Power Supply Standard, 640 mA, MDRC User Guide

C4-KNX-PS640MA

Control4

SV/S 30.640.3.1

$U_S = 85...265$ V AC
50 / 60 Hz

U_n 30 V DC, I_1

U_n 30 V DC, I_2

-5°C...45°C $I = I_1 + I_2 = 640$ mA

KNX

green: U_n OK
red: Overload

I_2
U_n 30 V DC

I_1
U_n 30 V DC

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Contents

This manual describes the function and configuration of the *Power Supply Standard, 640 mA, MDRC.*
Use ETS v.5.6.6 (or higher).

Power Supply Standard, 640 mA, MDRC, SKU: C4-KNX-PS640MA.
KNXPROD filename: SV/S 30.640.3.41, download: https://ctrl4.co/knx-ps640ma

Subject to change.

Exclusion of liability:
Although the contents of this document have been checked to ensure that they are consistent with the hardware and software, deviations cannot be completely excluded.
We therefore cannot accept liability. Any necessary corrections will be incorporated in new versions of the manual.

Please inform us of any suggested improvements.

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1   General

The Control4® KNX Power Supply Standard, 640 mA, MDRC, *SKU: C4-KNX-PS640MA* (KNXPROD File Name: SV/S 30.640.3.41. *Download: https://ctrl4.co/knx-ps640ma*) provides 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.

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.

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1.2 Product and functional overview

Each Control4® KNX Power Supply Standard, 640 mA, MDRC, *SKU: C4-KNX-PS640MA* (KNXPROD File Name: SV/S 30.640.3.41. *Download: https://ctrl4.co/knx-ps640ma*) has an integrated choke. It connects to the KNX bus via a bus connection terminal.

Devices with diagnostics or bus functions for complex applications are available alongside standard devices. An uninterruptable battery backed-up version is also available.

1.2.1 Brief overview

Property	C4-KNX-PS640MA *KNXPROD File Name: SV/S 30.640.3.41* Standard
Supply voltage (in V AC)	100 – 240
KNX rated voltage (in V DC)	30
KNX rated current (in mA)	640
Type of installation	MDRC
Mounting width in space units	4
Integrated choke	■
Short-circuit and overload monitoring	■
Mains failure back-up time (in ms)	200 ms
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	-
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	-

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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.

This device 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	100 – 240 V AC, 50/60 Hz (85…265 V AC)		
	Power consumption	Normal operation 24 W		Maximum 55 W
	Power loss	Normal operation 4 W		Maximum 9 W
Outputs	KNX voltage output I_1 Rated voltage U_N Minimum distance between 2 power supplies in one line	1 line with integrated choke 30 V DC +1/-2 V, SELV 200 m (KNX bus line)		
	Voltage output I_2 Rated voltage U_N	without choke 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 total current I_1 and I_2	Rated curr. I_N 640 mA	Overload curr. I_{Ovl} 0.9 A	Short-circuit curr. I_{Sc} 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: $I < I_{Ovl}$ 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)	Modular installation device, Pro *M*
	Main dimensions (H x W x D)	90 x 72 x 64.5 mm
	Mounting width	4 x 18 mm modules
	Mounting depth	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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Connection schematic

L1
N

green: Un OK
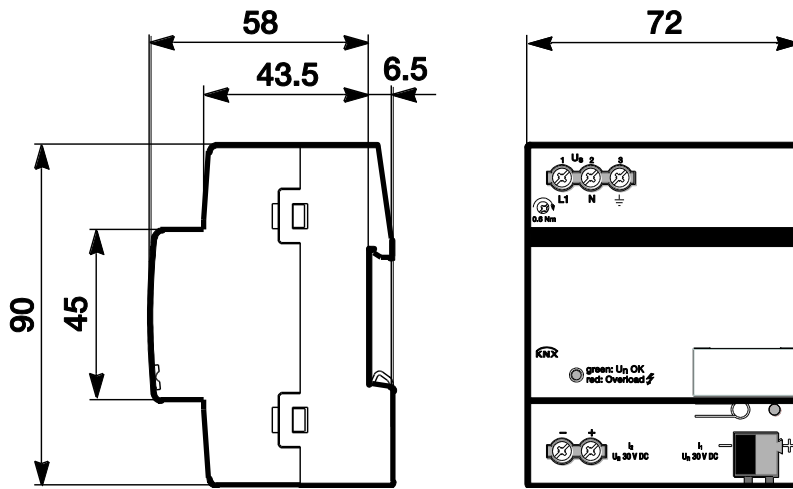red: Overload

KNX
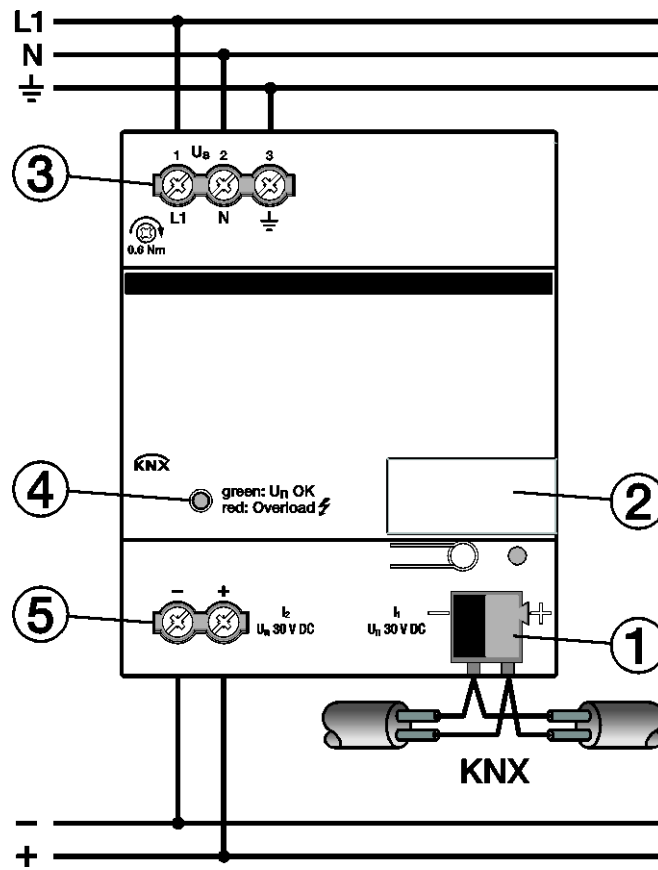
2CDC072007F0013

1	Bus connection terminal
2	Label carrier
3	Power supply connection U_s
4	Status LED
5	Voltage output without choke, I_2

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2.1.3   Dimension drawing

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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. Overload and short-circuit current values apply to the total current, I = I$_1$ + I$_2$	Green:	Device operating normally (I < I$_{Ovl}$)
		Red:	Overload (I$_{Ovl}$ < 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.

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2.2   Conversion of previous application program versions

For Control4® KNX devices, it is possible to adopt the parameter settings and group addresses from earlier versions of the application program from ETS v.5.6.6 (or higher).

2.2.1   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.

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3 Planning and application

3.1 Additional voltage output

Control4® KNX Power Supply Standard, 640 mA, MDRC, SKU: C4-KNX-PS640MA (*KNXPROD File Name: SV/S 30.640.3.41.* Download: https://ctrl4.co/knx-ps640ma) 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.
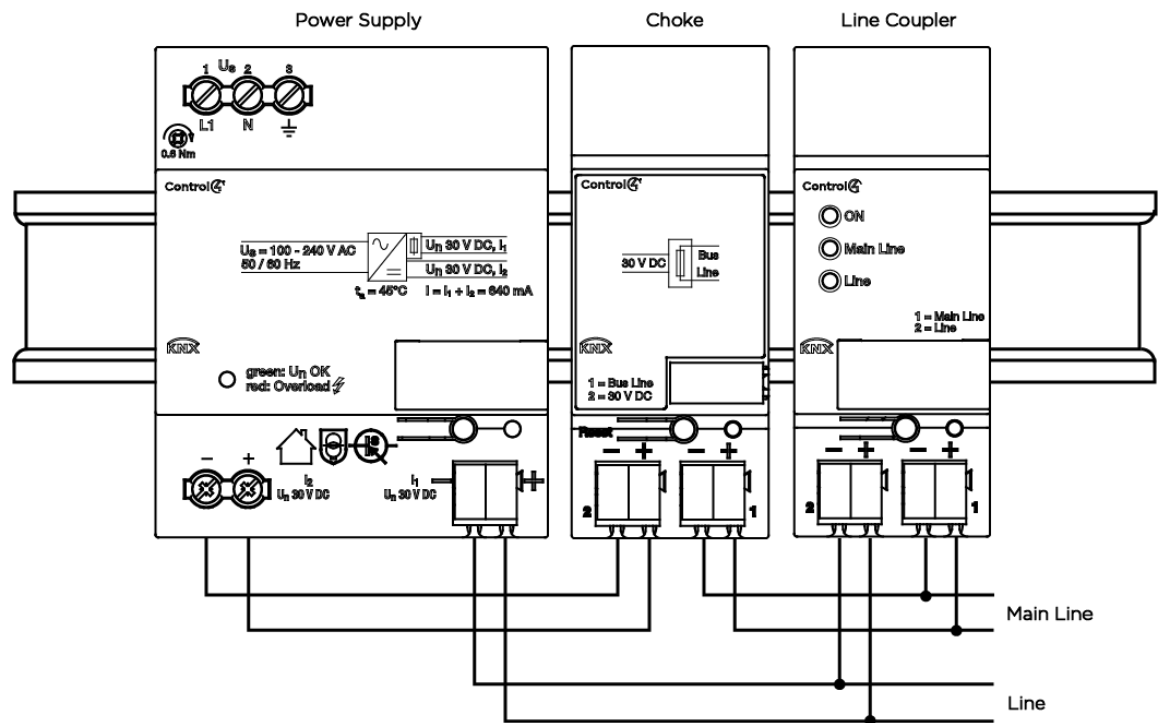
Please note
The voltage output without choke may not be used for other purposes (e.g. for connecting sensors to a binary input) because in the event of an error on the voltage output (e.g. a short-circuit) the power supply and therefore the whole KNX line connected to it will fail!
The voltage output 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).

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3.2　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.

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3.3   Faults

C4-KNX-PS640MA (*KNXPROD File Name: SV/S 30.640.3.41. Download: https://ctrl4.co/knx-ps640ma*)
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.

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.

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A   Appendix

A.1   Ordering details

Short description	Description	Weight 1 pcs [kg]	Pkg qty [pcs.]
C4-KNX-PS640MA *KNXPROD File Name: SV/S 30.640.3.41* **Download:** **https://ctrl4.co/knx-ps640ma**	KNX Power Supply, 640 mA, MDRC	0.25	1

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Notes

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