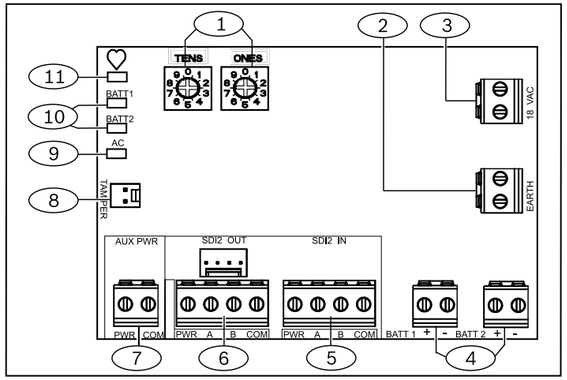
1 | Overview

This module adds a maximum of 2A of 12 VDC power for Fire and Burglar standby power applications.



Callout – Description
1 – Address switches
2 – EARTH ground connector terminal
3 – 18 VAC transformer input terminal
4 – BATT 1 and BATT 2 terminals
5 – SDI2 IN terminals (from control panel)
6 – SDI2 OUT terminals and interconnect wiring connector
7 – Auxiliary power terminals
8 – Tamper switch connector
9 – AC LED
10 – BATT 1 and BATT 2 LEDs
11 – Heartbeat LED

2 | SDI2 address settings

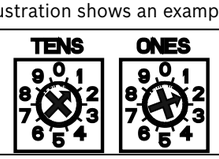
The control panel uses the address for communications. Use the control panel configuration to set the address switches. If multiple modules are on the same system, each module must have a unique address.

NOTICE!
The module reads the address switch setting only during power up. Cycle the power to the module in order for the new setting.

2.1 | Setting the address settings

1. Set the switches using a screwdriver.
2. For single-digit address numbers 1 through 9, set the tens switch to 0 and the ones switch to the appropriate number.

The following illustration shows an example of address “12.”



3 | Installation

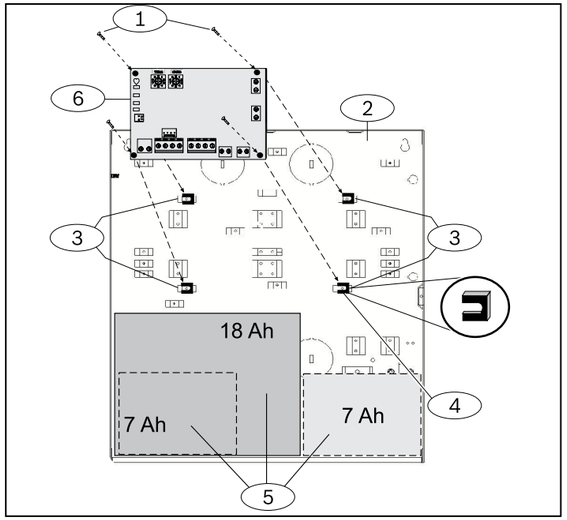
The enclosure holds the module. Wires attach the module to the control panel, SD12 expansion modules, and any other device.

NOTICE!
Remove all power (AC and battery) before making any connections. Failure to do so might result in personal injury and/or equipment damage.

3.1 | Install the module in the enclosure (models B10, D2203, AE1, and AE2)

NOTICE!
Do not use B10 or D2203 enclosures for Commercial Fire applications.

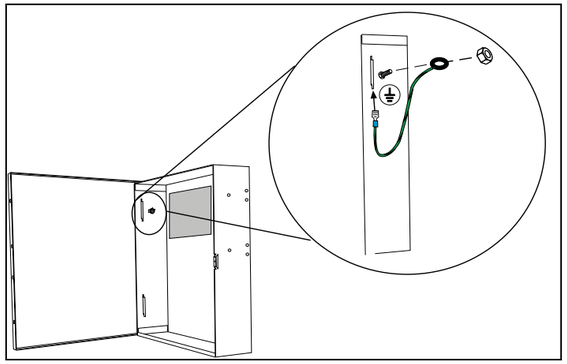
1. Install the mounting clips onto the appropriate standoff locations inside the enclosure. Callout # 3 in the following illustration.
2. Put the module onto the mounting clips.
3. Attach the module with mounting screws.



Callout – Description
1 – Mounting screws
2 – B10, D2203, AE1, and AE2 enclosures
3 – Standoff locations
4 – Plastic mounting clips
5 – Batteries (up to two 7 Ah or one 18 Ah batteries)
6 – B520 module

3.2 | Attaching the grounding wire (models B10, D2203, AE1, and AE2)

1. Put the grounding wire lug onto the bolt
2. Attach it with a nut and a washer.
3. Put the other end of the wire onto the door hinge.

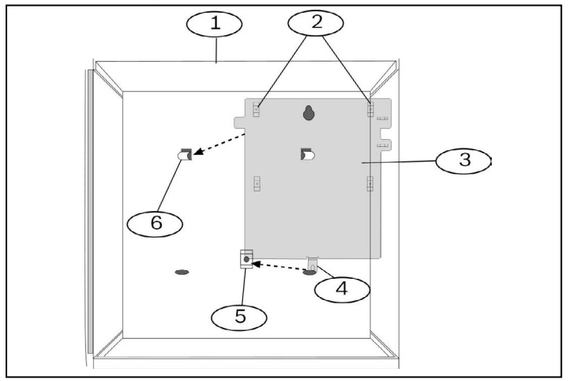


3.3 | Attach the module in the enclosure (model B8103)

The enclosure attaches to a B12 mounting plate.

3.4 | Mount the B12 mounting plate in the enclosure (model B8103)

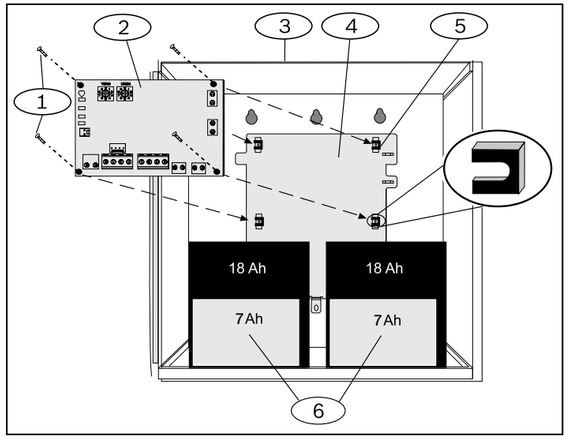
1. Put the mounting plate in the back of the enclosure.
2. Set the tabs of the enclosure into the two mounting skirt hooks.
3. Attach the tab to mounting hole with the screw. Refer to the following illustration.



Callout – Description
1 – B8103 enclosure (also applicable for BATB-40)
2 – Support posts
3 – Mounting plate
4 – Lock down tab
5 – Plate mounting hole
6 – Mounting plate hooks

3.5 | Attaching the module onto the mounting plate

Refer to Section 3.1 for installation steps as well as the following illustration.

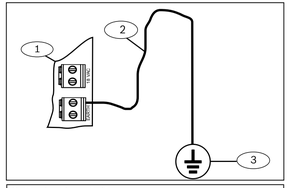


Callout – Description
1 – Mounting screws
2 – B520 module
3 – B8103 Enclosure (applicable for BATB-40 as well)
4 – B12 mounting plate
5 – Plastic mounting clips
6 – Batteries (holds up to two 7 Ah or two 18 Ah batteries)

NOTICE!
To help prevent damage from electrostatic charges or other transient electrical surges, connect the system to earth ground before making other connections.

1. Use 14 AWG (1.6 mm) to 16 AWG (1.3 mm) wire for the connection. Do not use telephone or electrical ground.
2. Use a grounding rod or a cold water pipe.
3. Install the wire as close as possible to the grounding device.

NOTICE!
Finland: Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.
Norway: Apparatet må tilkoples jordet stikkontakt.
Sweden: Apparaten skall anslutas till jordat uttag.



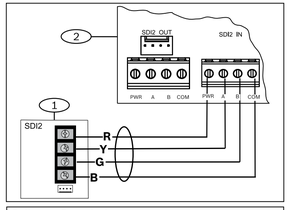
Callout — Description
1 — B520 module
2 — 14 AWG - 16 AWG (1.6 mm - 1.3 mm) wire
3 — Ground device (grounding rod or cold water pipe)

3.6 | Attaching the tamper switch

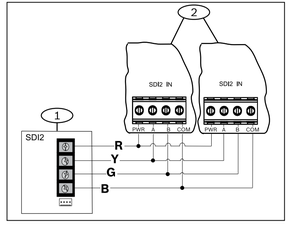
Connect an optional enclosure door tamper switch for one module in an enclosure. Refer to *EZTS Cover and Wall Tamper Switch Installation Guide* (P/N: F01U003734) for more information.

3.7 | Attach to the control panel

1. Use the SDI2 IN terminal strip with PWR, A, B, and COM to attach the wire to the designated terminals, according to the compatible control panel configuration.
2. Make sure that the wires attach properly. Refer to the following wiring illustrations.



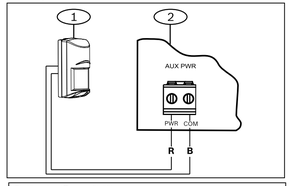
Callout — Description
1 — Compatible Bosch control panel SDI2 bus connection
2 — B520 module



Callout — Description
1 — Compatible Bosch control panel SDI2 bus connection
2 — B520 module

3.8 | Attaching to powered non-SDI2 devices

Use the PWR and COM AUX PWR terminal strip Refer to the following illustration.

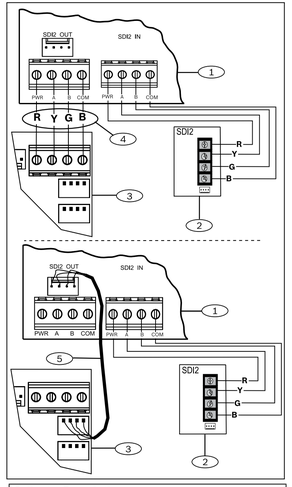


Callout — Description
1 — Compatible Bosch peripheral device
2 — B520 module

NOTICE!
Install the module into a DB108A Attack Resistant Enclosure if the module sends power to a local security annunciator (e.g., a bell) or a DACT.

3.9 | Attaching to powered SDI2 devices

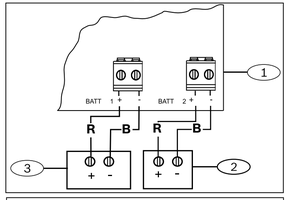
Use the terminal strip of the SDI2 OUT terminal (PWR, A, B, COM) or the interconnect wiring connectors. Refer to the following illustration.



Callout — Description
1 — B520 module
2 — Compatible Bosch control panel SDI2 bus connection
3 — SDI2 module
4 — Terminal strip wiring (SDI2)
5 — Interconnect cable (P/N: F01U079745)

3.10 | Attaching to the batteries

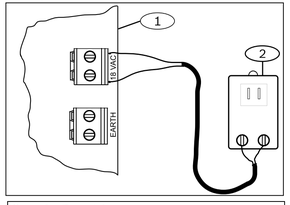
1. Attach BATT 1 to the module.
2. If the control panel is configured for two batteries, attach BATT 2 to the module. Make sure that BATT 2 has the same capacity and rating as BATT 1.
3. Make sure that the maximum standby power is 36 Ah or less. Refer to the following illustration.



Callout — Description
1 — B520 module
2 — Battery 2 (BATT 2) - (12 V nominal lead acid)
3 — Battery 1 (BATT 1) - (12 V nominal lead acid)

3.11 | Attaching to the transformer

Attach the plug-in transformer to 18 VAC B520. Refer to the following illustration.



Callout — Description
1 — B520 module
2 — TR1850 plug-in transformer or DE-45-18 (230 VAC) plug-in transformer (for Europe)

NOTICE!
UL required - When you complete all wiring, apply power to the control panel. Transformer distance cannot exceed a maximum distance of 10 ft between the transformer and the B520.

NOTICE!
UL required - The D8004 Transformer Enclosure is required when the B520 and TR1850 (18 VAC, 50 VA) Transformer are used in UL 864 Fire, or Combination Burg and Fire applications.

NOTICE!
UL required - For Commercial Fire Applications, the use of conduit is needed to connect the wall transformer and the power supply.

4 | Battery configurations and calculations

Refer to the following battery calculation table.

Battery Size (AH's) for Commercial Fire Applications:
To select the size, compare the current calculations from Table 5.1 against the highest current available for the standby hours required. If the current from "Total A" or "Total B" is bigger than the highest value in that column, then use a second B520 to split the current load.

Battery Size (AH's) for Burglar Applications:
To select the size, compare the current calculations from Table 5.1 against the highest current available for the standby hours required. If the current from "Total A" is bigger than the highest value in that column, or the current from "Table B" is bigger than 4A, then use a second B520 to split the current load.

NOTICE!
All external connections, except battery terminals and wire, are power-limited. Keep 0.25 in (6.4 mm) space between the battery terminals, battery wiring, and all other wiring.

Do not share the battery wiring with the same conduit, conduit fittings, or conduit knock-outs with other wiring. All external connections are supervised.

		A Standby current (mA)			B In alarm Maximum current (mA)		
Model #	**Quantity used**	**Each unit**	**Quantity**	**Total**	**Each unit**	**Quantity**	**Total**
B208		35	x Quantity	=	35	x Quantity	=
B308*		22	x Quantity	=	22	x Quantity	=
B299		35	x Quantity	=	35	x Quantity	=
B426		100	x Quantity	=	100	x Quantity	=
B450		60	x Quantity	=	180	x Quantity	=
B600		12	x Quantity	=	12	x Quantity	=
B810		70	x Quantity	=	70	x Quantity	=
D125B — Loop A only		12	x Quantity	=	75	x Quantity	=
— Loops A and B		24	x Quantity	=	145	x Quantity	=
D1255/D1255B		106	x Quantity	=	206	x Quantity	=
D1255RB/ D1256RB/ D1257RB		106	x Quantity	=	225	x Quantity	=
D1260/D1260B		140	x Quantity	=	250	x Quantity	=
B915/B915i		35	x Quantity	=	70	x Quantity	=
B920		35	x Quantity	=	70	x Quantity	=
B921C		45	x Quantity	=	85	x Quantity	=
B925F/B926F		35	x Quantity	=	70	x Quantity	=
B930		35	x Quantity	=	85	x Quantity	=
B942/B942W		200	x Quantity	=	300	x Quantity	=
Proximity enabled		300	x Quantity	=	400	x Quantity	=
B901/D9210C**		110	x Quantity	=	110	x Quantity	=
Other devices							
			Total A =			**Total B =**	
* (digital section = 22 mA) + (Qty of relays x 16 mA) = total current. (Add 16 mA for each relay being used).							
** Use 110 mA + reader current. **Do not exceed 260 mA.**							

Table 4.1: Current rating chart for standby calculations

	Battery configuration #1		**Battery configuration #2**	
Enclosures	BATT 1	BATT 2	BATT 1	BATT 2
D2203, B10, AE1, AE2	18 Ah	N/A	7 Ah	7 Ah (optional)
B8103, BATB-40	18 Ah	18 Ah (optional)	7 Ah	7 Ah (optional)

Table 4.2: Typical battery configuration

	Standby hours							
	4	8	24	24	48	60	72	80
	Recharge Hours							
	24	24	24	48	48	48	72	72
Rechargeable battery size (AH)	**Maximum output standby current**							
7	1.135	0.575	0.100	0.169				
14 (+2 7 Ah)	1.600	1.100	0.330	0.403	0.176	0.131	0.101	
18	1.800	1.220	0.460	0.536	0.243	0.184	0.145	0.126
36 (+2 18 Ah)	2.000	1.790	0.710	0.950	0.520	0.424	0.345	0.306

5 | LED descriptions

The module includes on-board LEDs for troubleshooting. Refer to the Overview section for locations:
– Heartbeat (system status).
– BATT 1 and BATT 2.
– AC IN.
For troubleshooting steps based on the LEDs, refer to *Section 7*.

Heartbeat (blue) LED descriptions

Flash pattern	Function
Flashes once every 1 sec	Indicates normal operation state.
3 quick flashes every 1 sec	Indicates (the module is in a "no communication state") resulting in an SDI2 communication error.
On Steady	Indicates poor communication or module malfunction.
Off	LED trouble state. Module is not powered.

BATT 1 and BATT 2 (green) LEDs descriptions

Flash pattern	Function
Flashes once every 1 sec	Low battery.
3 quick flashes every 1 sec	Battery charger failure.
On Steady	Indicates normal operation state.
Off	Battery missing.

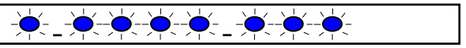
AC (green) LED descriptions

Flash pattern	Function
Flashes once every 1 sec	Low or failed AC.
3 quick flashes every 1 sec	Battery test performing.
On Steady	Indicates normal operation state.

6 | Show the firmware version

- With a tamper switch, push and release the switch with the enclosure door open.
- Without a tamper switch, briefly short the tamper pins.

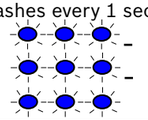
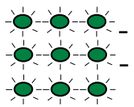
Refer to the following illustration for an example of flash patterns.



When the tamper switch is activated (closed to open), the heartbeat LED stays OFF for 3 seconds, then shows the firmware version. The LED pulses the major, minor, and micro digits of the version, with a 1 second pause after each digit.

Flashing patterns start after the tamper is open (short is removed). The following is an example: The version 1.4.3 would be shown as LED flashes:
[3 second pause] *__****__*** [3 second pause, then normal operation]

7 | Troubleshooting

Flash pattern	Corrective action
Heartbeat – 3 quick flashes every 1 sec 	1. Check wiring connection. 2. Check Control panel programming. 3. Check address selections.
BATT 1 (BATT 2) – 3 quick flashes every 1 sec 	1. Measure the voltage at the terminals. 2. If the voltage is above 13.3 VDC, and the battery is a fully charged, the module goes back to normal state after some of the energy is removed from the battery. 3. If the voltage is below 13.3 VDC, the module may be damaged.
AC Flashing 	Measure the AC voltage before and after the transformer. If there is voltage before and none after, replace the transformer.

8 | Configuration

Use Remote Programming Software to program the control panel to work with the module. For programming parameter descriptions, options, and defaults using RPS, refer to *RPS Help*.

9 | Certifications

Region	
Canada	CAN/ULC S303 - Local Burglar Alarm Units and Systems
	CAN/ULC S304 - Signal Receiving Centre and Premise Alarm Control Units
	CAN/ULC S545 - Residential Fire Warning Control System
	ULC-ORD C1023 - Household Burglar Alarm System Units
	ULC-ORD C1076 - Propriety Burglar Alarm Unit and Systems
	ICES-003 - Digital Apparatus
USA	UL 365 - Police Station Connected Burglar Alarm Units and Systems
	UL 609 - Local Burglar Alarm Units and Systems
	UL 636 - Hold Up Alarm Units
	UL 864 - Control Units and Accessories for Fire Alarm Systems
	UL 985 - Household Fire Warning System Units
	UL 1023 - Household Burglar Alarm System Units
	UL 1076 - Proprietary Burglar Alarm Units and Systems
	UL 1610 - Central Station Burglar Alarm Units
	CSFM - California State Fire Marshal
	FCC Part 15 Class B
Europe	CE - EMC Directive (EMC)
	CE - Low-Voltage Directive (LVD)

10 | Specifications

Dimensions	4.5 in x 6.94 in x 1.15 in (11.43 cm x 17.62 cm x 2.9 cm)
Output voltage (rated range)	11.5 - 12.2 VDC (special application)
AC line input voltage frequency	120 VAC +10/-15% (60 Hz) 0.5 A 230 VAC +10/-15%(50Hz)250mA
Current available (maximum)	2.0 A SDI2 Out and AUX Power (combined) (up to 4.0 A of alarm current for Burglar Applications)
Current drawn from the control panel	15 mA
Battery input	2 separate 12 V lead acid batteries (7-18 Ah) 4.0 A max available from charger.
Operating temperature	+32°F to +120°F (0°C to +49°C)
Relative humidity	5% to 93% at +90°F (+32°C) non-condensing
Storage temperature	-4° to 140° F (-20° to 60°C)
Transformer power supply	TR1850 - (18 VAC, 50 VA) TR1850-CA - (18 VAC, 50 VA) for Canada DE-45-18 - (230/18VAC 45 VA) plug-in for Europe (P/N: F01U166215)
Transformer wiring	12-18 AWG
Terminal wire size	12 AWG to 22 AWG (2 mm to 0.6 mm)
SDI2 wiring	*Maximum distance - Wire size: (Unshielded wire only) 1000 ft (305 m) - 22 AWG (0.6 mm) 1000 ft (305 m) - 18 AWG (1 mm) **Maximum wiring distance from the panel to the last SDI2 module can not exceed 1000 ft.*
Compatibility	B9512G/B9512G-E B8512G/B8512G-E B6512 B5512/B5512E B4512/B4512E B3512/B3512E GV4 Series control panels AE1/AE2 Enclosure B10 Enclosure D2203 Enclosure BATB-40 Enclosure** B8103/D8103 Enclosure** D8108A Attack Enclosure** ***requires B12*
Usage	Intended for indoor/dry use

DE-de: Für Dokumentation in Ihrer Sprache, klicken Sie hier https://de.boschsecurity.com/de

El-gr: Μεταβείτε στη διεύθυνση https://gr.boschsecurity.com/el/ για την τεκμηρίωση σε αυτήν τη γλώσσα.

Es-es: Visite https://es.boschsecurity.com/es/ para obtener documentación en este idioma.

Fr-fr: Accédez à l'adresse https://fr.boschsecurity.com/fr/ pour obtenir la documentation dans cette langue.

Hu-hu: A honosított dokumentációt lásd a https://hu.boschsecurity.com/hu/oldalon.

It-it: Andare a https://it.boschsecurity.com/it/ per la documentazione in questa lingua.

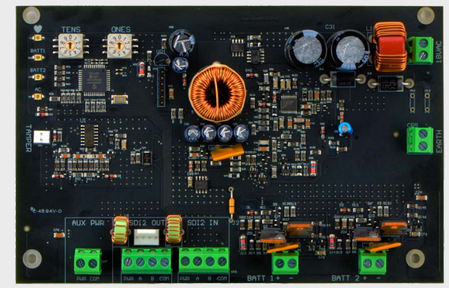
Nl-nl: Voor de documentatie in uw taal, ga naar https://www.boschsecurity.com/nl/nl

Pl-pl: Dokumentacja w tym języku znajduje się w witrynie https://pl.boschsecurity.com/pl/

Pt-br: Acesse http://pt.boschsecurity.com/pt/ para obter a documentação neste idioma.

SE-sv: For documentation in this language, go to https://www.boschsecurity.com/xn/en/

Bosch Security Systems, Inc. product manufacturing dates
Use the serial number located on the product label and refer to the Bosch Security Systems, Inc. website at http://www.boschsecurity.com/datecodes/.



Auxiliary Power Supply Module

B520

BOSCH

en Installation Guide

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