AM38213003I, AM38214003I

e:cue Genius (4CH and 8CH)

Information for Use

Read the Information for Use and the Safety Instructions carefully. Subject to modification without prior notice. Typographical and other errors do not justify any claim for damages. Modification of the product is prohibited.
This document is designed for electricians, system administrators and product users..
All product names and trademarks mentioned in this manual are trademarks of their respective owners.

Downloads and more information at:
www.ecue.com

Table of Contents

1   Safety instructions

Please read the safety instructions carefully. Make sure that the environmental, mounting, and installation prerequisites are met. This manual should be kept at a safe place and in reach of the device.

1.1   Symbols

This icon warns about possible damage of the device itself, to connected devices, and to the user.

This icon warns about electrical voltage.

This icon warns about hot surfaces.

This icon states mandatory actions.

This icon gives general hints and informs about handling and procedures for use of the device.

1.2   General safety instructions

The product must only be installed, put into operation and dismounted by a qualified electrician. The applicable safety regulations and accident prevention regulations must be observed.
Otherwise the unit may be damaged or injuries may happen.

The product may only be operated in the operating modes and environments described in the manual. Read and adhere the manual instructions.

Danger of death

Electrical shocks or fire

— Do not use the device if power supply, power cables, or power wearing lines are damaged.

— Tighten the screw terminals adequately (0.5 Nm).

— The altitude for which the operation of the Genius is rated is 0 ... 2000 m above sea level.

Take care: Exposure to possible risk of electrical shock.

Configuration of this product must be performed by qualified individuals who are knowledgeable about the procedures, precautions, and hazards associated with the product.

Caution

Risk of burns

Device components can reach high temperatures.
Let unit cool down after operation before mounting or removing unit.

(!) — Only work on the product when it is de-energized to prevent electrical shocks. Connect cables and data only when the device is powered down. Exception: USB connection.

— Output Ratings / Channel (CH):

Load Type	CH1-CH4, CH1-CH8
General Use	20 A, 230 V AC
Incandescent Lamp	4600 W, 230 V AC
Electronic Ballast	16 A, 230 V AC
Inrush Current	500 A peak / 2 ms

Valid for Genius 4CH and Genius 8CH.

⚠ Notice

— No user serviceable parts inside. Opening the device voids the warranty. Do not open or try to repair the device. Repairs must only be carried out by authorized Traxon e:cue specialists. Return it to your Traxon e:cue distributor for replacement or repair.

— Keep away from fire and water.

2   General device description

e:cue Nodes are a system of interfaces and provide various connection types like DMX/RDM, DALI, digital inputs and outputs etc.

The Genius is a relay controller and energy meter that combines measuring and switching load in a single device. Communication with any third party system is made via the Modbus RTU / ASCII protocol at an RS-485 interface. The Genius provides bistable relay interfaces in single-pole, single-throw configuration, accompanied by manual switches for service overrides. It is a modular basic solution for controlling lighting installations. The Genius is easily mounted on standard 35 mm DIN rails, or with a key hole in the housing base on walls or on any stable vertical surface. The Node is AC line powered.

Measured data: Voltage
Current
Power (active, apparent, reactive)
Power factor
Energy (active)
Phase
Line frequency
Status.

For the detailed list see .

> ⚠ Notice
>
> — The e:cue Genius is not for use as an tariff counter. All measured values are for indication purposes only.
>
> — The e:cue Genius is not for use in potentially explosive atmospheres and not for safety-related technical equipment.

2.1   Delivery content

Delivery content of the e:cue Genius - Product number AM38213003I, AM38214003I:

- Genius
- Safety instructions
- Information for Use (English / German)
- USB A to USB Mini-B adapter cable

2.2   Genius 4CH

2.2.1   Product specifications

Product number	AM38213003I
Dimensions (W x H x D)	106.3 x 90.5 x 62 mm/ 4.2 x 3.6 x 2.4 in (excl. fastening clip)
Weight	320 g / 0.71 lb
Input power	200-240V ±10% 50/60Hz AC
Power consumption	< 3 W
Operating temperature	0 ... 50 °C / 32 ... 122 °F for > 40 °C, only use max. 2 channels up to 20 A load
Storage temperature	-10 ... 70 °C / 14 ... 158 °F
Operating / storage humidity	0 ... 80% RH, non-condensing
Overvoltage category	II
Installation conditions	IP20, not designed for outdoor use Intra-building connections only
Pollution degree	II
IEC protection class	Class II ▣
Housing	Self extinguishing blend PC/ABS, UL document E140692
Mounting	On 35 mm DIN rail (EN 60715) or with key hole on any stable vertical surface
Certificates	CE, RoHS, UKCA

Interface specifications

Relay outputs	4 x SPST feed-through latching relays with manual override, rising cage clamp for solid and stranded wire, wire gauge: 0.05 ... 5.26 mm² torque: 0.5 Nm Nominal voltage per channel: 115 ... 230 V AC

Contact rating	Cycles
20 A, 230 V AC resistive load	1×10^5
4600 W, 230 V AC incandescent lamp	3×10^4
16 A, 230 V AC electronic ballast	6×10^3
Inrush current: 500 A peak / 2 ms	
Max operate frequency per channel: 10 ops. / min	

Measured data	Voltage, current, power (active, apparent, reactive), power factor, energy (active), phase, line frequency, status
Measurement tolerance	± 3 %
Serial port	Modbus RTU / ASCII (RS-485), 3-pin pluggable connector
USB port	1 x Mini-USB, Type B
User interface	Combined LED for data activity and device status

For all details of the measured data see "13 Modbus register list" (page 23).

2.2.2   Connectors and Interfaces

View from top:
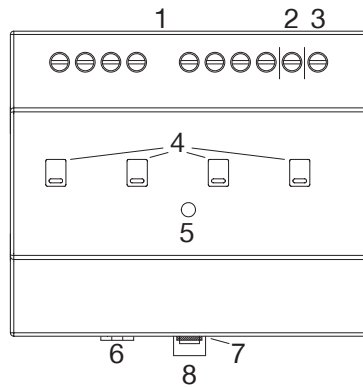
1	Relay interfaces CH 1...4 (left to right) (IN, OUT left to right)
2	N for relay interfaces and power supply
3	L for power supply
4	Manual relay switches CH 1 ... 4 (left to right)
5	Status LED (Device status, activity)
6	Modbus interface (RS-485: +, –, GND left to right)
7	Mini-USB interface (serial configuration interface)
8	DIN rail handle

2.3   Genius 8CH

2.3.1   Product specifications

Product number	AM38214003I
Dimensions (W x H x D)	213 x 90.5 x 62 mm/ 8.4 x 3.6 x 2.4 in (excl. fastening clip)
Weight	600 g / 1.32 lb
Input power	200-240V ±10% 50/60Hz AC
Power consumption	< 4 W
Operating temperature	0 ... 50 °C / 32 ... 122 °F for > 40 °C, only use max. 4 channels up to 20 A load
Storage temperature	-10 ... 70 °C / 14 ... 158 °F
Operating / storage humidity	0 ... 80% RH, non-condensing
Overvoltage category	II
Installation conditions	IP20, not designed for outdoor use Intra-building connections only
Pollution degree	II
IEC protection class	Class II ▣
Housing	Self extinguishing blend PC/ABS, UL document E140692
Mounting	On 35 mm DIN rail (EN 60715) or with key hole on any stable vertical surface
Certificates	CE, RoHS, UKCA

Interface specifications

Relay outputs	8 x SPST feed-through latching relays with manual override, rising cage clamp for solid and stranded wire, wire gauge: 0.05 ... 5.26 mm² torque: 0.5 Nm Nominal voltage per channel: 115 ... 230 V AC

Contact rating	Cycles
20 A, 230 V AC resistive load	1×10^5
4600 W, 230 V AC incandescent lamp	3×10^4
16 A, 230 V AC electronic ballast	6×10^3

	Inrush current: 500 A peak / 2 ms Max operate frequency per channel: 10 ops./min
Measured data	Voltage, current, power (active, apparent, reactive), power factor, energy (active), phase, line frequency, status
Measurement tolerance	± 3 %
Serial port	Modbus RTU / ASCII (RS-485), 3-pin pluggable connector

USB port	1 x Mini-USB, Type B
User interface	Combined LED for data activity and device status

For all details of the measured data see "13 Modbus register list" (page 23).

2.3.2 Connectors and Interfaces

View from top:
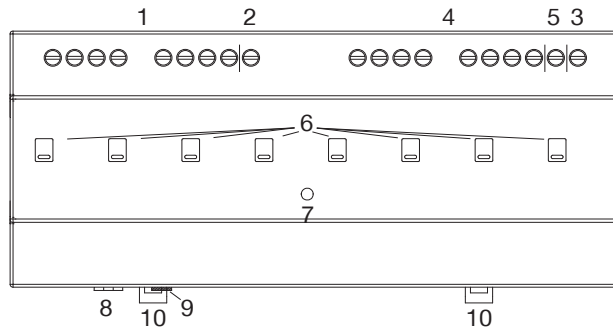
1	Relay interfaces CH 1...4 (left to right)
	(IN, OUT left to right)
2	N for relay interfaces CH 1 ... 4
3	L for power supply
4	Relay interfaces CH 5...8 (left to right)
	(IN, OUT left to right)
5	N for relay interfaces CH 5 ... 8 and power supply
6	Manual relay switches CH 1 ... 8 (left to right)
7	Status LED (Device status, activity)
8	Modbus interface (RS-485: +, -, GND left to right)
9	Mini-USB interface (serial configuration interface)
10	DIN rail handle

2.4 User interface: LEDs

The Genius has one LED on the front panel. The LED shows the basic states of the Genius.

LED states

green, constant	The device is powered / on.
	LED is off: No power supply.
green, fast flashing	Bootloader mode.
orange, blinking	Activity: Modbus traffic (reception and sending).
red, constant	Self-protection shutdown active.

2.5 Manual switches

You can manually switch the relays using Manual switches on the Genius.
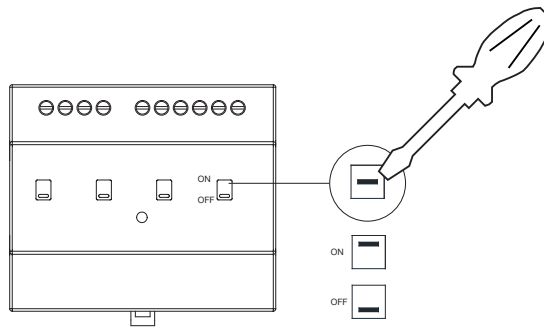
> ⓘ Use a standard screw driver. Do not use small conductive items.

3 General remarks

3.1 Transport

Only transport the device in its original packaging. This protects the device from damage.

3.2 Unpacking

Only unpack the device at its installation location. To protect the device against condensation water, unpack it and wait until all moisture remaining in the device has evaporated. Condensation can occur when the device is moved from a cold to a warm location. Keep the packaging for use in case of further transport. Inspect all parts for completeness regarding chapter "2.1 Delivery content" (page 05). If there is apparent damage to the device or parts are missing from the delivery scope, please contact the Traxon e:cue support service.

3.3 Warranty regulations

Depending on the product, warranty regulations are of different duration. The warranty time is usually noted in the quote and in the order confirmation. See www.traxon-ecue.com/terms-and-conditions for details. Legal warranty regulations apply in any case.

3.4 Maintenance and Repair

This device requires no maintenance.

The device has a self-protection shutdown for safety reasons. To reset a shutdown, turn the device off and on again.

> ⚠ Caution
>
> Risk of burns
>
> Device components can reach high temperatures. Let unit cool down after operation before mounting or removing unit.

> ⚠️ Attention: Failure
>
> — Before dismounting, appropriate measures must be taken to protect the respective components against damage caused by electrostatic discharge (ESD protection).
>
> — No user serviceable parts inside. Opening the device voids the warranty. Do not open or try to repair the device. Repairs must only be carried out by authorized Traxon e:cue specialists. Return it to your Traxon e:cue distributor for replacement or repair.

3.5 Disposal

The proper disposal of packing materials and of the device is the responsibility of the respective user and for his account; in all other matters, the retrieval obligation for packing materials and the device is subject to the statutory regulations.

> 🗑️ Batteries and technical appliances must not be disposed of with domestic waste, but should be handed in at the appropriate collection and disposal points.

3.6 Support

In case of technical problems or questions regarding installation and repair please contact:

Traxon Technologies Europe GmbH
Customer Service
Karl-Schurz-Str. 38
33100 Paderborn, Deutschland
+49 (5251) 54648-0
support@ecue.com

4 Installation

The installation of the Genius consists of mounting the device, connections to the Modbus device, to the loads, and to input power. For configuration a Mini-USB connection is required additionally.
The sequence of cabling is not defined. Supply the device with power after all cabling is completed; it starts booting.

> ⚡ Danger of death
>
> Electrical shocks or fire
>
> Connect cables and data only when the device is powered down.

> ⚠️ Caution
>
> Risk of burns
>
> Device components can reach high temperatures. Let unit cool down after operation before mounting or removing unit.

⚠️ Attention: Failure

— Overheating will damage the unit. To prevent the device from overheating, only operate it in well-ventilated environment. The ventilation slots must not be obstructed.

— Data traffic or functions can be disturbed. Do not route Modbus lines together with power lines.

— Short circuit caused by foreign conductive material inside the unit. No conductive parts to enter the ventilation openings.

— Electronic overload: When the ambient temperature exceeds 40 °C, run 20 A on max half of the relays. Do not run 20 A loads on relays that are directly adjacent to each other. Distribute 20 A loads across the interfaces.

— Using an adapter or extension cord could interrupt the grounding circuit. Take appropriate measures.

⚠️ Notice: Bus communication failure

Master cannot communicate with all existing slaves on the bus.

Take care when addressing the devices that there are not two devices with the same address. For addressing see .

⊘ Only work on the product when it is de-energized to prevent electrical shocks. Connect cables and data only when the device is powered down. Exception: USB connection.

ℹ️ — It is recommended to use a surge protector on the AC line.

— It is recommended to check the Modbus line termination at the far end of the data cable for 120 Ω.

4.1 Installation conditions

⚠️ Notice

This device is designed for a clean and dry environment, for indoor and intra-building connections only.

Installation position	Terminals on top and bottom
Horizontal spacing	No spacing necessary
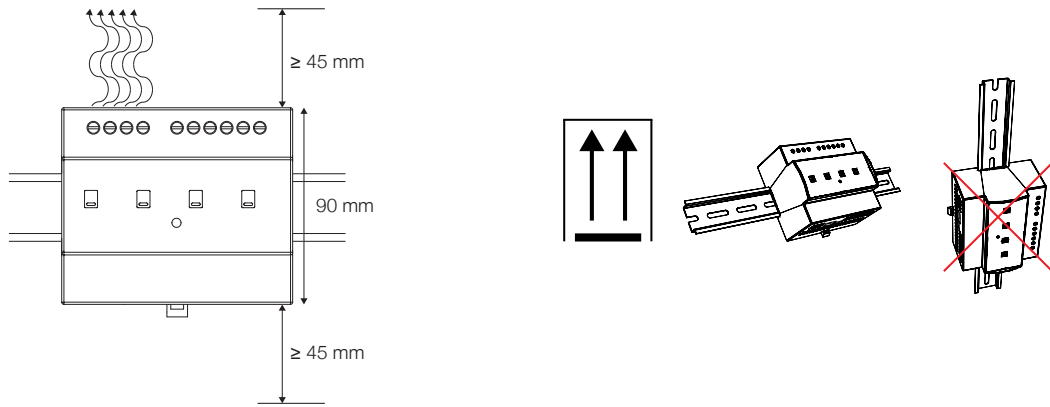
4.2 Mounting process

The Genius is designed to mount onto a 35mm DIN rail (EN 60715) in a vertical position.
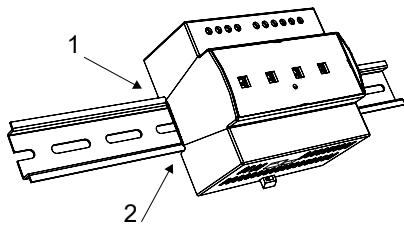
1. Clip the device to the rail from top.

2. Apply gentle pressure to the top front to snap it in place. The device has been mounted successfully.

You can also mount the device on any flat surface. Use a 3 to 3.5mm screw for the hanger hole.

> ℹ For mechanical stability, mounting on a rail is recommended.

4.3 Modbus connection

To connect the device to a Modbus device, attach the wires as stated on the front label.
Required circuits: D+, D-, and Common / GND from left to right.

> ℹ It is recommended to use twisted and shielded pair cabling. Use a third wire for the Common.

4.4 Relay connection

The Genius 4CH can be connected to 4 loads, the Genius 8CH to 8 loads. At the relay interface of the Node, connect each relay device to IN, OUT, and N. For details see .

⚠️ Attention: Failure

Electronic overload

When the ambient temperature exceeds 40 °C, run 20 A on max half of the relays. Do not run 20 A loads on relays that are directly adjacent to each other. Distribute 20 A loads across the interfaces. On the remaining interfaces run max. 12 A per channel.

Genius 4CH example:
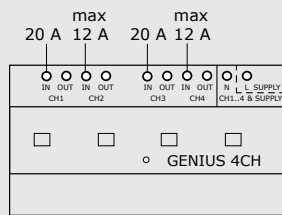
Genius 8CH example:
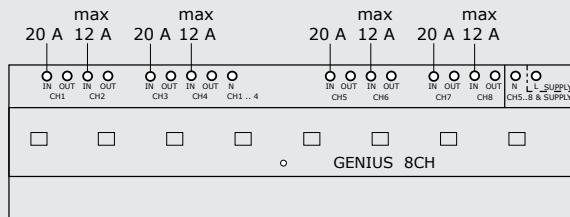
ℹ️ For the relay specifications of the Genius 4CH see "2.2.1 Product specifications" (page 05) and of the Genius 8CH "2.3.1 Product specifications" (page 07).

4.5 Relay connection diagram

ℹ️ — It is recommended to mount a circuit breaker in front of each electrical circuit. No internal fuse present.

— It is recommended to use an RCD.

— It is recommended to use a surge protector on the AC line.

— It is recommended to use ICLs when connecting capacitive loads such as multiple electronic ballasts.

— If a channel is not used and therefore not wired, invalid data can be read out on this channel. If this is to be avoided, it is recommended to place the IN connection on L or N.

4.5.1 Genius 4CH

ICL "inrush current limiter"
RCD "residual-current device"

4.5.2 Genius 8CH

ICL "inrush current limiter"
RCD "residual-current device"
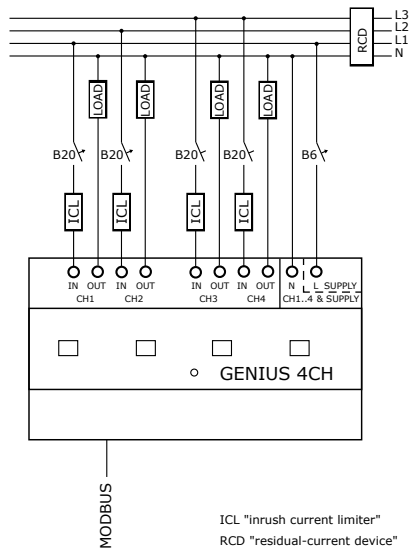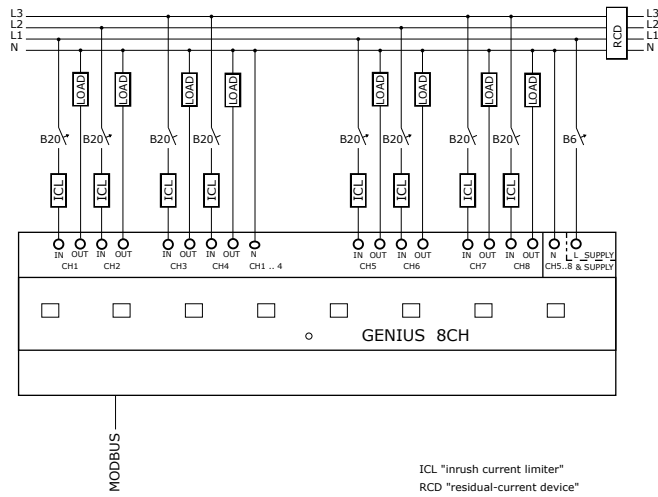
ℹ It is recommended to connect relay interfaces 1 to 4 to a second RCD and to a second three-phase network.

Example:

ICL "inrush current limiter"
RCD "residual-current device"
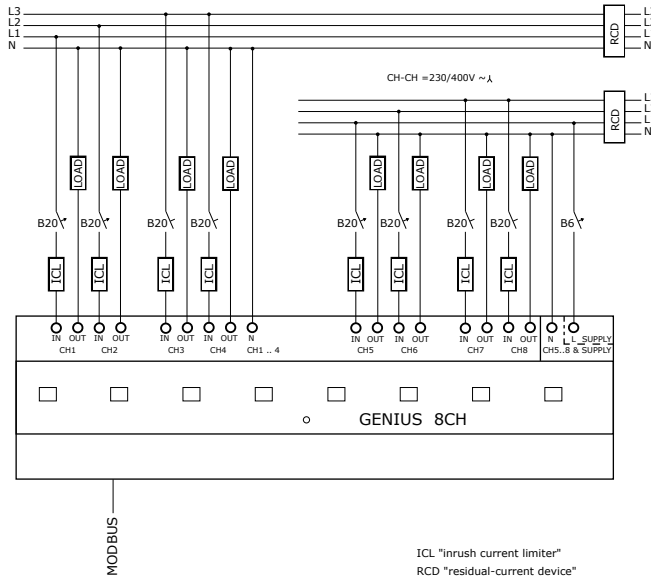
4.6 Input power

The e:cue Genius is AC line powered.

Connect the Genius to a 200 … 240 V AC line. Attach the wires as stated on the front label. The voltage assignment is left N and right L.

Turn the power on when all cables are connected to the Genius. Present input power equates to "On" or running of the Node. The device gets in operating mode.

4.7 System diagrams

4.7.1 Generic Modbus system diagram
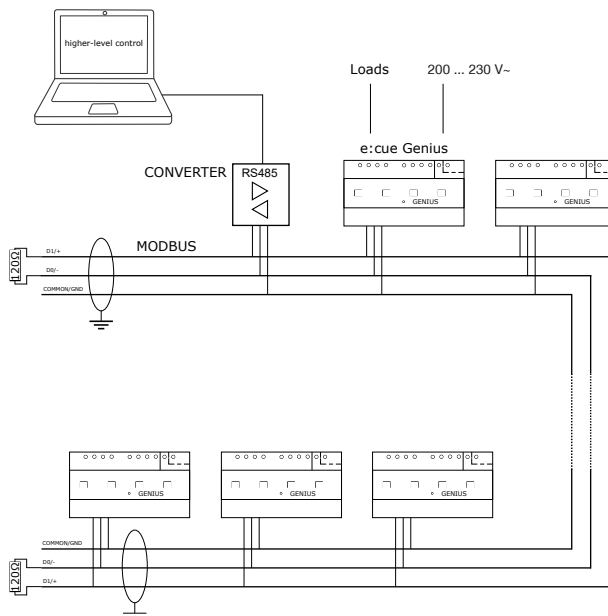
32 Genius devices can be connected to the RS-485 bus.

D+ and D- must be connected on Line Terminations (120 Ω). The line shall be terminated at both ends.

4.7.2   e:cue system diagram

Connection to e:cue SYMPHOLIGHT and e:net:
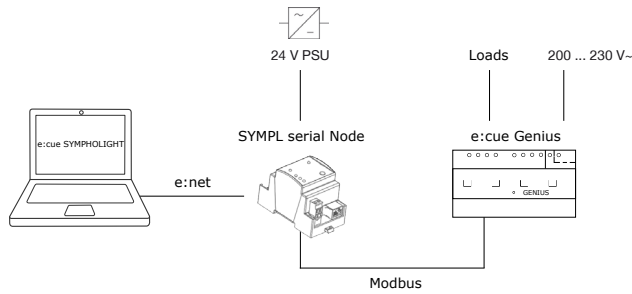
To connect the SYMPL serial Node to the Genius, wire as follows:

SYMPL serial Node:		Genius:
RS-485 port		Modbus port
GND (left pin)	➜	GND (right pin)
– (center pin)	➜	– (center pin)
+ (right pin)	➜	+ (left pin)

The generic Modbus system characteristics apply.

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i   When using the SYMPL serial Node and multiple Genius devices, it is recommended to terminate the line at the Genius end. The SYMPL serial Node has an integrated termination.

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5   Modbus Settings

The Modbus interface default settings are:

> Baud rate: 19200
> Data Bits: 8
> Parity: even   → UART settings: 19200 8e1
> Stop Bits: 1
> Address: 1
> Protocol: RTU.

The system default setting is:

> Frequenzy: 50 Hz.

A configuration of the Modbus settings is required when the Genius has differing Modbus settings from the higher-level control. Configure either the higher-level control using its software or configure the Genius so that the settings are matching.

5.1   Configuration of the Genius Modbus settings

The configuration of the Genius Modbus settings is performed via Mini-USB port (serial configuration interface).

> **(!)**   The Mini-USB port is for configuration and service only. Apply appropriate protective measures (grounding, discharge of static electricity if necessary). Cable length is max 2 m.

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i — Keep the USB protection cap on the Mini-USB port when not in use.

— In case of need, install the USB driver for the Mini-USB port: Silicon Labs CP2102N VCP driver.

A connection of the Genius via Mini-USB port to a computer with a terminal emulator program (a.k.a. terminal; e.g. Tera Term) is required.

To configure the Modbus settings of the Genius:

1. Connect the Genius to the computer via the Mini-USB port (serial configuration interface).

2. Open the terminal and enable Local Echo.

3. Establish a new serial connection to the Mini-USB port.

4. Enter the (unchangeable) **settings of the serial port**:

   Speed: 57600
   Parity: none   → UART settings: 57600 8n1
   Stop Bits: 1

5. Press Enter. The terminal will show the Modbus port with its settings.

6. Use the following **AT commands** in the terminal to change the Modbus settings as necessary:

AT Commands

1. **AT+CLAC**

   Return all supported Commands.

2. **AT+IPR**

   Change the Modbus serial baud rate.
   Possible values are: 9600,19200,38400,57600,115200
   Automatic baud rate detection is not supported.

AT+IPR=*[baud rate]*	Set the baud rate to *baud rate*
AT+IPR=?	Return possible baud rate settings
AT+IPR?	Return current baud rate

3. **AT+ICF**

   Set serial parameters.
   Supported modes are: 8n2, 8e1, 8o1.

AT+ICF=*[cfg]*	Set serial parameters.
	Supported values:
	1: 8n2
	1,x: 8n2
	2,0: 8o1
	2,1: 8e1
	Other settings result in an Error response.
AT+ICF=?	Return possible settings
AT+ICF?	Return current setting

4. **ATS**

   Get / Set register.
   This command reads a 32bit value consisting of the given Modbus address as the high word and the following as the low word.

Values can be entered in decimal or hexadecimal form (0x…). The address range is 1 … 247. The broadcast address is 0.

ATS*[address]*=*[value]*	Set *address* to *value* (only for calibration registers)
ATS*[address]*?	Return content of *address*

Example:

ATS0x1100?   Read voltage of first port

5. **AT%MODE**

AT%MODE="ASCII"	Select ASCII Mode
AT%MODE="RTU"	Select RTU Mode
AT%MODE=?	Return possible entries
AT%MODE?	Return current Mode

6. **AT%ADDRESS**

Set the Modbus address.

The address range is 1 … 247. Broadcast is 0.

AT%ADDRESS=*[address]*	Set the Modbus address to *address*
AT%ADDRESS=?	Return possible entries
AT%ADDRESS?	Return current address

7. **AT%FREQUENCY**

Set the line frequency.

Possible values are 50 and 60.

AT%FREQUENCY=*[frequency]*	Set the frequency to *frequency*
AT%FREQUENCY=?	Return possible entries
AT%FREQUENCY?	Return current frequency

8. **AT%LOADER**

Enter Loader mode for firmware updates.

9. **AT%DEVICEINFO**

Return the device type.

10. **AT%RELRESET**

Set relay initialization.

Possible values are

0: relays stay unchanged

1: relays are set to open at startup.

AT%RELRESET=*[behavior]*	Set the behavior to *behavior*
AT%RELRESET=?	Return possible entries
AT%RELRESET?	Return current setting

6   Integration in SYMPHOLIGHT

To use the Genius in e:cue SYMPHOLIGHT, you need a SYMPL serial Node. For a system overview see "4.7.2 e:cue system diagram" (page 16).

On how to bring the Genius device into a SYMPHOLIGHT project and on details about the Workflow options for Automation, see the SYMPHOLIGHT User Manual (v5.3 and higher). Note that in SYMPHOLIGHT the Genius is referred to as a "(Serial) Modbus Device".

7 Modbus Registers

> ℹ️ Note that the Genius only measures values when voltage is applied.

When hexadecimal values are entered, hexadecimal values will be answered.

When decimal values are entered, decimal values will be answered.

Registers are combined as follows: 0xTPAA

where   T = register type:

        1: Single holding register

        2: Single coil Register

    P = port (Genius 4CH: 1 … 4;

        Genius 8CH: 1 … 8;

        0 = cumulated)

    AA = register address.

For a complete table of all registers see .

7.1 Single Hold Registers

Values are returned in 2 x 16 Bit registers, MSB first.

Cumulated Values

P = 0

Register	Size (word)	Unit	Description
0x1000	2	Wh	Cumulated Energy of all ports
0x1002	2	mW	Cumulated Power of all ports
0x1004	2	mA	Cumulated Currents of all ports 1 - 4
0x1006	2	mA	Cumulated Currents of ports 5 - 8 (Genius 8CH only)

Individual Port Registers

Genius 4CH: P = 1 … 4

Genius 8CH: P = 1 … 8

Register	Size (word)	Unit	Description
0x1P00	2	mV	Voltage port n
0x1P02	2	mA	Current port n
0x1P04	2	ddeg	Phase (signed in 0.1 deg)
0x1P06	2	dHz	Frequency (in 0.1 Hz)
0x1P08	2	mW	Active Power
0x1P0a	2	Wh	Active Energy
0x1P0c	2	mvar	Reactive Power (signed)
0x1P0e	2	mVA	Apparent Power
0x1P10	2	--	Power Factor (*100)
0x1P12	2	--	Port Status (for details see "8 Port Status" (page 20))

7.2 Single Coil Register

Register	Size (word)	Description
0x2001	1	Relay port 1
0x2002	1	Relay port 2
…		

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0x200n	1	Relay port n

Writing 0xff00 to the register will close the corresponding relay, writing 0x0000 will open it.

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i Note that the energy counter will count downwards if IN and OUT connections are mixed up in the installation.

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8 Port Status

Possible port status values are:

0x00: Off

0x01: On

0x02: Undefined

0x03: Error

The measured line voltage is regarded "present" if it is greater than the default threshold voltage of 150 V.

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i The default voltage threshold is 150 V. In case that the default value has to be modified, please contact your local e:cue distributor for assistance

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"Output voltage detected" signals the voltage at the switching contact.

If a voltage is detected, this means either that the switch is open or that some voltage is injected from load side.

If voltage is not detected, this means either that the voltage is shortened by the contact or that there is no line voltage present.

The port status is created from the input parameters "line voltage present" and "output voltage detected" as follows:

Line voltage	Output voltage detected	State
Present	True	Off
Present	False	On
Missing	True	Error
Missing	False	Undefined

9 Firmware Update

To update the Genius, a connection of the Genius via Mini-USB port to a computer with a terminal emulator program (a.k.a. terminal; e.g. Tera Term) and the new firmware file is required.

1. Connect the node to the computer via the Mini-USB port.

2. Open the terminal and enable Local Echo.

3. Establish a new serial connection to the Mini-USB port.

4. Set the settings of the serial port to the following values:

   Speed: 57600

   Parity: none

   Stop Bits: 1

   (UART settings: 57600 8n1)

5. Enter the bootloader mode of the node: a) restart the device while pressing "x" in the Terminal

program when requested to or b) type AT%LOADER. In bootloader mode, the LED of the Genius flashes in green.

6. In the Terminal program, go to Transfer - XMODEM - Send, select the new firmware file, and send it.

The firmware update starts. After completion, the node exits the bootloader mode to normal operation and the Terminal program displays the new firmware version. The LED of the Genius lights in constant green.

10 Dismounting

Switch off the power supply. Disconnect all attached cables. Dismount the e:cue Genius from the rail by pulling the black DIN rail handle and unhitching the Node. The dismounting is completed.

⚠	Take care: Exposure to possible risk of electrical shock. Dismounting must be performed by a qualified electrician.
⚠	Caution Risk of burns Device components can reach high temperatures. Let unit cool down after operation before removing unit.
⚠	Attention: Failure Before dismounting, appropriate measures must be taken to protect the respective components against damage caused by electrostatic discharge (ESD protection).

11 Certifications

CE

UK CA

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12   Dimensions

All dimensions in mm

12.1   Genius 4CH

106.3

90.5

62

48.5

12.2   Genius 8CH

213

90.5

62

48.5

13 Modbus register list

For Genius 4CH and Genius 8CH.

☐ Genius 8CH only

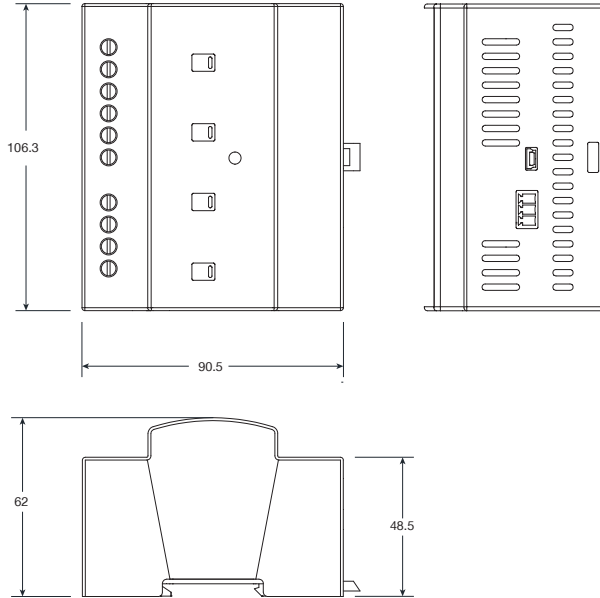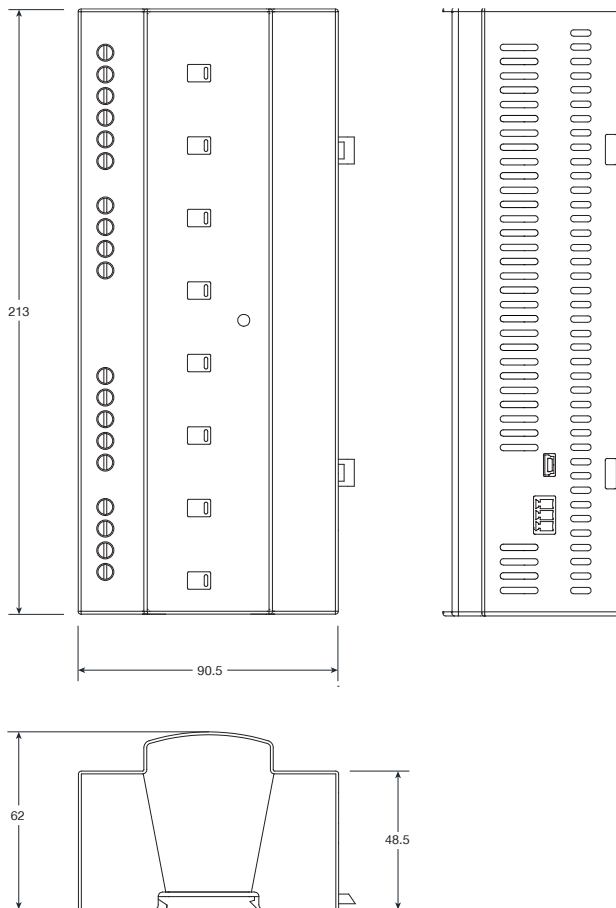| Register hex	Register dec	Size (bytes)	Type	Unit	Description
0x1000	4096	2	SHR	Wh	Cumulated Energy of all ports
0x1002	4098	2	SHR	mW	Cumulated Power of all ports
0x1004	4100	2	SHR	mA	Cumulated Currents of ports 1- 4
0x1006	4102	2	SHR	mA	Cumulated Currents of ports 5- 8
0x1100	4352	2	SHR	mV	Voltage port 1
0x1102	4354	2	SHR	mA	Current port 1
0x1104	4356	2	SHR	deg	Phase port 1
0x1106	4358	2	SHR	Hz	Frequency port 1
0x1108	4360	2	SHR	mW	Active Power port 1
0x110a	4362	2	SHR	Wh	Active Energy port 1
0x110c	4364	2	SHR	mvar	Reactive Power port 1
0x110e	4366	2	SHR	mVA	Apparent Power port 1
0x1110	4368	2	SHR	--	Power Factor port 1
0x1112	4370	2	SHR	--	Port Status port 1
0x1200	4608	2	SHR	mV	Voltage port 2
0x1202	4610	2	SHR	mA	Current port 2
0x1204	4612	2	SHR	deg	Phase port 2
0x1206	4614	2	SHR	Hz	Frequency port 2
0x1208	4616	2	SHR	mW	Active Power port 2
0x120a	4618	2	SHR	Wh	Active Energy port 2
0x120c	4620	2	SHR	mvar	Reactive Power port 2
0x120e	4622	2	SHR	mVA	Apparent Power port 2
0x1210	4624	2	SHR	--	Power Factor port 2
0x1212	4626	2	SHR	--	Port Status port 2
0x1300	4864	2	SHR	mV	Voltage port 3
0x1302	4866	2	SHR	mA	Current port 3
0x1304	4868	2	SHR	deg	Phase port 3
0x1306	4870	2	SHR	Hz	Frequency port 3
0x1308	4872	2	SHR	mW	Active Power port 3
0x130a	4874	2	SHR	Wh	Active Energy port 3
0x130c	4876	2	SHR	mvar	Reactive Power port 3
0x130e	4878	2	SHR	mVA	Apparent Power port 3
0x1310	4880	2	SHR	--	Power Factor port 3
0x1312	4882	2	SHR	--	Port Status port 3
0x1400	5120	2	SHR	mV	Voltage port 4
0x1402	5122	2	SHR	mA	Current port 4
0x1404	5124	2	SHR	deg	Phase port 4
0x1406	5126	2	SHR	Hz	Frequency port 4
0x1408	5128	2	SHR	mW	Active Power port 4
0x140a	5130	2	SHR	Wh	Active Energy port 4
0x140c	5132	2	SHR	mvar	Reactive Power port 4

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0x140e	5134	2	SHR	mVA	Apparent Power port 4
0x1410	5136	2	SHR	--	Power Factor port 4
0x1412	5138	2	SHR	--	Port Status port 4
0x1500	5376	2	SHR	mV	Voltage port 5
0x1502	5378	2	SHR	mA	Current port 5
0x1504	5380	2	SHR	deg	Phase port 5
0x1506	5382	2	SHR	Hz	Frequency port 5
0x1508	5384	2	SHR	mW	Active Power port 5
0x150a	5386	2	SHR	Wh	Active Energy port 5
0x150c	5388	2	SHR	mvar	Reactive Power port 5
0x150e	5390	2	SHR	mVA	Apparent Power port 5
0x1510	5392	2	SHR	--	Power Factor port 5
0x1512	5394	2	SHR	--	Port Status port 5
0x1600	5632	2	SHR	mV	Voltage port 6
0x1602	5634	2	SHR	mA	Current port 6
0x1604	5636	2	SHR	deg	Phase port 6
0x1606	5638	2	SHR	Hz	Frequency port 6
0x1608	5640	2	SHR	mW	Active Power port 6
0x160a	5642	2	SHR	Wh	Active Energy port 6
0x160c	5644	2	SHR	mvar	Reactive Power port 6
0x160e	5646	2	SHR	mVA	Apparent Power port 6
0x1610	5648	2	SHR	--	Power Factor port 6
0x1612	5650	2	SHR	--	Port Status port 6
0x1700	5888	2	SHR	mV	Voltage port 7
0x1702	5890	2	SHR	mA	Current port 7
0x1704	5892	2	SHR	deg	Phase port 7
0x1706	5894	2	SHR	Hz	Frequency port 7
0x1708	5896	2	SHR	mW	Active Power port 7
0x170a	5998	2	SHR	Wh	Active Energy port 7
0x170c	5900	2	SHR	mvar	Reactive Power port 7
0x170e	5902	2	SHR	mVA	Apparent Power port 7
0x1710	5904	2	SHR	--	Power Factor port 7
0x1712	5906	2	SHR	--	Port Status port 7
0x1800	6144	2	SHR	mV	Voltage port 8
0x1802	6146	2	SHR	mA	Current port 8
0x1804	6148	2	SHR	deg	Phase port 8
0x1806	6150	2	SHR	Hz	Frequency port 8
0x1808	6152	2	SHR	mW	Active Power port 8
0x180a	6154	2	SHR	Wh	Active Energy port 8
0x180c	6156	2	SHR	mvar	Reactive Power port 8
0x180e	6158	2	SHR	mVA	Apparent Power port 8
0x1810	6160	2	SHR	--	Power Factor port 8
0x1812	6162	2	SHR	--	Port Status port 8
0x2001	8193	1	SCR	--	Relay port 1
0x2002	8194	1	SCR	--	Relay port 2
0x2003	8195	1	SCR	--	Relay port 3
0x2004	8196	1	SCR	--	Relay port 4

content

0x2005	8197	1	SCR	--	Relay port 5
0x2006	8198	1	SCR	--	Relay port 6
0x2007	8199	1	SCR	--	Relay port 7
0x2008	8200	1	SCR	--	Relay port 8

14 Example: Reading register

Exemplarily, getting the current of port 4 via a terminal emulator program (a.k.a. terminal), using the Mini-USB port, the steps are as follows:

1. Configure the terminal as described in "5.1 Configuration of the Genius Modbus settings" (page 16) to connect to the Modbus interface:

```
# ----------------------
# Genius 4CH V1.5.76
# Modbus settings:
# Address 1
# RTU  @19200Baud - 8e1
# 50Hz Mains
# AT+CLAC for command list
# ----------------------
```

2. Select the AT command which gets content of an address: ATS[address]?

Select address which gets as content the value of the current of port 4:

0x1404   or   5122.

Enter the complete AT command in the terminal:

ATS0x1404?   or   ATS5122?

```
ATS0x1404?
```

3. The terminal shows the returned value in hexadecimal or decimal:

```
S0x1404: 0x00000082
OK
S5122: 3200
OK
```

The current at port 4 flows with 3,2 A.

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content