Biometric switch

Harmony® XB5S

Catalog

August 2019

Schneider Electric

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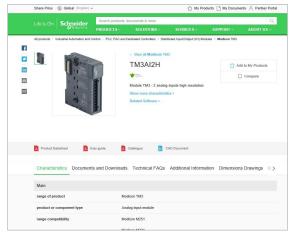
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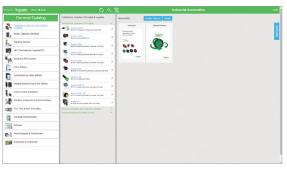> With just 3 clicks, you can reach the Industrial Automation and Control catalogs, in both English and French
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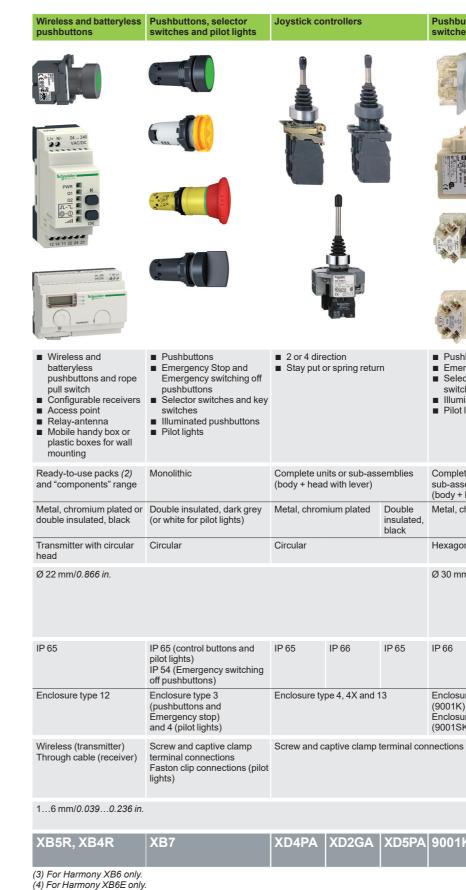- Optimized search by commercial reference

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General contents

Left page

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
Features — Bezel	Double insulated	Double insulated *(3)*	Metal, chromium plated or black	Double insulated	Double insulated, dark grey
Features — 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)
Degree of protection — 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…8 mm/*0.039…0.315 in.*	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.

Right page

Type of products	Wireless and batteryless pushbuttons	Pushbuttons, selector switches and pilot lights	Joystick controllers			Pushbuttons, selector switches and pilot lights	Cam switches
Description of range	■ Wireless and batteryless pushbuttons and rope pull switch ■ Configurable receivers ■ Access point ■ Relay-antenna ■ Mobile handy box or plastic boxes for wall mounting	■ Pushbuttons ■ Emergency Stop and Emergency switching off pushbuttons ■ Selector switches and key switches ■ Illuminated pushbuttons ■ Pilot lights	■ 2 or 4 direction ■ Stay put or spring return			■ Pushbuttons ■ Emergency Stop buttons ■ Selector switches and key switches ■ Illuminated pushbuttons ■ Pilot lights	■ Switches ■ Stepping switches ■ Reversing and changeover switches ■ Ammeter switches ■ Voltmeter switches ■ Reversing switches ■ Star-delta and reversing star-delta switches ■ Pole change switches
Features — Products	Ready-to-use packs *(2)* and "components" range	Monolithic	Complete units or sub-assemblies (body + head with lever)			Complete units or sub-assemblies (body + head)	Complete units or sub-assemblies (body + front panel+ head)
Features — Bezel	Metal, chromium plated or double insulated, black	Double insulated, dark grey (or white for pilot lights)	Metal, chromium plated	Double insulated, black		Metal, chromium plated or double insulated, black	
Features — Shape of head	Transmitter with circular head	Circular	Circular			Hexagonal	Square
Drilling or cut-out for fixing	Ø 22 mm/*0.866 in.*					Ø 30 mm/*1.181 in.*	Ø 16 or Ø 22 mm/*0.630 or 0.866 in.*: series K10 Ø 22 mm/*0.866 in.* and multifixing: series K1/K2 4 holes, 48 or 68 centres: series K30…K150
Degree of protection — Conforming to IEC 60529	IP 65	IP 65 (control buttons and pilot lights) IP 54 (Emergency switching off pushbuttons)	IP 65	IP 66	IP 65	IP 66	IP 65: series K10 IP 40, IP 65 with seal: series K1/K2 IP 40: series K30…K150
Degree of protection — Conforming to UL 508 and CSA C22-2 N° 14	Enclosure type 12	Enclosure type 3 (pushbuttons and Emergency stop) and 4 (pilot lights)	Enclosure type 4, 4X and 13			Enclosure type 4 and 13 (9001K) Enclosure type 4, 4X, 13 (9001SK)	–
Cabling	Wireless (transmitter) Through cable (receiver)	Screw and captive clamp terminal connections Faston clip connections (pilot lights)	Screw and captive clamp terminal connections				
Mounting — Panel thickness	1…6 mm/*0.039…0.236 in.*						0.5…6 mm/*0.020…0.236 in.* (depending on model)
Type references	**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.

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

	XB5S1, XB5S2	XB5S6, XB5S7	XB5S8, XB5S9
Applications	Simple access control for indoor industrial restricted areas	Simple access control for indoor industrial restricted areas	■ Secure the control of automated lines and tool machines ■ Protect the start function of special vehicles
Type of products	Stand-alone biometric switch	Stand-alone biometric switch with RGPD compliance	Stand-alone biometric switch with RGPD compliance
Conformity to Standards	■ UL, CSA, GOST, CE	■ Compliance with European RGPD regulation ■ It is suitable for EU area ■ UL, CSA, GOST, CE	■ Compliance with European RGPD regulation ■ It is suitable for EU area ■ UL, CSA, GOST, CE
Functions	■ 1 level of authorization ■ Authorizes user through fingerprint recognition	■ 1 level of authorization ■ Authorizes user through fingerprint recognition	■ 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	■ 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
Power	24 V ⎓	24 V ⎓	24 V ⎓
Connection	■ 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	■ 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	■ 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
Communication	No communication	No communication	Connects with a PC via the USB port for database management when required
Database management software tools	None	None	With Harmony XB5S Soft *(2)* on a PC
User database update	Stand-alone as updates are done directly on the biometric switch	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)*
Associated accessories	■ Translucent protective cover ■ Fixing nut ■ Legend plate	■ 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
Type references	**XB5S1, XB5S2**	**XB5S6, XB5S7**	**XB5S8, XB5S9**

(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.

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

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Stand-alone biometric switch (XB5S1/XB5S2)

Stand-alone USB biometric switch (XB5S8/XB5S9)

Stand-alone biometric switch RGPD (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 RGPD compliance
□ type XB5S2, with pulse control (monostable) and type XB5S7, with pulse control (monostable) plus RGPD compliance
■ Stand-alone USB biometric switches
□ type XB5S8, with 2 fixed states (bistable) plus RGPD compliance
□ type XB5S9, with pulse control (monostable) plus RGPD 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 $\sim$ and provides protection against:
□ Reverse polarity
□ Overload and short-circuit (switching capacity ⩽ 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 $C\epsilon$.
□ XB5S6 and XB5S7, RGPD 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*
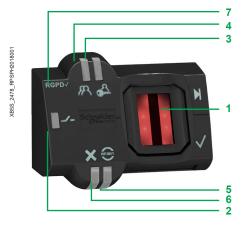□ For operation: - 5 to + 50 °C/*23 to + 122 °F*

(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.

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.

□ RGPD logo **7** help customer to see easily if the product is RGPD 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 RGPD 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*

XB5S1B2L2

XB5S8B2L2

XB5SFFUSBEXT

ZB5SZ70

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