

ABB i-bus[®] KNX KNX SV/S Power Supplies Product Manual

Contents

side

1	General	3
1.1	Using the product manual.....	3
1.1.1	Structure of the product manual	4
1.1.2	Notes	4
1.2	Product and functional overview.....	5
1.2.1	Brief overview	5
2	Device technology	7
2.1	Standard Power Supply, 640/320/160 mA, MDRC	7
2.1.1	Technical data	7
2.1.2	Connection schematic	9
2.1.3	Dimension drawing	10
2.1.4	Operating and display elements	11
2.1.5	Mounting and installation	11
2.2	KNX Power Supply with diagnostics, 640/320 mA, MDRC	12
2.2.1	Technical data	12
2.2.2	Connection schematic	15
2.2.3	Dimension drawing	16
2.2.4	Operating and display elements	17
2.2.5	Mounting and installation	18
3	Start-up	19
3.1	Overview.....	19
3.2	Conversion of previous application program versions	20
3.2.1	Procedure	20
3.3	Parameters	21
3.3.1	Parameter window <i>General</i>	22
3.4	Communication objects	24
3.4.1	Summary of communication objects	24
3.4.2	Communication objects, <i>General</i>	25
4	Planning and application	27
4.1	Additional voltage output	27
4.2	Reset	28
4.3	Faults.....	29
A	Appendix	31
A.1	Ordering details	31

1 General

KNX power supplies provide the system voltage (SELV) for KNX components. The choked output voltage powers individual components and enables them to communicate.

1.1 Using the product manual

This manual provides detailed technical information about the power supplies and how to mount and program them. Device application is explained using examples.

This manual is subdivided into the following sections:

Section 1	General
Section 2	Device technology
Section 3	Commissioning
Section 4	Planning and application
Section A	Appendix

1.1.1 Structure of the product manual

All parameters are initially described in chapter 3. Following the parameter descriptions are descriptions for the communication objects.

Please note

The descriptions of parameters and communication objects in section 3 apply only to those power supplies with diagnostics functions (SV/S 30.320.2.1 and SV/S 30.640.5.1).

1.1.2 Notes

Notes and safety instructions are represented as follows in this manual:

Please note

Tips for usage and operation

Examples

Application examples, installation examples, programming examples

Important

These safety instructions are used as soon as there is danger of a malfunction without risk of damage or injury.

Caution

These safety instructions are used as soon as there is danger of a malfunction without risk of damage or injury.



Danger

These safety instructions are used if there is a danger to life and limb with inappropriate use.



Danger

These safety instructions are used if there is an extreme danger to life with inappropriate use.

1.2 Product and functional overview

ABB power supplies are designed to be fully compatible with each other. Devices with diagnostics or bus functions for complex applications are available alongside standard devices. An uninterruptible battery backed-up version is also available.

All KNX power supplies have an integrated choke. They connect to the ABB i-bus[®] KNX via a bus connection terminal.

1.2.1 Brief overview

	SV/S 30.160.1.1	SV/S 30.320.1.1	SV/S 30.640.3.1	SV/S 30.320.2.1	SV/S 30.640.5.1	SU/S 30.640.1**
Property	Standard			Diagnostics		Back-up supply
Supply voltage (in V AC)	85...265	85...265	85...265	85...265	85...265	195..255
KNX rated voltage (in V DC)	30	30	30	30	30	30
KNX rated current (in mA)	160	320	640	320	640	640
Type of installation	MDRC	MDRC	MDRC	MDRC	MDRC	MDRC
Mounting width in space units	4	4	4	4	4	8
Integrated choke	■	■	■	■	■	■
Short-circuit and overload monitoring	■	■	■	■	■	■
Mains failure back-up time (in ms)	200 ms	200 ms without battery				
Mains failure back-up time If used with a sealed lead-acid battery, e.g. - AM/S 12.1 - SAK 7 - 2 x SAK 7 in parallel - SAK 12 - 2 x SAK 12 in parallel - SAK 17: - 2 x SAK 17 in parallel	-	-	-	-	-	10 min.* up to 2.5 h* up to 5 h* up to 5.5 h* up to 11 h* up to 8 h* up to 16 h*
Output voltage without choke (30 V DC)	-	-	■	-	■	-
Diagnostics or bus function	-	-	-	■	■	-
Output voltage indicator	■	■	■	■	■	■
Overload Indicator	■	■	■	■	■	■
Bus current indicator	-	-	-	■	■	-
Telegram traffic indicator	-	-	-	■	■	-
Communication error indicator	-	-	-	■	■	-
Bus reset button and indicator	-	-	-	■	■	-
Mains voltage OK indicator	-	-	-	-	-	■
Battery voltage OK indicator	-	-	-	-	-	■
Floating contact for fault reporting	-	-	-	-	-	■

* Times based on a new battery at rated load

** see product manual [2CDC 501 002 D0203](#)

2 Device technology

2.1 Standard Power Supply, 640/320/160 mA, MDRC

KNX power supplies generate and monitor the KNX system voltage (SELV). The bus line is decoupled from the power supply by an integrated choke.

The voltage output is short-circuit and overload protected.

The two-color LED indicates device output status.

Device type SV/S 30.640.3.1 has an additional 30 V DC short-circuit and overload protected voltage output that can be used to power an additional bus line (in combination with a separate choke).

2.1.1 Technical data

Supply	Supply voltage U_s	85...265 V AC, 50/60 Hz		
	Power consumption	Normal operation	Maximum	
	- SV/S 30.160.1.1	6.6 W	21 W	
	- SV/S 30.320.1.1	12.5 W	30 W	
	- SV/S 30.640.3.1	24 W	55 W	
	Power loss	Normal operation	Maximum	
	- SV/S 30.160.1.1	1.8 W	4.4 W	
- SV/S 30.320.1.1	2.5 W	6 W		
- SV/S 30.640.3.1	4 W	9 W		
Outputs	KNX voltage output I_1	1 line with integrated choke		
	Rated voltage U_N	30 V DC +1/-2 V, SELV		
	Minimum distance between 2 SV/S in one line	200 m (KNX bus line)		
	Voltage output I_2 (SV/S 30.640.3.1 only)	without choke		
	Rated voltage U_N	30 V DC +1/-1 V, SELV		
		The voltage output without choke may only be used to power an additional bus line in combination with a separate choke.		
	Current	Rated curr.	Overload curr.	Short-circuit curr.
- SV/S 30.160.1.1	I_N	I_{OVI}	I_{Sc}	
- SV/S 30.320.2.1	160 mA	0.3 A	0.5 A	
- SV/S 30.640.3.1 (total current I_1 and I_2)	320 mA	0.5 A	0.8 A	
	640 mA	0.9 A	1.4 A	
	Power failure buffering time	200 ms		
Connections	KNX	Bus connection terminal		
	Mains voltage input	Screw terminal		
		0.2...2.5 mm ² fine-strand		
		0.2...4 mm ² solid		
	Tightening torque	Maximum 0.6 Nm		
Operating and display elements	LED status (two-colored green/red)	Green: $I < I_{OVI}$		
		Red: overload.		
		Red, flashing: short-circuit		
Degree of protection	IP 20	EN 60 529		

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Protection class	II	EN 61 140
Isolation category	Overvoltage category Pollution degree	III under EN 60 664-1 2 under EN 60 664-1
Temperature range	Operation Storage Transport	-5 °C...+45 °C -25...+55 °C -25...+70 °C
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
Design	Modular installation device (MDRC) Main dimensions (H x W x D) Mounting width Mounting depth	Modular installation device, Pro <i>M</i> 90 x 72 x 64.5 mm 4 x 18 mm modules 64.5 mm
Mounting	On 35 mm mounting rail	EN 60 715
Mounting position	As required	
Weight	Approx. 0.26 kg	
Housing, color	Plastic housing, gray	
Approvals	KNX under EN 50 090-1, -2	
CE mark	In accordance with the EMC guideline and low voltage guideline	

Important

If the device overheats due to extended overload (> 100 °C in housing) it switches off automatically. The LED is off. The device can be switched on again only after it has been disconnected from the mains for 60 seconds and has cooled to operational temperature internally.

Eliminate the cause of the overload before switching back on.

When commissioning the device, ensure that the rated current is not continuously exceeded.

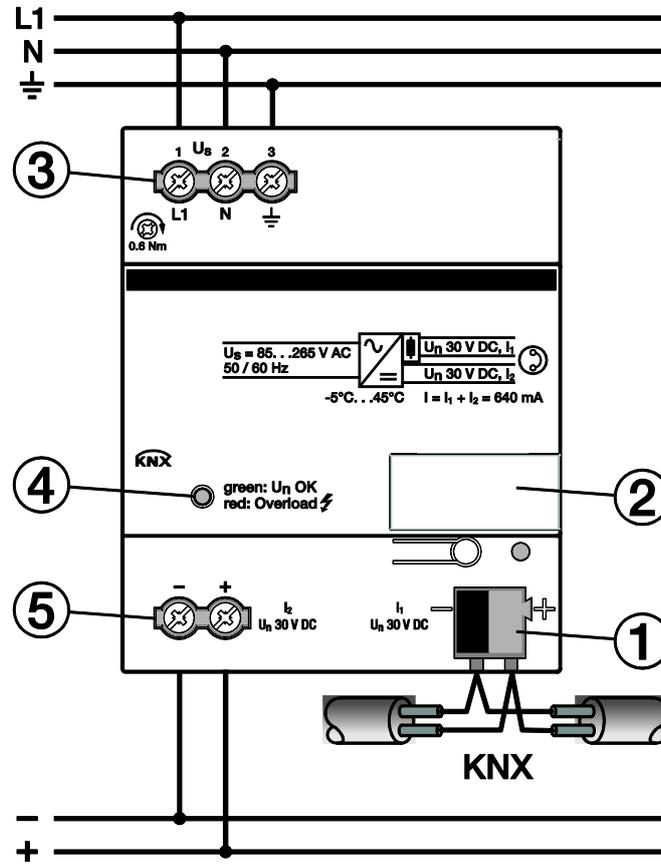
The voltage output without choke (I_2) is not electrically isolated from the KNX voltage output (I_1). It may only be used to power an additional bus line in combination with a separate choke. It may not, for example, be used to power IP devices (see SELV guidelines).

Devices are designed for continuous operation. They are not approved for frequent switching on and off.

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2.1.2

Connection schematic



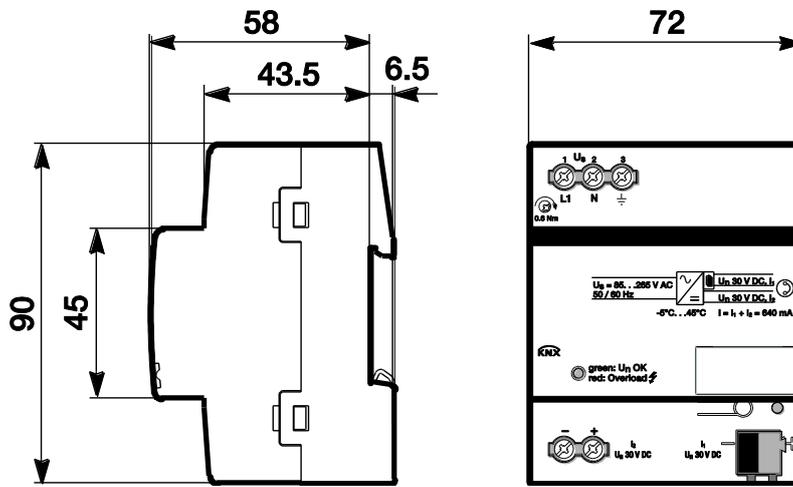
2CDC 072 007 F0013

- 1 Bus connection terminal
- 2 Label carrier
- 3 Power supply connection U_s
- 4 Status LED
- 5 Voltage output without choke, I_2 (SV/S 30.640.3.1 only)

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2.1.3

Dimension drawing



2CDC 072 013 F0013

2.1.4 Operating and display elements

Indicator	Description	Function
LED status (green/red)  U_n OK	Two-colored indicator for displaying mains voltage, overload and short-circuit. For SV/S 30.640.3.1, overload and short-circuit current values apply to the total current, $I = I_1 + I_2$	Green: Device operating normally ($I < I_{OVI}$) Red: Overload ($I_{OVI} < I < I_{SC}$) Red, flashing: Current limiting is active Output voltage regulated downwards ($I = I_{SC}$) OFF: Mains voltage absent

2.1.5 Mounting and installation

Accessibility to the device for the purpose of operation, testing, visual inspection, maintenance and repair must be provided compliant to VDE 0100-520.

Mounting

Mounting and commissioning may only be carried out by electrical specialists. The appropriate standards, directives, regulations and specifications should be observed when planning and setting up electrical installations.

Protect the device from moisture, dirt and damage during transport, storage and operation.

Only operate the device within the specified technical data!

The device should only be operated in an enclosed housing (distribution board)!

Cleaning

If devices become dirty, they can be cleaned using a dry cloth. Should a dry cloth not remove the dirt, they can be cleaned using a slightly moistened cloth and soap solution. Corrosive agents or solutions should never be used.

Maintenance

The device is maintenance-free. No repairs should be carried out by unauthorized personnel if damage occurs, e.g. during transport and/or storage. The warranty expires if the device is opened.

2.2 KNX Power Supply with diagnostics, 640/320 mA, MDRC



2CDC 071 017 S0013

KNX power supplies generate and monitor the KNX system voltage (SELV). The bus line is decoupled from the power supply by an integrated choke.

Bus current, bus voltage, overload and other messages can be sent via KNX for monitoring and diagnostic purposes.

The voltage output is short-circuit and overload protected.

The LEDs indicate the bus current consumption and the status of the line or device.

Device type SV/S 30.640.5.1 has an additional 30 V DC short-circuit and overload protected voltage output that can be used to power an additional bus line (in combination with a separate choke).

2.2.1 Technical data

Supply	Supply voltage U_s	85...265 V AC, 50/60 Hz		
	Power consumption	Normal operation	Maximum	
	- SV/S 30.320.2.1	12.5 W	30 W	
	- SV/S 30.640.5.1	24 W	55 W	
	Power loss	Normal operation	Maximum	
	- SV/S 30.320.2.1	2.5 W	6 W	
- SV/S 30.640.5.1	4 W	9 W		
Outputs	KNX voltage output I_1	1 line with integrated choke		
	Rated voltage U_N	30 V DC +1/-2 V, SELV		
	Minimum distance between 2 SV/S in one line	200 m (KNX bus line)		
	Voltage output I_2 (SV/S 30.640.5.1 only)	without choke		
	Rated voltage U_N	30 V DC +1/-1 V, SELV		
		The voltage output without choke may only be used to power an additional bus line in combination with a separate choke.		
	Current	Rated curr.	Overload curr.	Short-circuit curr.
		I_N	I_{OVI}	I_{SC}
	- SV/S 30.320.2.1	320 mA	0.5 A	0.8 A
	- SV/S 30.640.5.1 (total current I_1 and I_2)	640 mA	0.9 A	1.4 A
	Power failure buffering time	200 ms		
Connections	KNX	Bus connection terminal		
	Mains voltage input	Screw terminal 0.2...2.5 mm ² fine-strand 0.2...4 mm ² solid		
		Tightening torque		
		Maximum 0.6 Nm		

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Device technology

Operating and display elements	Programming button and LED (red) U _N OK LED (green) LED I > I _{max} (red) Bus current LEDs (7 x yellow) Telegr. LED (yellow) Comm. error LED (yellow) Reset button and LED (red)	For assignment of the physical address ON: Bus voltage and mains voltage OK ON: Short-circuit or overload ON: Indicates present bus current ON: Telegram traffic ON: Communication error on bus ON: Line reset. To reset the device, press the button until the LED comes on. The line is disconnected from the voltage supply for 20 seconds. The LED then goes off again. OFF: Reset is complete.
Degree of protection	IP 20	EN 60 529
Protection class	II	EN 61 140
Isolation category	Overvoltage category Pollution degree	III under EN 60 664-1 2 under EN 60 664-1
Temperature range	Operation Storage Transport	-5 °C...+45 °C -25...+55 °C -25...+70 °C
Ambient conditions	Maximum air humidity	93 %, no condensation allowed
Design	Modular installation device (MDRC) Main dimensions (H x W x D) Mounting width Mounting depth	Modular installation device, Pro M 90 x 72 x 64.5 mm 4 x 18 mm modules 64.5 mm
Mounting	On 35 mm mounting rail	EN 60 715
Mounting position	As required	
Weight	Approx. 0.26 kg	
Housing, color	Plastic housing, gray	
Approvals	KNX under EN 50 090-1, -2	
CE mark	In accordance with the EMC guideline and low voltage guideline	

Device type	Application	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
SV/S 30.320.2.1	Power Supply, Diagnosis, 320mA/...*	7	254	254
SV/S 30.640.5.1	Power Supply, Diagnosis, 640mA/...*	9	254	254

* ... = current version number of the application

Please note

ETS and the current version of the device application are required for programming.

The current version of the application is available for download at www.abb.com/knx. After import it is available in ETS under ABB/System devices/Power Supplies.

The device does not support the password function of the KNX device in ETS. If you inhibit access to all the project devices using a *BCU code*, it has no effect on this device. Data can still be read and programmed.

Important

If the device overheats due to extended overload (> 100 °C in housing) it switches off automatically. All LEDs are OFF. The device can be switched on again only after it has been disconnected from the mains for 60 seconds and has cooled to operational temperature internally.

Eliminate the cause of the overload before switching back on.

When commissioning the device, ensure that the rated current is not continuously exceeded.

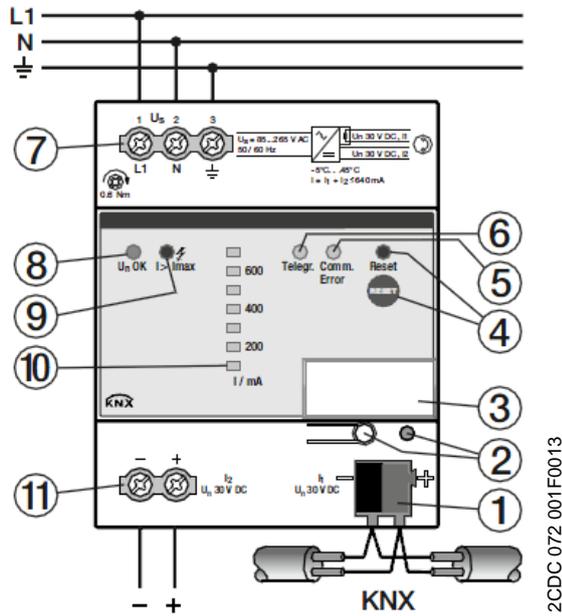
The voltage output without choke (I_2) is not electrically isolated from the KNX voltage output (I_1). It may only be used to power an additional bus line in combination with a separate choke. It may not, for example, be used to power IP devices.

Devices are designed for continuous operation. They are not approved for frequent switching on and off.

ABB i-bus[®] KNX Device technology

2.2.2

Connection schematic



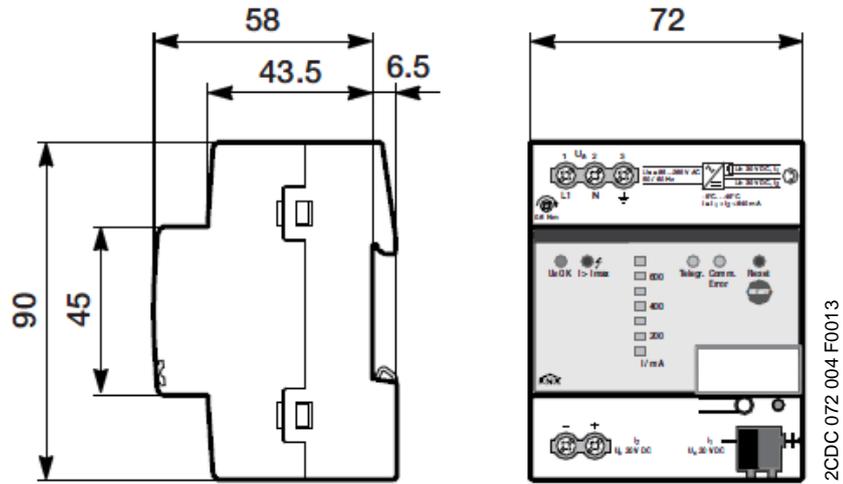
2CDC 072 001F0013

- 1 Bus connection terminal
- 2 Programming button and LED (red)
- 3 Label carrier
- 4 Reset button and LED (red)
- 5 Comm. error LED (yellow)
- 6 Telegr. LED (yellow)
- 7 Power supply connection U_s
- 8 U_N OK LED (green)
- 9 $I > I_{max}$ LED (red)
- 10 Bus current LED (7 x yellow)
- 11 Voltage output without choke, I_2 (SV/S 30.640.5.1 only)

ABB i-bus[®] KNX Device technology

2.2.3

Dimension drawing



2.2.4

Operating and display elements

Operation/ Indicator light	Description	Function																										
LED green  U_{II} OK	Indicates status of mains and output voltage The LED is off during programming.	ON: Mains voltage present, device operating normally ($I < I_{OVI}$) OFF: Mains voltage absent																										
LED red  I > I_{max}	Indicates overload/short-circuit current. The LED lights up when the output current exceeds the overload limit ($I > I_{OVI}$). For SV/S 30.640.5.1, overload and short-circuit current values apply to the total current, $I = I_1 + I_2$	<table border="1"> <thead> <tr> <th></th> <th>SV/S 30.320.2.1</th> <th>SV/S 30.3640.5.1</th> </tr> </thead> <tbody> <tr> <td>ON ($I > I_{OVI}$)</td> <td>$I > 500$ mA</td> <td>$I > 900$ mA</td> </tr> </tbody> </table>		SV/S 30.320.2.1	SV/S 30.3640.5.1	ON ($I > I_{OVI}$)	$I > 500$ mA	$I > 900$ mA																				
	SV/S 30.320.2.1	SV/S 30.3640.5.1																										
ON ($I > I_{OVI}$)	$I > 500$ mA	$I > 900$ mA																										
7 LEDs (yellow) LED No.: 7.  6.  5.  4.  3.  2.  1. 	Indicates present bus current If a current value exceeds/falls below the indicator value by +/- 5 % for at least 110 ms, the LED comes ON/goes OFF. Example, SV/S 30.640.5.1: LED No. 2 (200 mA) lights up if the output current exceeds/stays at 210 mA for 110 ms. The LED goes off if the current falls below 190 mA for at least 110 ms.	<table border="1"> <thead> <tr> <th rowspan="2">LED No.:</th> <th>SV/S 30.320.2.1</th> <th>SV/S 30.3640.5.1</th> </tr> <tr> <th>Indicator value [mA]</th> <th>Indicator value [mA]</th> </tr> </thead> <tbody> <tr> <td>7.</td> <td>350</td> <td>700</td> </tr> <tr> <td>6.</td> <td>300</td> <td>600</td> </tr> <tr> <td>5.</td> <td>250</td> <td>550</td> </tr> <tr> <td>4.</td> <td>200</td> <td>400</td> </tr> <tr> <td>3.</td> <td>150</td> <td>300</td> </tr> <tr> <td>2.</td> <td>100</td> <td>200</td> </tr> <tr> <td>1.</td> <td>50</td> <td>100</td> </tr> </tbody> </table>	LED No.:	SV/S 30.320.2.1	SV/S 30.3640.5.1	Indicator value [mA]	Indicator value [mA]	7.	350	700	6.	300	600	5.	250	550	4.	200	400	3.	150	300	2.	100	200	1.	50	100
LED No.:	SV/S 30.320.2.1	SV/S 30.3640.5.1																										
	Indicator value [mA]	Indicator value [mA]																										
7.	350	700																										
6.	300	600																										
5.	250	550																										
4.	200	400																										
3.	150	300																										
2.	100	200																										
1.	50	100																										
 Reset  Reset	Triggers and indicates a bus reset. This function can be triggered only when mains voltage is applied. Operating one line with two power supplies: when the mains supply fails, the Reset button on the affected device does not function.	Reset button: Pressing the button for > 2 seconds triggers a reset. The line shorts. Pressing the button again during a reset has no effect (no reaction, no retrigger, no interrupt, etc.) ON: After pressing for > 2 secs. or for the duration of the reset (20 s) after receiving the object value. ON: After 20 s reset Flashes: At 4.8 Hz while being pressed																										
 Telegr.	Indicates a KNX telegram	AN: Receiving telegram OFF: Stand-by mode																										
 Comm. Error	Indicates a communication error on the bus	ON: The LED comes ON for 1 second and is retriggerable if there is a transmission error or if a telegram fails or is incomplete (e.g. "BUSY", "NAK" (receipt not correct)). OFF: Device working normally																										

Please note

Individual LEDs may flash during downloads or while the application is being unloaded.

2.2.5 Mounting and installation

Accessibility to the device for the purpose of operation, testing, visual inspection, maintenance and repair must be provided compliant to VDE 0100-520.

Commissioning requirements

To commission the device you will need a PC with ETS, a connection to the ABB i-bus[®], e.g. via a KNX interface, and a supply voltage of 110/230 V.

Mounting

Mounting and commissioning may only be carried out by electrical specialists. The appropriate standards, directives, regulations and specifications should be observed when planning and setting up electrical installations.

Protect the device from moisture, dirt and damage during transport, storage and operation.

Only operate the device within the specified technical data!

The device should only be operated in an enclosed housing (distribution board)!

Supplied state

The device is supplied with the physical address 15.15.255.

The application program is pre-installed. It is therefore only necessary to load group addresses and parameters during commissioning.

However, the complete application program can be reloaded if required. Downloads may take longer after a change of application program, an interrupted download or after unloading a device.

Assignment of the physical address

The assignment and programming of the physical address is carried out in ETS.

The device features a programming button for assignment of the physical device address. The red *Programming* LED lights up after the button has been pushed. It goes off as soon as ETS has assigned the physical address or the *Programming* button is pressed again.

Cleaning

If devices become dirty, they can be cleaned using a dry cloth. Should a dry cloth not remove the dirt, they can be cleaned using a slightly moistened cloth and soap solution. Corrosive agents or solutions should never be used.

Maintenance

The device is maintenance-free. No repairs should be carried out by unauthorized personnel if damage occurs, e.g. during transport and/or storage. The warranty expires if the device is opened.

3 Start-up

This section describes the functions of the SV/S 30.640.5.1 and SV/S 30.320.2.1 KNX power supplies. The devices are parameterized using the application program and Engineering Tool Software (ETS).

The application program can be found at ABB/System devices/Power Supplies.

For parameterization purposes, a PC or Laptop with ETS and a connection to the KNX, e.g. USB or IP interface, is required.

Please note

While programming the SV/S, all indicators are off and the Reset button does not function. This is also the case when the device is unloaded (ETS). However, the output voltage is generated irrespective of the indicators.

3.1 Overview

The ABB i-bus[®] KNX SV/S 30.640.5.1 and SV/S 30.320.2.1 power supplies have extended features for monitoring and diagnostics.

The table below gives an overview of functions, the values that can be queried, and the status messages for the application program.

General	SV/S 30.320.2.1	SV/S 30.640.5.1
In-operation function for device monitoring	■	■
Request status/measured values	■	■
Bus voltage U_N	■	■
Bus current I_1	■	■
Current voltage output I_2	-	■
Total current $I (= I_1 + I_2)$	-	■
Bus current I_1 or total current $I >$ rated current I_n	■	■
Overload $I > I_{max}$	■	■
Trigger bus reset	■	■

3.2 Conversion of previous application program versions

For ABB i-bus[®] KNX devices, it is possible to adopt the parameter settings and group addresses from earlier versions of the application program from ETS3.

At the time of the market launch of the SV/S 30.640.5.1 and SV/S 30.320.2.1 power supplies there is no previous version of the application program. However, the conversion function can still be useful to transfer the parameterization settings and group addresses of one device to another of the same type.

3.2.1 Procedure

- Import the current VD file into ETS and add a product to the project, using the current application program.
- After you have parameterized a device, you can transfer the settings to a second device. For this purpose, the devices must already be available in the ETS project.
- Right click on the product and select Conversion in the context menu for this purpose.



- Then follow the instructions in the dialog window.
- Finally, you must replace the physical address and delete the old device.

3.3 Parameters

The SV/S 30.640.5.1 and SV/S 30.320.2.1 power supplies have an application program which allows you to set the measured and status values that can be queried. ETS is required for this programming.

The application program is available in ETS under ABB/System devices/Power Supplies.

The following section describes the parameters of the application program. Parameter windows are structured dynamically so that further parameters may be enabled depending on the settings and the function.

The default values of the parameters are underlined, e.g.

Options: yes
 no

3.3.1

Parameter window *General*

Send communication object 'In operation'	no
Enable communication object 'Request status/measured values' 1 bit	no
Send status values	after a change or request
Enable communication object 'Trigger bus reset' 1 bit	no

Send communication object "In operation"

Options: no
 send value 0 cyclically
 send value 1 cyclically

The communication object *In operation* indicates the presence of the device on the bus. This cyclic telegram can be monitored by an external device. If a telegram is not received, the device may be defective or the bus cable to the transmitting device may be interrupted.

no: The communication object *In operation* is not enabled.

- *send value 0/1 cyclically*: The communication object *In operation* (No. 0) is sent cyclically via KNX. An additional parameter appears:

Sending cycle time in s [1...65,535]

Options: 1..60...65,535

Here the time interval, at which the communication object *In operation* (No. 0) cyclically sends a telegram, is set.

Enable communication object "Request status/measured values" 1 bit

Options: no
 yes

This communication object is used for requesting status and measured values. If it receives a telegram with the value 0 or 1 (depending on parameterization), measured values (communication objects 2-5) are sent via the bus. Status values (communication objects 6-7) are sent depending on parameterization

- *yes*: The 1 bit communication object *Request status/measured values* is displayed. An additional parameter is displayed:

Request with object value

Options: 0
1
 0 or 1

0: A telegram with object value 0 triggers sending of measured and status values.

1: A telegram with object value 1 triggers sending of measured and status values.

0 or 1: A telegram with object value 0 or 1 triggers sending of measured and status values.

Send status values

Options: no, update only
 after a change
 after request
 after a change or request

These parameters determine the send behavior of the status values. Status values are:

Total current $I > \text{Rated current } I_n$ (SV/S 30.640.5.1 only)

Bus current $> \text{Rated current } I_n$ (SV/S 30.320.2.1)

Overload $I > I_{max}$

- *no, update only*: The status values are updated but not sent (the values can be read from the communication objects).
- *after a change*: The status values are sent after a change.
- *on request*: The status values are sent after a request.
- *after a change or request*: The status values are sent after a change or a request.

Enable communication object "Trigger bus reset" 1 bit

Options: no
 yes

This parameter enables the communication object to trigger a bus reset, which shorts the bus line for 20 seconds.

- *yes*: The 1 bit communication object *Trigger bus reset* is displayed. An additional parameter is displayed:

Bus reset on object value

Options: 0
 1
 0 or 1

0: The bus reset is triggered by object value 0

1: The bus reset is triggered by object value 1

0 or 1: The bus reset is triggered by object value 0 or 1

3.4 Communication objects

3.4.1 Summary of communication objects

CO No.	Function	Name	Data Point Type (DPT)	Length	Flags				
					C	R	W	T	A
0	In Operation	General	DPT 1.002	1 bit	x	x		x	
1	Request status/measured values	General	DPT 1.017	1 bit	x		x		
2	Bus voltage U_N	Measured value	DPT 14.027	4 byte	x	x		x	
3	Bus current I_1 (only with SV/S 30.640.5.1) Bus current I (only with SV/S 30.320.2.1)	Measured value	DPT 14.019	4 byte	x	x		x	
4	Current voltage output I_2 (only with SV/S 30.640.5.1)	Measured value	DPT 14.019	4 byte	x	x		x	
5	Total current I (only with SV/S 30.640.5.1)	Measured value	DPT 14.019	4 byte	x	x		x	
6	Total current $I >$ Rated current I_n (640 mA) (only with SV/S 30.640.5.1) Bus current $>$ Rated current I_n (320 mA) (only with SV/S 30.320.2.1)	Status value	DPT 1.005	1 bit	x	x		x	
7	Overload $I > I_{max}$	Status value	DPT 1.005	1 bit	x	x		x	
8	Trigger bus reset	General	DPT 1.017	1 bit	x		x		

* CO = communication object

3.4.2

Communication objects, *General*

No.	Function	Communication object name	Data type	Flags
0	In Operation	General	1 bit DPT 1.002	C, R, T
<p>The communication object is enabled if <i>send value 0/1 cyclically</i> is selected for the parameter <i>Send communication object "In operation"</i> in the <i>General</i> parameter window.</p> <p>In order to regularly monitor the presence of the device on the KNX, an in-operation monitoring telegram can be sent cyclically on the bus.</p> <p>As long as the communication object is activated and has a group address has been assigned, it sends a parameterizable in-operation telegram cyclically.</p>				
1	Request status/measured values	General	1 bit DPT 1.017	C, W
<p>If this communication object receives a telegram with the value 0 or 1 (depending on parameterization), the measured values of communication objects 2-7 are sent.</p> <p>Telegram value 1/0 = Request status values</p>				
2	Bus voltage U_n	Measured value	4 byte DPT 14.027	C, R, T
<p>On request, the device uses this communication object to send the bus voltage U_n to the device in V. Object value is updated every second.</p>				
3	Bus current I_1 (only with SV/S 30.640.5.1) Bus current I (only with SV/S 30.320.2.1)	Measured value	4 byte DPT 14.019	C, R, T
<p>On request, the device uses this communication object to send the bus voltage U_n to the device in A. Object value is updated every second.</p>				
4	Current voltage output I_2 (only with SV/S 30.640.5.1)	Measured value	4 byte DPT 14.019	C, R, T
<p>On request, the device uses this communication object to send the current I_2 on the voltage output in A. Object value is updated every second.</p>				
5	Total current I (only with SV/S 30.640.5.1)	Measured value	4 byte DPT 14.019	C, R, T
<p>On request, the device uses this communication object to send the total current I ($I_1 + I_2$) in A. Object value is updated every second.</p>				
6 4*	Total current I > Rated current I_N (640 mA) (only with SV/S 30.640.5.1) Bus current > Rated current In (320 mA) (SV/S 30.320.2.1)	Status value	1 bit DPT 1.005	C, R, T
<p>The device uses this communication object to report whether the rated current has been exceeded. If the rated current is exceeded for 10 seconds then a telegram with the value 1 is sent. The value is immediately reset to 0 when the rated current falls below the limit value. The object value is sent when there is a change, and on request.</p> <p>Telegram value: 0 = Bus current < Rated current I_N SV/S 30.320.2.1: $I_N < 315$ mA SV/S 30.640.5.1: $I_N < 630$ mA 1 = Bus current > Rated current I_N SV/S 30.320.2.1: $I > 320$ mA for longer than 10 s SV/S 30.640.5.1: $I > 640$ mA for longer than 10 s</p>				

* Object no. for SV/S 30.320.2.1

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7 5*	Overload $I > I_{max}$	Status value	1 Bit DPT 1.005	C, R, T
<p>The device uses this communication object to report that an overload has been detected on the output. If an overload is detected for > 10 seconds then a telegram with the value 1 is sent. The object value 0 is sent as soon as the current falls back within the limit value I_{OVI}.</p> <p>Overload limit values I_{OVI}:</p> <p>SV/S 30.320.2.1: $I_{OVI} = 500 \text{ mA} \pm 5\%$ hysteresis SV/S 30.640.5.1: $I_{OVI} = 900 \text{ mA} \pm 5\%$ hysteresis</p> <p>Telegram value:</p> <p>0 = no overload (LED $I > I_{max}$ is OFF) SV/S 30.320.2.1: $I < 475 \text{ mA}$ SV/S 30.640.5.1: $I < 855 \text{ mA}$</p> <p>1 = overload (LED $I > I_{max}$ is ON) SV/S 30.320.2.1: $I > 525 \text{ mA}$ SV/S 30.640.5.1: $I > 950 \text{ mA}$</p>				
8 6*	Trigger bus reset	General	1 bit DPT 1.017	C, W
<p>This communication object triggers a reset for 20 seconds. The bus line is disconnected from the output voltage and shorted. This restarts devices connected to this bus line.</p> <p>The <i>Reset</i> LED lights up for the duration of the reset.</p> <p>Lines with two power supplies: a bus reset can be triggered only when mains voltage is applied.</p> <p>Telegram value: 1/0 = reset</p>				

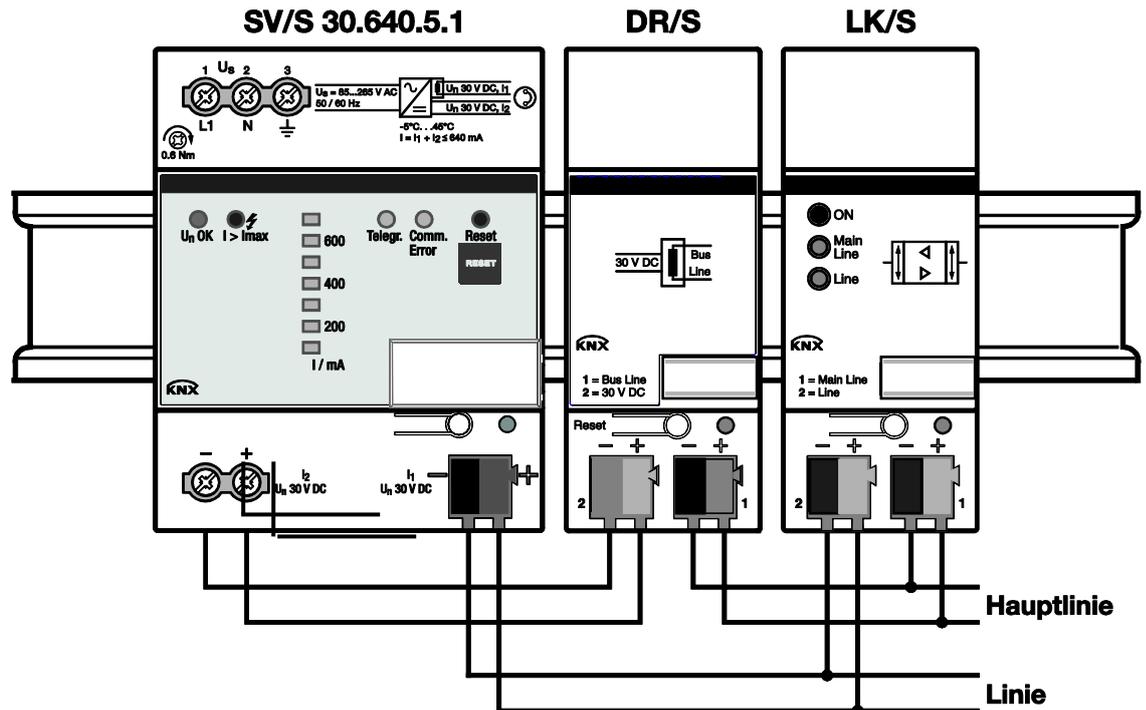
* Object no. for SV/S 30.320.2.1

ABB i-bus® KNX Planning and application

4 Planning and application

4.1 Additional voltage output

Type SV/S 30.640.5.1 and SV/S 30.640.3.1 devices have a 30 V DC voltage output without choke. This can be used in combination with an additional choke to power a main or area line. To do this, the devices must be installed in accordance with the connection schematic below.



Please note

The voltage output without choke may not be used for other purposes (e.g. for connecting sensors to a binary input) because in the event of an error on the voltage output (e.g. a short-circuit) the power supply and therefore the whole KNX line connected to it will fail!

The voltage output without choke (I_2) is not electrically isolated from the KNX voltage output (I_1). It may only be used to power an additional bus line in combination with a separate choke. It may not, for example, be used to power IP devices (see SELV guidelines).

4.2 Reset

During a reset the bus line is disconnected from the output voltage and shorted. This restarts devices connected to this bus line. The red Reset LED lights up for the duration of the reset. The LED goes off when the reset is complete. A reset takes around 20 seconds.

If the line is to be disconnected from the voltage for an extended period, pull off the bus connection terminals from the KNX power supply.

Reset via bus connection terminal

Pull off the device's bus connection terminal for approx. 20 seconds.

Reset via button

On type SV/S 30.640.5.1 and SV/S 30.320.2.1 power supplies a reset can be carried out using the Reset button. To reset the device, press the Reset button on the front for > 2 seconds. Pressing the button again during a reset has no effect (no reaction, no retrigger, no interrupt, etc.)

Reset via bus

On type SV/S 30.640.5.1 and SV/S 30.320.2.1 power supplies a reset can also be carried out via the bus. The reset is triggered when a telegram is received via communication object no.8, *Trigger bus reset*. A bus reset can be triggered only when mains voltage is applied.

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4.3

Faults

SV/S 30.640.3.1, SV/S 30.320.1.1 and SV/S 30.160.1.1

Indicators for normal operation, short-circuit and overload

 U_N OK green/ red	Description	Recommendation
ON green	Device operating normally.	
ON red	Output overloaded.	Rectify overload or reduce number of bus devices until there is no longer an overload and only the green U _N OK LED is lit.
Flashing red	Current limiting active.	Reduce number of bus devices until only the green U _N OK LED is lit.

SV/S 30.640.5.1 and SV/S 30.320.2.1

Indicators for normal operation, short-circuit and overload

 U_N OK	 I > I_{max}	Description	Recommendation
ON	OFF	Device operating normally.	
OFF	ON	Current limiting active.	Rectify cause of short-circuit or reduce number of bus devices until there is no longer an overload and only the green U _N OK LED is lit.
ON	ON	Output overloaded.	Reduce number of bus devices until there is no longer an overload and only the green U _N OK LED is lit.
OFF	OFF	No mains supply.	Apply mains voltage and carry out a reset if applicable.

Communication error indicators

 Comm. Error	Description	Recommendation
ON	The LED comes ON for 1 second if there is a transmission error or if a telegram fails or is incomplete (e.g. "BUSY", "NAK" (receipt not correct)).	If the LED lights up frequently or flashes, check the topology or connections. For a more accurate diagnosis, use ETS Bus Monitor logging.

A Appendix

A.1 Ordering details

Short description	Description	Order No.	bbn 40 16779 EAN	Price group	Weight 1 pcs [kg]	Pkg qty [pcs.]
SV/S 30.160.1.1	KNX Power Supply, 160 mA, MDRC	2CDG 110 044 R0011	86666 8	P2	0.25	1
SV/S 30.320.1.1	KNX Power Supply, 320 mA, MDRC	2CDG 110 066 R0011	90619 7	P2	0.25	1
SV/S 30.640.3.1	KNX Power Supply, 640 mA, MDRC	2CDG 110 067 R0011	90621 0	P2	0.25	1
SV/S 30.320.2.1	KNX Power Supply with diagnostics, 320 mA, MDRC	2CDG 110 145 R0011	83766 8	P2	0.26	1
SV/S 30.640.5.1	KNX Power Supply with diagnostics, 640 mA, MDRC	2CDG 110 146 R0011	86669 9	P2	0.26	1
SU/S 30.640.1	Uninterruptible KNX Power Supply, 640 mA, MDRC	GHQ 631 0049 R0111	51477 4	P2	0.55	1

Notes

Contact

ABB STOTZ-KONTAKT GmbH

Eppelheimer Straße 82

69123 Heidelberg, Germany

Telephone: +49 (0)6221 701 607

Fax: +49 (0)6221 701 724

E-mail: knx.marketing@de.abb.com

Further information and local contacts:

www.abb.com/knx

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