (3) Fast connector socket (4)	Spring clamp terminal connections Screw clamp terminal connections Faston connectors Connector with adapter for printed circuit board		Cable or connectors
Mounting		Panel thickness	1...6 mm/0.039...0.236 in.			
Type references		XVLA	XB6, XB6E	XB4	XB5	XB5S

(1) Compatible with Magelis iPC, STU, OT, GXO, GT (except GT1000 series), GK, GH, and GTO models.
(2) Wireless and batteryless pushbutton and receiver ready-paired at the factory.

Wireless and batteryless pushbuttons	Pushbuttons, selector switches and pilot lights	Joystick controllers		Pushbuttons, selector switches and pilot lights	Cam switches
					
					
					
					
■ Wireless and batteryless pushbuttons and rope pull switch ■ Configurable receivers ■ Access point ■ Relay-antenna ■ Mobile handy box or plastic boxes for wall mounting		■ 2 or 4 direction ■ Stay put or spring return		■ Pushbuttons ■ Emergency Stop buttons ■ Selector switches and key switches ■ Illuminated pushbuttons ■ Pilot lights	
Ready-to-use packs (2) and "components" range		Complete units or sub-assemblies (body + head with lever)		Complete units or sub-assemblies (body + head)	
Metal, chromium plated or double insulated, black		Metal, chromium plated		Metal, chromium plated or double insulated, black	
Transmitter with circular head		Circular		Hexagonal	
Ø 22 mm/0.866 in.				Ø 30 mm/1.181 in.	
IP 65		IP 65 (control buttons and pilot lights) IP 54 (Emergency switching off pushbuttons)		IP 65	
Enclosure type 12		Enclosure type 3 (pushbuttons and Emergency stop) and 4 (pilot lights)		Enclosure type 4, 4X and 13	
Wireless (transmitter) Through cable (receiver)		Screw and captive clamp terminal connections Faston clip connections (pilot lights)		Screw and captive clamp terminal connections	
1...6 mm/0.039...0.236 in.				0.5...6 mm/0.020...0.236 in. (depending on model)	
XB5R, XB4R		XB7		XD4PA XD2GA XD5PA 9001K, 9001SK	
				K10, K1, K2, K30, K50, K63, K115, K150	

(3) For Harmony XB6 only.
(4) For Harmony XB6E only.

Control and signaling units Ø 22
Harmony XB5S, plastic
Biometric switches for fingerprint recognition

Applications	Simple access control for indoor industrial restricted areas
Type of products	Stand-alone biometric switch



Conformity to Standards	■ UL, CSA, GOST, CE
Functions	■ 1 level of authorization ■ Authorizes user through fingerprint recognition
Static Output	■ Bistable output, machine operation at 2 fixed states ■ Monostable output, machine operation at pulse control
Power	24 V ~
Connection	■ Pre-wired 3 wire cable (2 m/6.56 ft long) or ■ M12 connector
Memory capacity	■ 200 records of fingerprints ■ 100 authorized users with each registering 2 fingerprints or 200 authorized users with each registering 1 fingerprint
Communication	No communication
Database management software tools	None
User database update	Stand-alone as updates are done directly on the biometric switch
Associated accessories	■ Translucent protective cover ■ Fixing nut ■ Legend plate
Type references	XB5S1, XB5S2

(1) Compatible with Magelis iPC, STU, OT, GXO, GT (except GT1000 series), GK, GH and GTO models .
(2) Compatible with all versions of Harmony XB5S Soft application. The XB5S Soft is a freeware application and can be downloaded from our website www.schneider-electric.com.

Simple access control for indoor industrial restricted areas	■ Secure the control of automated lines and tool machines ■ Protect the start function of special vehicles
Stand-alone biometric switch with RGD compliance	Stand-alone biometric switch with RGD compliance



■ Compliance with European RGD regulation ■ It is suitable for EU area ■ UL, CSA, GOST, CE	■ Compliance with European RGD regulation ■ It is suitable for EU area ■ UL, CSA, GOST, CE
■ 1 level of authorization ■ Authorizes user through fingerprint recognition	■ 1 level of authorization ■ Authorizes user through fingerprint recognition
■ Bistable output, machine operation at 2 fixed states ■ Monostable output, machine operation at pulse control	■ Bistable output, machine operation at 2 fixed states ■ Monostable output, machine operation at pulse control
24 V ~	24 V ~
■ Pre-wired 3 wire cable (2 m/6.56 ft long) or ■ M12 connector	■ Pre-wired 3 wire cable (2 m/6.56 ft long) or ■ M12 connector
■ 200 records of fingerprints ■ 100 authorized users with each registering 2 fingerprints or 200 authorized users with each registering 1 fingerprint	■ 400 records of fingerprints ■ 200 authorized users with each registering 1 or 2 fingerprints
No communication	Connects with a PC via the USB port for database management when required
None	With Harmony XB5S Soft (2) on a PC
Stand-alone as updates are done directly on the biometric switch	■ Should be connected to a PC ■ Download the new user database to the biometric switch from Harmony XB5S Soft application (3)
■ Translucent protective cover ■ Fixing nut ■ Legend plate	■ Translucent protective cover ■ Fixing nut ■ Legend plate ■ Female/Female USB extension cable with a female USB port of Ø 22 mm/0.866 in. on one end for panel mount
XB5S6, XB5S7	XB5S8, XB5S9

(3) The user database cannot be uploaded from biometric switch to the PC.



Stand-alone biometric switch (XB5S1/XB5S2)



Stand-alone USB biometric switch (XB5S8/XB5S9)



Stand-alone biometric switch RGD (XB5S6/XB5S7)

Presentation

The biometric switches of the Harmony® XB5S range are designed to control and secure access to systems and machines by checking users' authorization through fingerprint recognition.

The following types of biometric switches are available:

- Stand-alone biometric switches
 - type XB5S1, with 2 fixed states (bistable) and type XB5S6 with 2 fixed states (bistable) plus RGD compliance
 - type XB5S2, with pulse control (monostable) and type XB5S7, with pulse control (monostable) plus RGD compliance
- Stand-alone USB biometric switches
 - type XB5S8, with 2 fixed states (bistable) plus RGD compliance
 - type XB5S9, with pulse control (monostable) plus RGD compliance

The biometric switches are aimed at 2 categories:

- Administrators, who decide and manage the list of users
 - the only people who can record the fingerprints in the device memory
- Users, who are authorized to use the biometric switch as a control unit
 - at least 1 of their fingerprints should be recorded in the device memory
 - access is granted when the finger is placed on the sensing screen

The USB switches communicate with the PC via the USB port to manage the user database. This database can be visualized, saved, and duplicated by PC with XB5S Soft application (1) (2). The fingerprint records can also be erased in the absence of users.

The switch operates on 24 V $\approx$ and provides protection against:

- Reverse polarity
- Overload and short-circuit (switching capacity $\leq$ 200 mA)

Mounting

The product is of monolithic design (a single plastic housing) and is fixed by means of a nut (hand-tightened without need for tools) in a standard 22.5 mm/0.886 in. diameter hole. It can be installed on a flat, horizontal, or vertical surface.

A protective cover is available as an accessory to protect the active face of the sensing screen. This cover is fixed using a self-adhesive hinge.

A Female/Female USB extension cable makes it possible for the USB biometric switch to have the female USB port within a 22 mm/0.866 in. diameter hole on the control panel front.

Environment

- Conformity to standards: UL, CSA, GOST, and CE.
 - XB5S6 and XB5S7, RGD compliance (Strong encryption, thanks to privacy by design)

■ Product certifications:

- CSA C22-2 n° 14
- UL 508
- IEC 61000-6-2 and IEC 61000-6-4

■ Degree of protection conforming to standard IEC 60529:

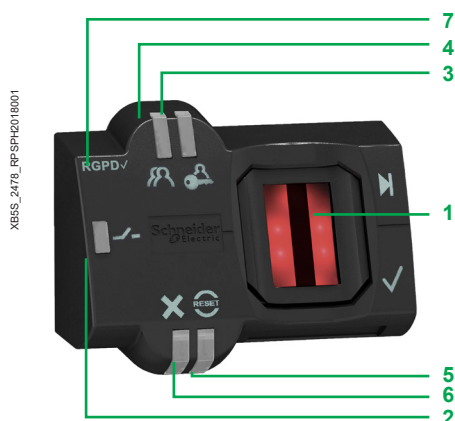
- IP 65
- NEMA 12

■ Ambient air temperature:

- For storage: - 25 to + 70 °C/-13 to + 158 °F
- For operation: - 5 to + 50 °C/23 to + 122 °F

(1) Compatible with all versions of Harmony XB5S Soft application. The XB5S Soft is a freeware application and can be downloaded from our website www.schneider-electric.com.

(2) The user database cannot be uploaded from USB biometric switch to the PC.



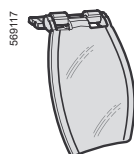
XB5S1B2L2



XB5S8B2L2



XB5SFFUSBEXT



ZB5SZ70

Description

- The stand-alone biometric switch (XB5S1/XB5S2) consists of a dark gray housing, with the following on its front face:
 - A sensing screen **1** that allows the registration and subsequent recognition of the registered fingerprints,
 - A green LED output state indicator **2** that illuminates when the output is activated (solid-state NO contact),
 - An orange LED **3**, indicating an administrator's "Registration" mode,
 - An orange LED **4**, indicating an operator's "Registration" mode,
 - A red "RESET" LED **5** which indicates, in "Delete" mode, that the administrator is deleting all or part of the memory,
 - A red LED **6** which flashes when the reader is presented with an "unrecognized" fingerprint or in the event of incorrect operation.
- RGD logo **7** help customer to see easily if the product is RGD compliant
- The stand-alone USB biometric switch (XB5S3/XB5S4) consists of a dark gray housing with a sensing screen **1** for fingerprints, a green LED **2** for indicating the output state, and a red LED **6** for the unrecognized fingerprint on its front face.

References

Complete units

Description	Connection	Reference	Weight kg/lb
Bistable biometric switch 24 V ~ PNP output	By 2 m/6.56 ft cable	XB5S1B2L2	0.170/0.375
	By M12 connector	XB5S1B2M12	0.183/0.403
Monostable biometric switch 24 V ~ PNP output	By 2 m/6.56 ft cable	XB5S2B2L2	0.170/0.375
	By M12 connector	XB5S2B2M12	0.183/0.403
Bistable biometric switch RGPD 24 V ~ PNP output	By 2 m/6.56 ft cable	XB5S6B2L2	0.170/0.375
	By M12 connector	XB5S6B2M12	0.183/0.403
Monostable biometric switch RGPD 24 V ~ PNP output	By 2 m/6.56 ft cable	XB5S7B2L2	0.170/0.375
	By M12 connector	XB5S7B2M12	0.183/0.403
Bistable USB biometric switch RGPD 24 V ~ PNP output	By 2 m/6.56 ft cable	XB5S8B2L2	0.202/0.445
	By M12 connector	XB5S8B2M12	0.215/0.474
Monostable USB biometric switch 24 V ~ PNP output	By 2 m/6.56 ft cable	XB5S9B2L2	0.202/0.445
	By M12 connector	XB5S9B2M12	0.215/0.474

Accessories

Description	Function	Reference	Weight kg/lb
Female/Female USB extension cable with Ø 22 mm/0.866 in. female USB port on one end	For connecting biometric switch to the PC via the Ø 22 mm/0.866 in. hole on the control panel front	XB5SFFUSBEXT	0.108/0.238
Protective cover, translucent and self-adhesive	Protection of sensing screen	ZB5SZ70	0.020/0.044
Fixing nut Ø 22 mm/0.866 in.	Spare part	ZB5SZ71	0.030/0.066
Legend plate, 27 x 8 mm/ 1.06 x 0.32 in., self-adhesive, blank, black background, for engraving	—	ZBY0101T	0.005/0.011

X	
XB5S1B2L2	7
XB5S1B2M12	7
XB5S2B2L2	7
XB5S2B2M12	7
XB5S6B2L2	7
XB5S6B2M12	7
XB5S7B2L2	7
XB5S7B2M12	7
XB5S8B2L2	7
XB5S8B2M12	7
XB5S9B2L2	7
XB5S9B2M12	7
XB5SFFUSBEXT	7
Z	
ZB5SZ70	7
ZB5SZ71	7
ZBY0101T	7



www.schneider-electric.com/control

Schneider Electric Industries SAS

Head Office
35, rue Joseph Monier
F-92500 Rueil-Malmaison
France

The information provided in this documentation contains general descriptions and/or technical characteristics of the performance of the products contained herein. This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein.

Design: Schneider Electric
Photos: Schneider Electric