

easy800-BLT-ADP Bluetooth adapter



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Original Operating Instructions

The German-language edition of this document is the original operating manual.

Translation of the original operating manual

All editions of this document other than those in German language are translations of the original German manual.

1st published 2012, edition date 07/12

2nd published 2014, edition date 07/14

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Translation: globaldocs GmbH

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Danger! **Dangerous electrical voltage!**

Before commencing the installation

- Disconnect the power supply of the device.
- Ensure that devices cannot be accidentally restarted.
- Verify isolation from the supply.
- Earth and short circuit.
- Cover or enclose neighbouring units that are live.
- Follow the engineering instructions (AWA/IL) of the device concerned.
- Only suitably qualified personnel in accordance with EN 50110-1/-2 (VDE 0105 Part 100) may work on this device/system.
- Before installation and before touching the device ensure that you are free of electrostatic charge.
- The functional earth (FE) must be connected to the protective earth (PE) or to the potential equalisation. The system installer is responsible for implementing this connection.
- Connecting cables and signal lines should be installed so that inductive or capacitive interference does not impair the automation functions.
- Install automation devices and related operating elements in such a way that they are well protected against unintentional operation.
- Suitable safety hardware and software measures should be implemented for the I/O interface so that a line or wire breakage on the signal side does not result in undefined states in the automation devices.
- Ensure a reliable electrical isolation of the low voltage for the 24 volt supply. Only use power supply units complying with IEC 60364-4-41 (VDE 0100 Part 410) or HD 384.4.41 S2.
- Deviations of the mains voltage from the rated value must not exceed the tolerance limits given in the specifications, otherwise this may cause malfunction and dangerous operation.
- Emergency stop devices complying with IEC/EN 60204-1 must be effective in all operating modes of the automation devices. Unlatching the emergency-stop devices must not cause restart.
- Devices that are designed for mounting in housings or control cabinets must only be operated and controlled after they have been installed with the housing closed. Desktop or portable units must only be operated and controlled in enclosed housings.
- Measures should be taken to ensure the proper restart of programs interrupted after a voltage dip or failure. This should not cause dangerous operating states even for a short time. If necessary, emergency-stop devices should be implemented.
- Wherever faults in the automation system may cause damage to persons or property, external measures must be implemented to ensure a safe operating state in the event of a fault or malfunction (for example, by means of separate limit switches, mechanical interlocks etc.).

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0 About this Manual

This manual explains how to install and commission the easy800-BLT-ADP Bluetooth adapter.

The current edition of this manual in other languages can be obtained from the Internet

<http://www.eaton.doc> → **Download Center- Documentation**

by entering “Bluetooth” in the Quick Search box.

0.1 List of revisions

Compared to the previous issues, the following significant changes:

Edition date	Page	Description	New	Modifica- tion
07/12		New release for bluetooth adapter easy800-BLT-ADP 02 bluetooth 2.0	✓	
07/14	various	details to bluetooth adapter easy800 BLT-ADP 04 added Coupling method for bluetooth 2.1 (Secure Simple Pairing)	✓	

0.2 Target group

This operator manual is intended for people who want to establish communications between a computer and an easy800-Standard, EC4P, or MFD control relay. Once communications are established, it will be possible to do the following with the computer:

- Transfer applications to the device
- Test or commission applications
- Maintain applications
- Diagnose faults

The easy800-BLT-ADP Bluetooth adapter must be installed and connected by an electrician or an individual who is familiar with the installation of electrical equipment.

0.3 Exclusion of liability

All information in this manual was provided by us to the best of our knowledge and belief and in accordance with the current state-of-the-art. However, this does not exclude the possibility of inaccuracies so that we cannot accept any liability for the accuracy and completeness of the information. In particular, this information does not guarantee any particular properties.

The devices described here may only be operated in conjunction with this operator manual. Installation, commissioning, operation, maintenance and refitting of the devices must only be carried out by qualified persons. The devices must only be used in the areas recommended and only in conjunction with third-party devices and components that have been approved by us. Their use is allowed fundamentally only in technically faultless condition. Fault-free and safe operation of the system requires proper transport, storage, installation and commissioning as well as careful operation and maintenance.

If the following safety instructions are not observed, particularly with regard to commissioning and maintenance of the devices by insufficiently qualified personnel and/or in the event of improper use of the devices, any hazards caused by the devices cannot be excluded. We assume no liability for any injury or damages incurred.

0.4 Device designations and abbreviations

The following terms are used for the device types if the description applies to all these types:

- easy800-Standard for
 - EASY819-...,
 - EASY820-...,
 - EASY821-...,
 - EASY822-...
- MFD for
 - MFD-CP8-ME
 - MFD-CP8-NT
 - MFD-CP10-ME
 - MFD-CP10-NT
- EC4P for
 - EC4P-221-...
 - EC4P-222-...
- Bluetooth-Adapter easy800-BLT-ADP for versions
 - easy800-BLT-ADP 02
 - easy800-BLT-ADP 03
 - easy800-BLT-ADP 04

0.5 Writing conventions

Symbols used in this manual have the following meanings:

▶ Indicates instructions to be followed.

→ Indicates useful tips.

NOTICE

Warns about the possibility of material damage.



CAUTION

Warns of the possibility of hazardous situations that may possibly cause slight injury.



DANGER

Warns of hazardous situations that result in serious injury or death.

For greater clarity, the name of the current chapter and the name of the current section are shown at the top of each page.

0 About this Manual
0.5 Writing conventions

1 General Description

1.1 Proper use

The easy800-BLT-ADP Bluetooth adapter is designed to enable the wireless exchange of data between easy800-Standard, MFD-CP8/CP10, and EC4P control relays and a computer.

1.2 Device overview

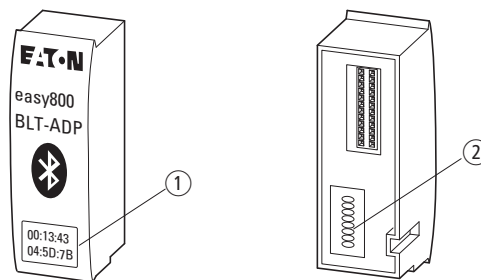


Figure 1: easy800-BLT-ADP

- ① 12-digit MAC address on the front
- ② 8-digit PIN code only for easy800-BLT-ADP 02 and 03 on the back

1.3 Overview of functions

The easy800-BLT-ADP Bluetooth adapter is active as soon as he is plugged in the device and the device is switched on. In cyclic periods a connection request is checked.

The following data can be transferred with the easy800-BLT-ADP Bluetooth adapter:

- Programs from and to a device that is ready for operation and connected to the computer. A program can contain circuit diagrams, function block diagrams, operand assignments, and NET parameters.
- Parameter states and power flow during operation (online test).
- Operating parameters.

In other words, the Bluetooth adapter is able to transmit the same data as the EASY800-USB-CAB and EASY800-PC-CAB programming cables.

1.4 Constraint

The SP (serial protocol) function block cannot be used if a Bluetooth adapter is being used. The reason for this is that this function block does not provide the mechanisms and communication parameters that the Bluetooth adapter requires for communicating.

The operating system for MFD-CP10 cannot be updated with the easy800-BLT-ADP Bluetooth adapter.

1 General Description

1.5 Designation

1.5 Designation

The easy800-BLT-ADP Bluetooth adapter has a 12-character MAC (Media Access Control) address. This MAC address serves to uniquely identify the Bluetooth adapter. It is located on a label found on the front of the Bluetooth adapter.

Example: A Bluetooth adapter can have a MAC address of 00:13:43:04:5E:A8.

The MAC address cannot be changed.

1.6 Pincode easy800-BLT-ADP

Every Bluetooth adapter easy800-BLT-ADP 02 and 03 has its own unique PIN code. This 8-digit PIN code is located on a label found on the back of the Bluetooth adapter. This PIN code is used to secure the wireless connection against unauthorized access. The PIN code cannot be changed or reset.



Make sure to write down the PIN code and store it in an additional, safe location. This will ensure that you will still have the PIN code if the label is lost or becomes illegible. It will not be possible to establish a connection between the Bluetooth adapter and a computer if you do not have the appropriate PIN code.



The bluetooth adapter easy800-BLT-ADP 04 uses the pairing process secure simple pairing as access protection (for units with a Bluetooth transmission&reception module version 2.1.) and no longer needs a PIN.
The devices with a Bluetooth transmission&reception module version 2.0 support PIN code. code.

1.7 Connection configurations

A single computer can establish communications with multiple Bluetooth adapters. Conversely, multiple computers, including portable computers such as laptops, can communicate with a single Bluetooth adapter.

1.7.1 Multiple Bluetooth adapters – One single computer

A single computer can have connections to multiple Bluetooth adapters. If you want to communicate with various devices via Bluetooth, you will have to open easySoft-Pro an additional time for each additional adapter.

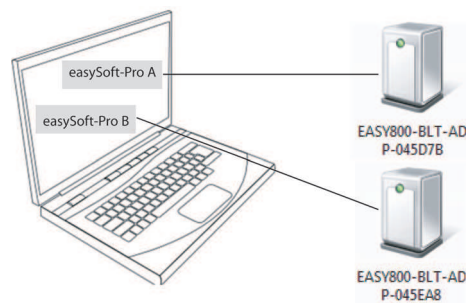


Figure 2: Two devices are connected to a single computer via Bluetooth adapters with two easySoft-Pro instances.

1 General Description

1.7 Connection configurations

1.7.2 A single Bluetooth adapter – Multiple computers

Alternatively, a single Bluetooth adapter can communicate with multiple computers. Only one connection may be active at a time. The maximum number of connected computers is limited to four. When establishing a connection, an authentication key will be stored in the Bluetooth adapter's memory. The size of this memory (a ring buffer) can accommodate a maximum of four authentication keys. This is why the number of computers that can access a single Bluetooth adapter is limited.

What will happen if an additional computer tries to establish a connection to the Bluetooth adapter? The authentication key with the oldest date will be eliminated from the ring buffer and the authentication key for the new computer will be added.

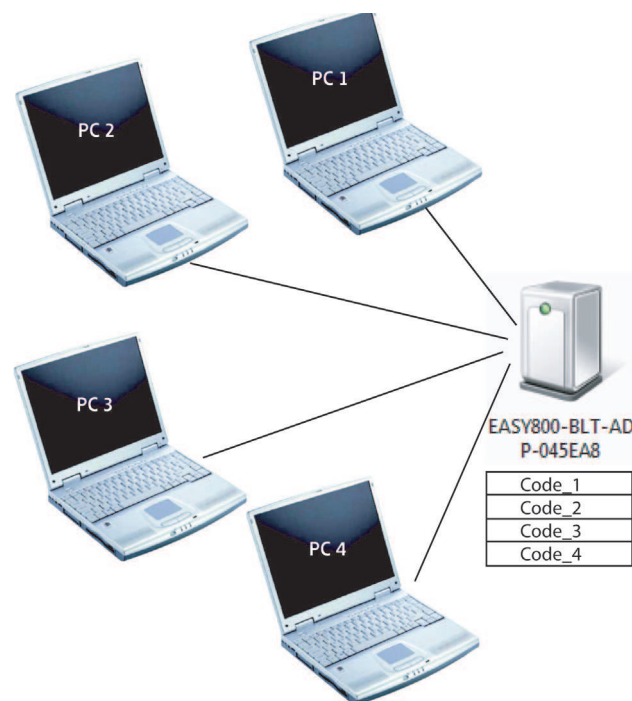


Figure 3: A Bluetooth adapter is connected to four computers, although only one connection can be active at a time. The Bluetooth adapter's ring buffer holds the authentication keys for the four computers: Code_1 to Code_4.

2 Installation

The easy800-BLT-ADP Bluetooth adapter can be installed in the following DC and AC devices:

- easy800 standard,
- EC4P,
- MFD-CP8-NT/ME,
- MFD-CP10-NT/ME from device version 03-xxxxxxxxxxxx.

2.1 Plugging in the Bluetooth adapter

NOTICE

Do not remove the Bluetooth adapter directly after plugging it in or turning on the power supply. Wait 5 seconds before doing so. Failure to wait can result in corrupted data.

- ▶ In order to install the Bluetooth adapter 02 and 03:
Write down the PIN code so that you can enter it on the computer later on.
The code is located on the back of the Bluetooth adapter.



For coupling with the bluetooth adapter easy800 BLT-ADP 04 you only have a limited time window (60 sec.) available. After the interval has elapsed to reactivate the time window the bluetooth adapter must be removed and plugged in again.

Follow the steps below in order to install the Bluetooth adapter:

- ▶ Remove the protective cap from the device's serial interface.
- ▶ Plug the Bluetooth adapter into the serial interface.

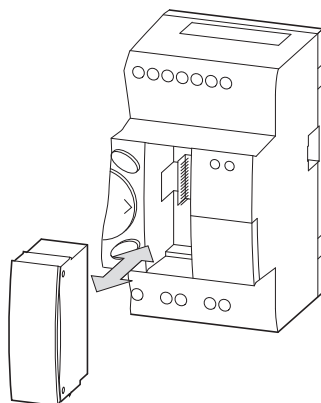


Figure 4: Example showing how to install an easy800-BLT-ADP adapter on an easy control relay

2 Installation

2.2 Removing the Bluetooth adapter

2.2 Removing the Bluetooth adapter

NOTICE

Do not remove the Bluetooth adapter directly after plugging it in or turning on the power supply. Wait 5 seconds before doing so. Failure to wait can result in corrupted data.

NOTICE

Do not remove the Bluetooth adapter while entering the PIN code to establish a Bluetooth connection. Doing so may result in corrupted data.

Follow the steps below in order to remove the Bluetooth adapter:

- ▶ Unplug the Bluetooth adapter from the serial interface.
- ▶ Place the protective cap over the device's serial interface.

3 Commissioning

Once the easy800-BLT-ADP Bluetooth adapter is installed, it must be recognized the first time the computer's operating system is started. The operating system will assign a COM interface to the wireless connection. This connection will be set up once only. Once the connection has been set up, it can be selected in the easySoft-Pro programming software. To enable communications between easySoft-Pro and the device, simply follow the same steps as usual. The connection will need to be enabled every time the programming software is started, as well as every time after communications are interrupted. For more information, please consult the easySoft-Pro online help function.

3.1 Prerequisites

The Bluetooth adapter can communicate with an installed Bluetooth adapter on the computer, with a Bluetooth adapter plugged into the computer's USB port, or with other freely available Bluetooth modules.

The following operating systems are supported:

- Windows XP from SP 3
- Windows Vista
- Windows 7 (32 bit / 64 bit)
- Windows 8 and Windows 8.1

The Bluetooth adapter is compatible with Bluetooth versions 2.0 to 3.0. Newer versions, such as 4.0, and older versions, such as 1.2, are not supported.

The bluetooth adapter easy800 BLT-ADP 02 and 03 supports devices with version 2.0 bluetooth transmitter & receiver modules.

The bluetooth adapter easy800 BLT-ADP 03 supports devices with version 2.1 bluetooth transmitter & receiver modules (coupling method secure simple pairing).



For coupling with the bluetooth adapter easy800 BLT-ADP 04 you only have a limited time window (60 sec.) available. After the interval has elapsed to reactivate the time window the bluetooth adapter must be removed and plugged in again.

In order to place the adapter into operation, the following conditions must be fulfilled:

1. The Bluetooth adapter must be installed on one of the devices that it will be used with.
2. The device is switched on.
3. The Bluetooth adapter must have been set up in Windows.
4. easySoft-Pro version 6.91 or higher must be installed and running.

3 Commissioning

3.2 Establishing a Bluetooth connection in Windows

3.2 Establishing a Bluetooth connection in Windows

The Bluetooth connection is established in Windows, which is why it will depend exclusively on the operating system version and product edition you are using. For instructions on how to set up the connection, please consult the included help system. For Windows 7, you will find the corresponding instructions in the "Connect to Bluetooth and other wireless or network devices" chapter. The following example shows one way to establish a connection in Windows 7.

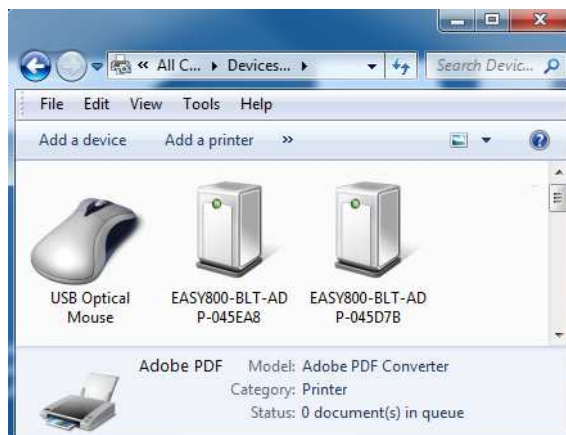
In order to establish a connection with the Bluetooth adapter, follow the steps below:

- ▶ Click on the Windows Start button and open the Control Panel.
- ▶ Open the "Devices and Printers" dialog box.
- ▶ Double-click on "Add a device" in order to start searching for new devices.

The dialog box will show any new devices, as well as devices that have not yet been added, that the computer finds.

The easy800-BLT-ADP Bluetooth adapter 02 and 03 will appear as EASY800-BLT-ADP+<6 key characters in the MAC address>.

Example: A Bluetooth adapter with a MAC address of 00:13:43:04:5D:7B will be shown as EASY800-BLT-ADP-045D7B.



For coupling with the bluetooth adapter easy800 BLT-ADP 04 you only have a limited time window (60 sec.) available. After the interval has elapsed to reactivate the time window the bluetooth adapter must be removed and plugged in again. For the bluetooth adapter easy800 BLT-ADP 03 the plain text of the MAC address is truncated.



This dialog box will not show any devices that have already been added!

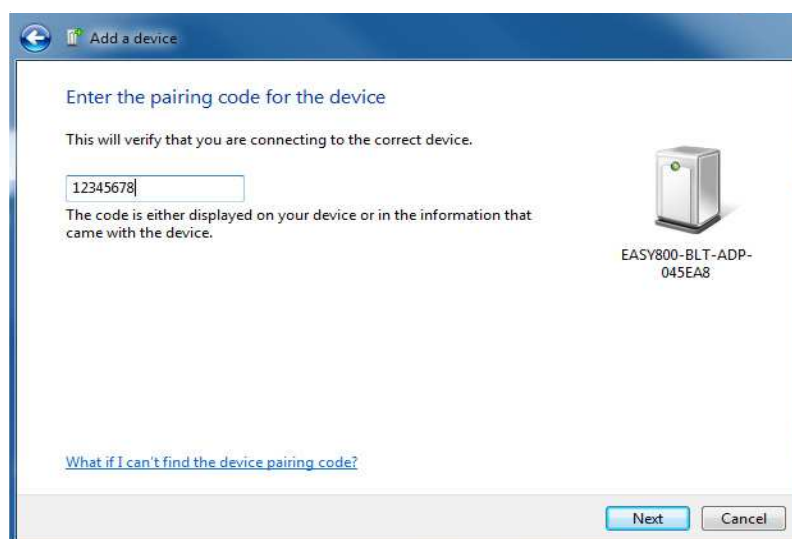
- ▶ Select the right Bluetooth adapter from the devices that are shown and click on "Next".

- ▶ (if applicable) Enter the Bluetooth adapter's easy800-BLT-ADP 02 and 03 eight-digit PIN code.
The PIN code is found on the back of the adapter.
For PCs with Windows XP Enter the Bluetooth adapter's easy800-BLT-ADP 04 PIN code: 86960440.

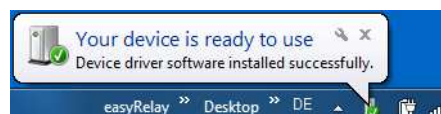
NOTICE

Do not remove the Bluetooth adapter easy800-BLT-ADP 03 while entering the PIN code for setting up the Bluetooth connection. Doing so may result in corrupted data.

- ▶ Click on the "Continue" button.



A wireless connection between the computer and the Bluetooth adapter will be established in a few seconds. The following message will appear when a connection is successfully established:



3 Commissioning

3.3 Activating the Bluetooth connection with the device

3.3 Activating the Bluetooth connection with the device

In order to establish communications between easySoft-Pro on the computer and the device via a Bluetooth adapter, follow the steps below:

- ▶ Start the easySoft-Pro V6.91 programming software on your computer.
- ▶ In the task pane, click on the “Communication” button on the lower left.
- ▶ If you start communications without previously selecting a device, the following dialog box will ask you to specify the device family of the control relay on which the Bluetooth adapter is installed. In our example, you would choose “EASY 800 devices”.



- ▶ Click on the “Connection” button on the upper left in Explorer.
- ▶ In the drop-down menu under “Interface”, select the COM port that was previously assigned to the Bluetooth adapter.
- ▶ Click the Online button.

A connection will be established between easySoft-Pro and the device with the Bluetooth adapter. You will now be able to perform all online operation functions via this Bluetooth connection.

4 What Happens If ...?

If the Bluetooth adapter does not behave as expected, the following tips may help fix the problem.

Problem	Explanation	Remedy
The Device Manager does not recognize the Bluetooth adapter.	The computer does not have a Bluetooth adapter.	Plug a Bluetooth adapter into the computer's USB connection.
	The computer's Bluetooth adapter is turned off.	Follow the manufacturer's documentation to enable Bluetooth wireless connections or to enable the plug-in Bluetooth adapter.
	The easy800-BLT-ADP adapter is defective.	Contact your local representative or the "After-Sales Service" Eaton Hotline.
	There is no supply voltage on the device or, accordingly, on the easy800-BLT-ADP adapter.	Turn on the power supply.
The Device Manager does not recognize the Bluetooth adapter, or the wireless connection is dropped sometimes.	The supply voltage on the device and, accordingly, on the easy800-BLT-ADP, is unstable.	Stabilize the power supply.
	Metal objects will interfere with the wireless connection.	Remove any metal objects found in a straight line between the easy800-BLT-ADP adapter and the computer.
	The distance between the easy800-BLT-ADP Bluetooth adapter and the computer is too big.	Reduce the distance between the easy800-BLT-ADP adapter and the computer.
	Other transmission sources will interfere with the connection.	Turn off or shield interfering transmission sources.
	EMC problems	Turn off or shield interfering transmission sources.
Multiple computers are trying to access a single Bluetooth adapter at the same time.	Multiple transmitters will interfere with each other.	Make sure there is only one active wireless connection between a Bluetooth adapter and a single computer at any one time.
Bluetooth adapter easy800 BLT-ADP 04 is not recognized by the device manager.	Timeout coupling process (pairing)	The bluetooth adapter easy800 BLT-ADP 04 is removed and plugged in again.

4 What Happens If ...?

5 Appendix

5.1 Approvals and certifications

easy800-BLT-ADP are approved for use in several countries and regions.

Product standards	<ul style="list-style-type: none"> • IEC/EN → Section "5.3.1 Standards", page 20 • UL 508 (INDUSTRIAL CONTROL EQUIPMENT) • CE-mark
NA Certification	UL
UL File No.	E135462
Radio licenses	→ Section " Radio interface easy800-BLT-ADP 03", page 21
Degree of protection	IEC: IP20

5.2 Dimensions

	Unit	easy800-BLT-ADP
Dimensions (W x H x D)	mm	15 x 45 x 17
	inch	0.59 x 1.77 x 0.67
Weight	g	8
	lb	0.018
Mounting		Can be plugged into the easy800-Standard, MFD-CP8/CP10, EC4P serial interface
Mounting position		Depends on the device's position

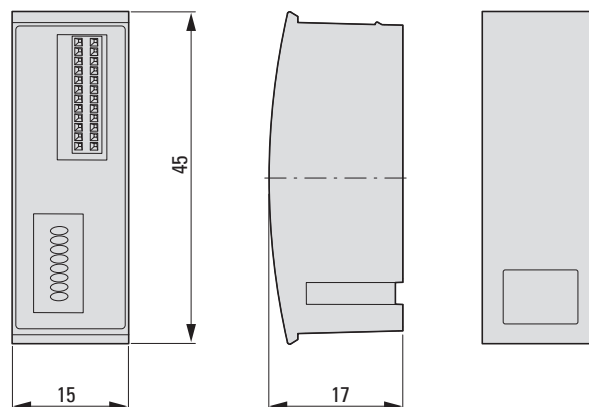


Figure 5: Dimensions in mm easy800-BLT-ADP

5.3 Technical Data

5.3.1 Standards

	easy800-BLT-ADP
Standards	EN 55011, EN 50178, IEC EN 61000-4, IEC60068-2-6, IEC60068-2-27

5.3.2 General ambient conditions

Ambient climatic conditions		
		Cold to IEC 60068-2-1, heat to IEC 60068-2-2, damp heat, constant, to IEC 60068-2-78; cyclical to IEC 60068-2-30, temperature change to IEC68000-2-14
Operating ambient temperature	°C, (°F)	-25 - +55 (-13 - +131)
Condensation		Prevent condensation by means of suitable measures
Storage	°C, (°F)	-40 - +70, (-40 - +158)
Relative humidity, non-condensing (IEC/EN 60068-2-30)	%	5 - 95
Air pressure (in operation)	hPa	795 - 1080
Ambient mechanical conditions		
Degree of protection EN 50178, IEC 60529, VBG4		IP20
Vibrations (IEC EN 60068-2-6)		
Constant amplitude 3.5 mm	Hz	5 - 8.4
Constant acceleration, 1 g	Hz	8.4 - 150
Mechanical shock resistance (IEC EN 60068-2-27) semi-sinusoidal 15 g/11 ms	Shocks	18
Drop (IEC EN 60068-2-31), drop height	mm	50
free fall, packaged (IEC EN 60068-2-32)	m	0.3
Electromagnetic compatibility (EMC)		
Electrostatic discharge (ESD), to IEC EN 61000-4-3		
Air discharge	kV	8
Contact discharge	kV	6
Electromagnetic fields (RFI), to IEC EN 61000-4-3		
0.8 - 1.0 GHz	V/m	10
1.4 - 2 GHz	V/m	3
2.0 - 2.7 GHz	V/m	1
Radio interference suppression		EN 55011 Class B

Burst, to IEC EN 61000-4-4	kV	2
radiated RFI, to IEC EN 61000-4-6	V	10
Insulation resistance		
Pollution degree		2

Radio interface easy800-BLT-ADP 0,2 03

		Radio licenses and certifications for ENW89811K4CF R&TTE 1999/5/EC (part of CE Declaration of Conformity), FCC ID: T7VEBMU (USA), IC: 216QEEMU (Canada)
Bluetooth		V2.0, EDR conform
Bluetooth module used		PAN1321 SPP, ENW89811K4CF
Transmitting power, norm.		4 dBm (2.5 mW), classe 2
Transmission mode		PIN code-based secure connection
Baud rate	Bd	57600
Line-of-sight range	m	approx. 10
Number of computers that can be connected		4

Radio interface easy800-BLT-ADP 04

		Radio licenses and certifications for ENW89841A3KF R&TTE 1999/5/EC (part of CE Declaration of Conformity), FCC ID: T7VEBMU (USA), IC: 216QEEMU (Canada)
Bluetooth		V2.1, EDR conform
Bluetooth module used		PAN1322 SPP, ENW89841A3KF
Transmitting power, norm.		4 dBm (2.5 mW), classe 2
Transmission mode		secure connection Secure Simple Pairing
Baud rate	Bd	57600
Line-of-sight range	m	approx. 10
Number of computers that can be connected		4
Coupling time		60 sec Secure Simple Pairing

5 Appendix
5.3 Technical Data

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Eaton is a power management company providing energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power. A global technology leader, Eaton acquired Cooper Industries plc in November 2012. The 2012 revenue of the combined companies was \$21.8 billion on a pro forma basis. Eaton has approximately 102,000 employees and sells products to customers in more than 175 countries. For more information, visit www.eaton.com.

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