

Harmony™ XB5S Biometric Switch

Catalog
2013





■ Overview	4
<i>Selection guide</i>	<i>8</i>
■ Introduction	10
□ Mounting	10
□ Environment	10
■ Description	11
■ References	11
□ Complete units	11
□ Accessories	11
■ Specifications	12
■ Connections	12
■ Dimensions	12
■ Index	13

Harmony™ XB5S

Biometric Switch



Improving the security of your daily operations...

The Harmony™ XB5S Biometric Switch is an innovative security solution that uses fingerprint authentication technology to control access to your machines, vehicles, processes, and work areas. Its database of authorized users can be managed directly on the device, or externally via a PC or HMI. The Harmony XB5S enables you to determine an individual's level of access to specific work areas and HMI menu tabs.

Quick and reliable access verification...

With its fingerprint recognition technology, the [Harmony XB5S Biometric Switch](#) is a superior alternative to other access control systems that provide marginal levels of protection for your process functions and personnel.

Simple and efficient...

The Harmony XB5S enables you to restrict access to sensitive zones and machine functions – starting, adjustment, maintenance – to authorized personnel only.

Mitigates the risk of unauthorized use and associated downtime...

The Harmony XB5S biometric switch is an automated solution that ensures that only authorized persons have access to your key process areas...

...allowing you to prevent unwarranted machine use, and to protect your staff, equipment, and the continuity of your production process.



Your fingerprint is a unique access controller!

Fingerprint recognition technology is one of the fastest and most accurate ways of verifying access rights.

Control access to your critical assets and areas...



Protect your specific processes...

With Harmony™ XB5S, you can **identify**, **authorize** and **track** user operations on HMIs.



Safeguard your automation line...

With Harmony XB5S, you can **improve security** of your automated lines and tool machines.



Restrict access to your technology...

With Harmony XB5S, you can **control** access to **restricted areas**.



Limit the unauthorized operation of specific equipment...

With Harmony XB5S, you can prevent unwarranted access to the **start function** of special **vehicles**.

Rely on flexible and secure user permissions management...

Simple to manage with:

Harmony™ XB5S1/2

- Parameterizes and records directly on the front face of the device using LED signalling

Harmony XB5S3/4/5

- Provides visualization, saving and duplication of the authorized user database via HMI or PC, and dedicated software
- Add and delete user permissions easily
- Data transfer is secured by administrator approval
- Database is encrypted to prevent unwarranted use of personal data



Managed with
Vijeo™ Designer™
and Harmony
XB5S Software

Harmony XB5S product range

Stand-alone product:
Harmony XB5S1/2

Configured by PC:
Harmony XB5S3/4

Configured by HMI:
Harmony XB5S5



< 1 second
to authenticate
an operator and
authorize or
refuse access

Improve control of access to equipment and restricted areas.

Manage embedded database of authorized users directly on the switch.

Restrict use of special machines and vehicles.

Manage user database via a PC interface.

Define different profiles of authorized users on HMIs to enhance security control.

Manage user database easily via HMI. Track and store access data of recorded users.

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



Functions	<ul style="list-style-type: none"> ■ 1 level of authorization ■ Authorizes user through fingerprint recognition
Static Output	<ul style="list-style-type: none"> ■ Maintained output, machine operation at 2 fixed states ■ Momentary output, machine operation at pulse control
Power	24 Vdc
Connection	<ul style="list-style-type: none"> ■ Pre-wired 3 wire cable (2 m/6.56 ft long) or ■ M12 connector
Memory capacity	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ Translucent protective cover ■ Mounting 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™ XB5SSoft application. The XB5SSoft is a freeware application and can be downloaded from our website www.schneider-electric.com.

<ul style="list-style-type: none"> Secure the control of automated lines and tool machines Protect the start function of special vehicles 	<ul style="list-style-type: none"> Identify and authorize the user for HMI operations Trace the HMI operations of each user
Stand-alone USB biometric switch	USB biometric switch dedicated to Schneider HMI (1)



<ul style="list-style-type: none"> 1 level of authorization Authorizes user through fingerprint recognition 	<ul style="list-style-type: none"> Provides access to HMI pages based on the user profile Several levels of authorization associated with HMI Traceability of users and operations by HMI
<ul style="list-style-type: none"> Maintained output, machine operation at 2 fixed states Momentary output, machine operation at pulse control 	None
24 Vdc	24 Vdc
<ul style="list-style-type: none"> Pre-wired 3 wire cable (2 m/6.56 ft long) or M12 connector 	Pre-wired 2 wire cable (2 m/6.56 ft long)
<ul style="list-style-type: none"> 400 records of fingerprints 200 authorized users with each registering 1 or 2 fingerprints 	<ul style="list-style-type: none"> 400 records of fingerprints 200 authorized users with each registering 2 fingerprints
Connects with a PC via the USB port for database management when required	Connects with a HMI via the USB port permanently
With Harmony™ XB5SSoft (2) on a PC	With Vijeo™ Designer™ (3) and Harmony XB5SSoft (2)
<ul style="list-style-type: none"> Should be connected to a PC Download the new user database to the biometric switch from Harmony XB5SSoft application (4) 	<ul style="list-style-type: none"> With Vijeo Designer in Run time on HMI (4) With Vijeo Designer in Build time on PC (4)
<ul style="list-style-type: none"> Translucent protective cover Mounting 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 	<ul style="list-style-type: none"> Translucent protective cover Mounting nut Legend plate
XB5S3, XB5S4	XB5S5

(3) Compatible with Vijeo™ Designer™ HMI editor software V6.1, Service pack 2.

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



Stand-alone biometric switch (XB5S1/XB5S2)



Stand-alone USB biometric switch (XB5S3/XB5S4)



USB biometric switch dedicated to Schneider HMI (XB5S5)

Introduction

Harmony™ XB5S Biometric Switches are designed to control and secure access to systems and machines by checking a user's authorization, via fingerprint recognition technology.

The following types of biometric switches are available:

- Stand-alone biometric switches
 - type XB5S1, with 2 fixed states (maintained)
 - type XB5S2, with pulse control (momentary)
- Stand-alone USB biometric switches
 - type XB5S3, with 2 fixed states (maintained)
 - type XB5S4, with pulse control (momentary)
- USB biometric switches dedicated to Schneider Electric HMI
 - type XB5S5, connected permanently with HMI

The two types of users of the XB5S are:

- 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/HMI via the USB port to manage the user database. This database can be visualized, saved, and duplicated by PC/HMI with XB5SSoft application (1) (2). The fingerprint records can also be erased in the absence of users.

The Schneider Electric HMI (3) with Vijeo™ Designer™ software (4) enables the switches to authorize different access levels and trace HMI operations of each user.

The switch operates on 24 Vdc 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 mounted 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 mounted 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

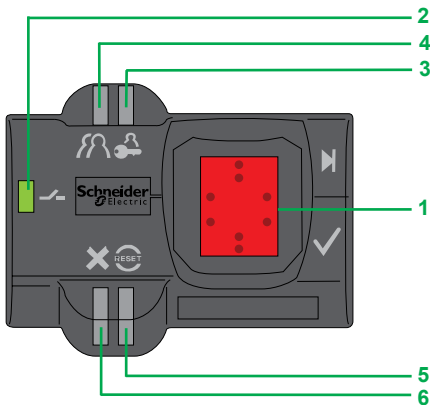
- Conformity to standards: UL, CSA, GOST, and cC.
- Product certifications:
 - CSA C22-2 n° 14
 - UL 508
 - IEC 61000-6-2 and IEC 61000-6-4
- Degree of protection conforming to standard IEC 60529:
 - IP 65
 - UL Type 12, NEMA 12
- Ambient air temperature:
 - For storage: - 25 to + 70 °C
 - For operation: - 5 to + 50 °C

(1) Compatible with all versions of Harmony XB5SSoft application. The XB5SSoft 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.

(3) Compatible with Magelis™ iPC, STU, OT, GXO, GT (except GT1000 series), GK, GH, and GTO models.

(4) Compatible with Vijeo Designer HMI editor software V6.1, Service pack 2.



XB5S1B●●●●



XB5S3B●●●●



XB5SFFUSBEXT



ZB5SZ70

Description

- The stand-alone biometric switch (XB5S1/XB5S2) consists of a dark gray housing, with the following on its front face:
 - Sensing screen **1** that allows the registration and subsequent recognition of registered fingerprints,
 - Green LED output state indicator **2** that illuminates when the output is activated (solid-state NO contact),
 - Orange LED **3**, indicating an administrator's "Registration" mode,
 - Orange LED **4**, indicating an operator's "Registration" mode,
 - Red "RESET" LED **5** which indicates, in "Delete" mode, that the administrator is deleting all or part of the memory,
 - Red LED **6** which flashes when the reader is presented with an "unrecognized" fingerprint or in the event of incorrect operation.
- 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.
- The USB biometric switch dedicated to Schneider Electric HMI (XB5S5) consists of a dark gray housing with a sensing screen **1** for fingerprints on its front face.

References

Complete units

Description	Connection	Reference	Weight kg/lb
Maintained biometric switch 24 Vdc PNP output	By 2 m/6.56 ft cable	XB5S1B2L2	0.170/0.375
	By M12 connector	XB5S1B2M12	0.183/0.403
Momentary biometric switch 24 Vdc PNP output	By 2 m/6.56 ft cable	XB5S2B2L2	0.170/0.375
	By M12 connector	XB5S2B2M12	0.183/0.403
Maintained USB biometric switch 24 Vdc PNP output	By 2 m/6.56 ft cable	XB5S3B2L2	0.202/0.445
	By M12 connector	XB5S3B2M12	0.215/0.474
Momentary USB biometric switch 24 Vdc PNP output	By 2 m/6.56 ft cable	XB5S4B2L2	0.202/0.445
	By M12 connector	XB5S4B2M12	0.215/0.474
USB biometric switch dedicated to Schneider Electric HMI 24 Vdc	By 2 m/6.56 ft cable	XB5S5B2L2	0.202/0.445

Accessories

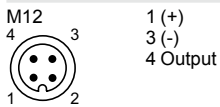
Description	Function	Reference	Weight kg/lb
Female/female USB extension cable with Ø 22 mm/0.866 in. female USB port on one end	For connecting biometric switch to the PC via the Ø 22 mm/0.866 in. hole on the control panel front	XB5SFFUSBEXT	0.108/0.238
Protective cover, translucent and self-adhesive	Protection of sensing screen	ZB5SZ70	0.020/0.044
Mounting 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

Specifications

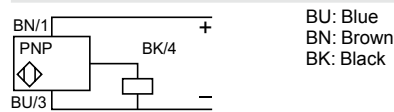
Biometric switch type		XB5S1B●●●●, XB5S2B●●●●, XB5S3B●●●●, XB5S4B●●●●, and XB5S5B●●●●	
Product certifications		UL, CSA, CE, IEC 61000-6-2 / IEC 61000-6-4	
Degree of protection	Conforming to EN/IEC 60529	IP 65, UL Type 12, NEMA 12	
Ambient air temperature	Storage	°C	- 25 to + 70
	Operation	°C	- 5 to + 50
Vibration resistance	Conforming to IEC 60068-2-6	1 gn, 9 to 500 Hz, Amplitude 3 mm, 5 to 9 Hz	
Electric shock resistance	Conforming to IEC 60068-2-27	50 gn, duration 11 ms	
Connection method	Cable	Length: 2 m, 3-wire, pre-wired	
	Connector	M12	
Materials	Housing	Polyamide PA66	
	Cable	PvR 3 x 0.34 mm ²	
Memory capacity	200 records (100 users, operators or administrators, each registering 2 fingerprints)		
Output state indicator	Green LED		
Short-circuit protection	By gG fuse, 250 mA		
Rated supply voltage	Vdc	24 with protection against reverse polarity	
Voltage limits (including ripple)	Vdc	20 to 30	
Switching capacity	mA	≤ 200 with protection against overloads and short-circuits	
Residual voltage, closed state	V	≤ 1	
No-load current consumption	mA	≤ 50	
Delays	First-up	s	< 2
	Response time	s	< 1
	Recovery time	s	< 1

Connections

Connector

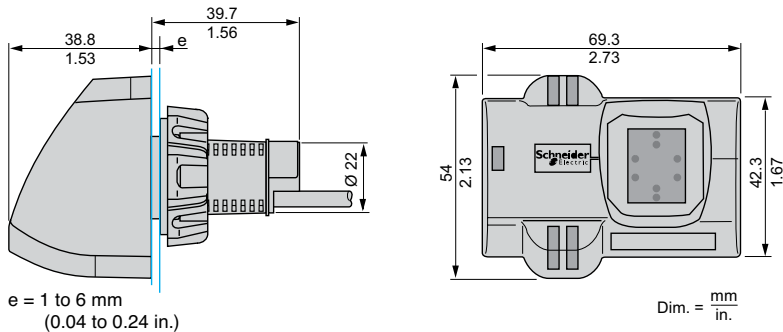


Cable with PNP output

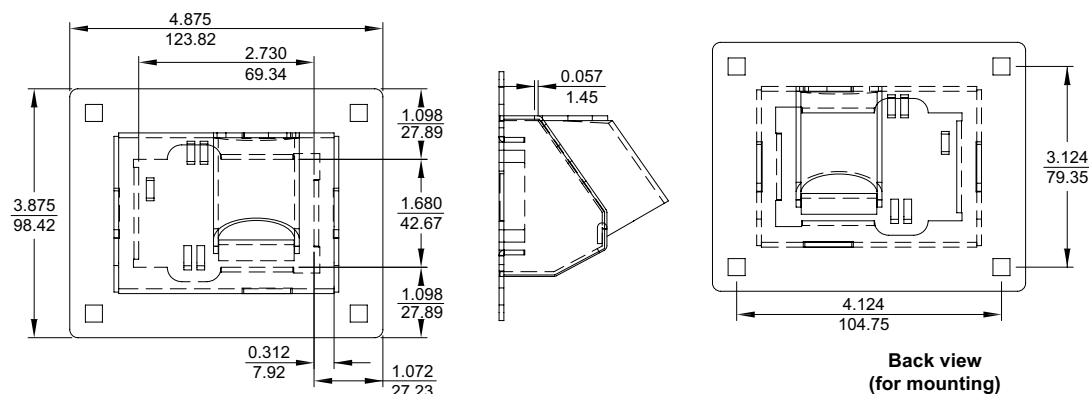


Dimensions

XB5 Biometric Switch



Stainless-Steel Cover





Index

XB5S

XB5S1B2L2	11
XB5S1B2M12	11
XB5S2B2L2	11
XB5S2B2M12	11
XB5S3B2L2	11
XB5S3B2M12	11
XB5S4B2L2	11
XB5S4B2M12	11
XB5S5B2L2	11
XB5SFFUSBEXT	11

ZB5S

ZB5SZ70	11
ZB5SZ71	11

ZBY

ZBY0101T	11
----------	----



www.schneider-electric.com

Schneider Electric USA, Inc.

8001 Knightdale Blvd.
Knightdale, NC 27545

USA Customer Care Center
Tel: 888-778-2733

Schneider Electric Canada

5985 McLaughlin Rd.
Mississauga, Ontario, Canada L5R 1B8

Canada Customer Care Center
Tel: 800-565-6699

The information and dimensions in this catalog are provided for the convenience of our customers. While this information is believed to be accurate, Schneider Electric reserves the right to make updates and changes without prior notification and assumes no liability for any errors or omissions.

Harmony, Schneider Electric and logo, and "Make the most of your energy" are trademarks or registered trademarks of Schneider Electric or its affiliates in the United States and other countries. Other trademarks used herein are the property of their respective owners.

Design: Schneider Electric
Photos: Schneider Electric