

CU-08 TRACER unit

1. Unit description

The **CU-08 unit** is a device which uses a GPS receiver to detect the position of a car, a motorcycle or cargo. The position can be ascertained any time via a single SMS command or when the ignition is on, the unit can continuously send it via a GSM network to a data-collection server where the data is further processed into a vehicle log book. Simply said, the unit can be used both for passive locating when it only answers a single command, and for the continuous transmission of real-time data to a data-collection server. If the attempt to send the data fails, the unit saves it in its internal memory and sends it later.

Journey commencement – turning the ignition key on activates the GPS module in the unit which starts assessing its position immediately. The journey starting is signalled by a lit LED which is then lit permanently for the whole duration of the journey.

Journey termination – the journey is terminated automatically 20 seconds after turning the ignition key off. If the key is turned on again within this period of time, the journey will not be split into two separate parts. This feature eliminates splitting the journey in two, e.g. when the engine stalls during acceleration from standstill and the driver restarts it immediately.

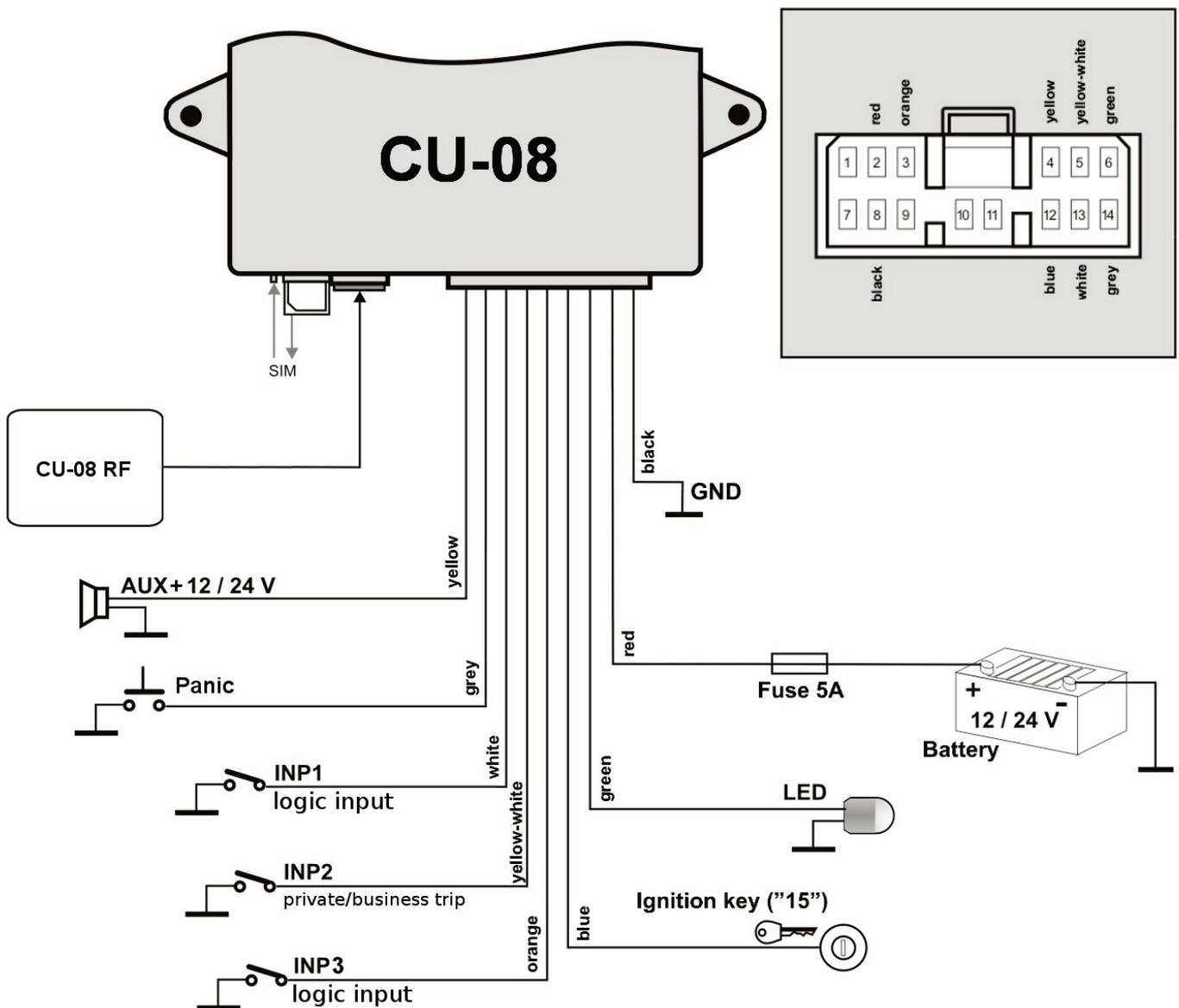
2. Unit installation and connection

2.1. Unit installation

The unit should be installed in the vehicle interior by a professional company. It is suitable for vehicles with a 12V or 24 V power supply and a negative earth.

Disconnect the battery before installation. Nobody should be inside a vehicle equipped with airbags while handling the battery. Some devices equipped with a memory (clock, configurations, etc) could be erased when the battery is disconnected. Avoid drilling into metal parts of the car body during installation. The manufacturer shall not be held liable for any damage caused by incorrect or unsuitable installation of the product.

When making connections, use a crimping tool fit for this purpose. If you do not need some of the wire in the unit wiring, cut it 10 cm from the connector, insulate it and fix it in a bundle with tape.



2.2. Status indication with an LED indicator

The unit indicates its status with an LED indicator.

Slow flashing	Logging into the system or the GPS signal has been lost
Rapid flashing	The unit is waiting for configuration
SOS flashing (...---...)	Unit failure
Permanently lit	Motion indication, the journey is being monitored
The LED is off	Journey termination or the unit's power supply has been disconnected

2.3. Wire connections

- **Black - ground** – connect to the original earthing point.
- **Red - +12V (24V) power supply** - connect to a cable leading from the battery. The power supply should only be connected after a thorough inspection of the whole installation!
- **Blue – ignition key activation** signalling. Reacts to +12V (24V) from the ignition box. Check whether the voltage in the connecting wire is present even when the vehicle is being started.
- **Grey – panic** input, reacts to connection to GND.
- **White - INP1 input** – logical input (for monitoring of external equipment), reacts to connection or disconnection of GND. The status of this input is transmitted to the data-collection server. Disconnection of GND = the input is inactive, connection of GND = the input is active.
- **White and yellow - INP2 input** – journey type selection (private / business). Reacts to connection or disconnection of GND. The status of this input is transmitted to the data-collection server. GND disconnection = business, GND connection = private journey.
- **Orange – INP3 input** – logical input (for monitoring of external equipment), reacts to connection or disconnection of GND. The status of this input is transmitted to the data-collection server. Disconnection of GND = the input is inactive, connection of GND = the input is active.
- **Yellow – AUX** output, switches a 12/24V positive power supply voltage
- **Green – LED indicator** – install it in a visible place on the dashboard.

2.4. GSM and GPS antenna installation

- We recommend installing the **GSM antenna** on some plastic parts located under the dashboard. **The antenna must not be installed on any metal parts.**
- The **GPS antenna** should also be installed under the dashboard, and it can even be installed on a metal part as there is a magnet at the back marked with a silver sticker. **Note: There must not be any other metal objects above the antenna. It is true for the correct functioning of the GPS module that the wider the angle through which the antenna can see the sky through the windscreen, the more precise the GPS location function is.**

3. Basic unit configuration

3.1. Language selection

The basic unit language is English, but every unit has its language kit. For more information about language kits see www.jablotron.com, or contact your distributor. When a new language is selected, all texts will be set to the defaults of the chosen language. The rest of the unit's configuration is not changed..

Command format: MCcode LANGUAGE CZ/EN

Command example:

1234 LANGUAGE CZ (new language is Czech)

The following languages are supported by the factory default settings: Czech CZ, German DE, English EN, Spanish ES, Polish PL, Portuguese PT, Slovak SK, Serbian SR

3.2. Master code setting

The master code serves for unit programming and control. It is therefore intended to be used by a service technician or a multiple unit administrator. The master code can also be used to change user codes. The default master code is 1234. **The manufacturer recommends changing this password.** The MC code must contain 4 to 10 characters.

Command format: MCcode MC newMCcode newMCcode

Command example:

1234 MC CU654321 CU654321 (the new code will be CU654321)

3.3. Changing the user code

The user code serves for user control of the unit. It is usually used by a driver or a unit user. It is not possible to change the master code using a user code. The default user code is 1111. **The manufacturer recommends changing this password.** The UC code must contain 4 to 10 characters.

Command format: UCcode UC newUCcode newUCcode

Command example:

1111 UC AUTO988 AUTO988 (the new code will be AUTO988)

3.4. Data transmission to a data-collection server

If you want to transmit data from the unit to a data-collection server in order to process it into a vehicle logbook, ask the service provider who will then carry out the setting.

If you only want to use the unit for passive location, do not configure data transmission to a data-collection server.

3.5. Configuration entry mode timeout

Rapid flashing of the unit's LED indicator informs you that the unit has not been configured yet. If you therefore intend to transmit data to a data-collection server, the flashing ceases as soon as the operator carries out the configuration.

If you are planning to use the unit only for non-server configuration, the flashing will cease once you have entered a TEL1 telephone number (see 4.1).

4. Advanced unit configuration

Perform advanced configuration using the C-Link application remotely via the GSM network or locally with the GD-04P interface. Download the C-Link software at www.jablotron.com.

The unit can also be programmed by SMS command or sending multiple commands in one SMS. Such a command must begin with a password followed by individual commands separated with a comma.

Command example:

1234 TEL1 +420777654321,TEL2 +420777654322,VERIF ON

4.1. Entering drivers' telephone numbers

If the unit is installed in a vehicle which is used by multiple drivers, it is possible to select the driver who is going to drive the vehicle easily by dialling into the unit from the driver's telephone. The device memory can hold telephone numbers of up to 99 drivers who can identify themselves by dialling into the unit. The telephone number can consist of 12 digits maximum and it must be entered in the international format. **It is recommended to enter the telephone number of the company vehicle fleet administrator at the TEL1 position as all unidentified SMS messages which the unit receives (see 6.1) are sent to this number.**

Command format: MCcode TELx +yyyyyyyyyyyy

where: **x** – the unit's reference (indexing) number of the telephone number (from 1 to 99);
yyyyyyyyyyyy – telephone number in international format (max.12 digits excluding the + sign)

Example of a command programming numbers 1 and 2:

1234 TEL1 +420777654321,TEL2 +420777654322

4.2. Assigning RFID pits and cards to drivers

If an external RFID CU-08RF scanner is attached to the unit, every driver can have a tag or a card assigned which they can use to identify themselves at the beginning of the journey. The unit supports Jablotron PC-02x, PC-04x access tags and Jablotron PC-01 cards.

Enrolling or erasing tags and cards can only be carried out when the ignition key is on. The unit starts flashing its LED indicator upon receipt of the command and each single tag enrolled is then signalled with a short flash and the unit jumps to the next position.

When the tags are being enrolled for the first time, the command can be entered without specifying a position. In such a case the unit starts enrolling from Driver 1.

Command format: MCcode LEARN PIT

Command example:
1234 LEARN PIT

When enrolling a tag to a particular position, or a row of tags from a specific position onward, the command must include a position number.

Command format: MCcode LEARN PIT xx

where: **xx** – tag position number

Example command for enrolling a tag to position no 56:
1234 LEARN PIT 56

Erasing all enrolled tags.

Command format: MCcode DELETE PIT ALL

Example command for erasing all tags:
1234 DELETE PIT ALL

Erasing a particular tag.

Command format: MCcode DELETE PIT xx

where: **xx** – tag position number

Example command for erasing a tag in position no 58:
1234 DELETE PIT 58

4.3. Entering PANIC telephone numbers

The unit can send an SMS and dial in up to two telephone numbers when the driver is in distress and activates the panic input e.g. with a button. The minimum activation time has to be 1s.

Command format: MCcode TELPANICx +yyyyyyyyyyyy

where: **x** – the unit's reference (indexing) number of the telephone number (1 or 2);

yyyyyyyyyyyy – telephone number in international format (max.12 digits excluding the + sign)

Command example:
1234 TELPANIC1 +420777654321, TELPANIC2 +420 ...

4.4. Entering a telephone number for sending journey commencement notification

The unit can send notifications about the commencement of a journey or leaving a given area to a preset TELINFO telephone number. Area leaving parameters must be set according to the following paragraph. These functions can be switched on/off by individual users (see 5.3. and 5.4).

Command format: MCcode TELINFO +yyyyyyyyyyyy

where: **yyyyyyyyyyyy** – telephone number in international format (max. 12 digits excluding the + sign)

Command example:
1234 TELINFO +420777654321

4.5. GEOFENCE vehicle position guarding

It is possible to set the GEOFENCE function in the unit for monitoring abandonment of a delimited area.

Command format: MCcode GEOFENCE xx:yy:z

where: **xx** – geographical latitude coordinates in whole degrees with +/- sign (can be requested from the unit by the SMS command GPS)

yy – geographical longitude coordinates in whole degrees with +/- sign (can be requested from the unit by the SMS command GPS)

z – radius of the circular area detected in km – allowed values 1 - 99

Command example:
1234 GEOFENCE +50.7290:+15.1766:5

As the unit could leave the area several times per day or hour, it is also necessary to set the number of SMS messages which it could send in total.

Command format: MCcode GEOFENCE SMS h:d

where: **h** – the total number of SMS messages sent per hour (the permitted value is 1-99, while 0 is the default)

d – the total number of SMS messages sent per day (the permitted value is 1-99, while 0 is the default)

Command example:
1234 GEOFENCE SMS 5:10 (the unit sends a maximum of 5 SMSes per hour but it is limited to 10 SMSes per day in total)
The GEOFENCE function can then be enabled with an SMS command (see 5.4).

4.6. LED signalling during the journey

The unit signals the course of journey monitoring with a permanently lit LED. This function is optional, though.

Command format: MCcode LED ON/OFF

Command example:
1234 LED OFF (the LED will not be lit in the course of a journey)

4.7. Unidentified driver signalling

The AUX auxiliary output can be used to switch auxiliary devices (see 5.5) or to call upon the driver to authorize themselves with a tag when the ignition key is turned on (e.g. by activating a buzzer which acoustically notifies the driver that they are required to identify themselves). The length of signalling is 20 seconds or until identification and it has two modes – the AUX output can either be switched permanently or it can activate itself intermittently within 1s/1s cycle. When one of the functions is active, the driver is erased when the journey is finished.

You can also set input activation for a 30 minute interval to trigger an external relay which blocks the engine starter motor. This requires the driver's authorisation. When authorisation is performed the input is deactivated.

Command format: MCcode AUX PIT ON/FLASH/IMO/OFF

Command examples:
1234 AUX PIT ON (the AUX output will be active for 20 seconds of ignition key activation)

1234 AUX PIT FLASH (the AUX output will activate itself intermittently in a 1s/1s cycle for 20 seconds of ignition key activation)

1234 AUX PIT IMO (AUX output will be active for 30 minutes if no driver is logged in)

4.8. Exceeded journey time signalling

The AUX auxiliary output can also be used to notify the driver that they have exceeded the permitted journey time. If this function is active, the unit measures the duration of the journey which begins when the ignition key is turned on and if the set time limit is exceeded, it activates the AUX output for a preset period of time. The driver can thus be notified about the necessity to take a rest break.

Command format: MCcode AUX TIMER x:y/ON/OFF

where: **x** – timing since the commencement of journey in minutes (the allowed value is 1-1440)

y – length of notification after exceeding the permitted journey time in seconds (the allowed value is 1-300)

ON/OFF – enabling/disabling of the function with predefined x and y parameters

Command example:

1234 AUX TIMER 120:20 (the AUX output will be activated for 20 seconds after a two hour journey)

4.9. Ascertaining the position via T-Mobile Locator

The LOCATOR command works only with an activated T-Mobile Locator service (Where is...). When activating the service you have to choose an LPIN locating code which must be entered as one of the parameters in command setting. The setting is carried out via the below-mentioned command. When it is submitted, the unit sends an inquiry to the operator who then sends back information about its position which the unit subsequently forwards to the number from which the command came. This can take up to two minutes. It is not necessary to send the whole command to ascertain the position again. Sending a LOCATOR command is sufficient.

Command format:

MCcode LOCATOR 5727 5727 KDE LPIN xx...x

where: **5727** – is the number of service to which the inquiry is sent

5727 – is the number from which the unit expects to receive an answer (it is usually an identical number).

KDE – is a service name

LPIN – is a code used for T-Mobile Locator service activation

xx...x – is a unit SIM card telephone number

Command example:

1234 LOCATOR 5727 5727 KDE 12345678 737231897

4.10. Ascertaining a pre-paid card balance

The manufacturer recommends using SIM cards with a flat-rate tariff. **When using a pre-paid card there is a danger of a loss of functioning due to credit depletion or exceeding credit validity!!!**

By sending a CREDIT command it is possible to ascertain the credit balance on a prepaid card and concurrently activate periodical checking. The setting is carried out via the below-mentioned command. When it is submitted, the unit sends an inquiry to the operator who then sends back information about its credit balance which the unit subsequently forwards to the number from which the command came. This can take up to two minutes. It is not necessary to send the whole command to ascertain the credit balance again. Sending a CREDIT command is sufficient.

Command format: MCcode CREDIT uuu..u xx yy zz

where: **uuu...u** is a command to ascertain the credit
(*104## O2, *101# T-mobile, *22# Vodafone)

xx is the period for ascertaining credit in days

yy is the minimum amount of credit in CZK

zz is the position at which the number stating the amount of credit in an SMS from an operator starts

Command example:

1234 CREDIT *101# 7 200 1

This command will check whether the credit balance exceeds a money value of 200,- every 7 days (the information starts at the 1st character position in the SMS from an operator). If a lower amount of credit is ascertained, the message from the operator is forwarded to telephone number 1. The function can be disabled by sending a command with a zero value of credit set (xx=0).

4.11. GSM module reset

In order to set some network functions it is sometimes required to log the SIM off the network and then log it on again. In such a

case the unit's GSM module can be restarted with the RESET GSM command.

Command format: MCcode RESET GSM

Command example:

1234 RESET GSM

4.12. Service command DINFO

DINFO can give you the basic service information about the unit and its status. Unit reply by SMS: **“Your unit reports: CU-08; SN: 1400800017; ID: 671003; SW: 7.3; HW KW10403; RK: ABH9P-HD89R-15GT; GSM: 57%; SAT: 9/10; Time: 15:36 26.3.”** in this order it includes information about, serial number, unit ID (as it was set), SW and HW version, internet reg. key, GSM signal strength in %, number of used/visible satellites, time and date.

Command format: MCcode DINFO

Command example:

1234 DINFO

4.13. Command verification

The verification command sets a condition that user commands must contain the MC or UC code. This command can be used in cases when the vehicle fleet administrator does not want to let individual employees registered as drivers use user commands (i.e. employees not knowing the password will not be able to locate themselves or change the journey type or driver).

Command format: MCcode VERIF ON/OFF

Example of a command enabling verification:

1234 VERIF ON

5. User commands

User commands can be sent from registered telephones without the MC or UC code, unless the VERIF command is enabled.

5.1. Driver selection by an SMS command

A driver can also be selected with an SMS command (e.g. a function for a dispatcher). In order to change the current driver's number you have to enter the following command:

Command format: UCcode Dx

where: **x** – is a driver's number from 1 to 99

Command example:

1111 D2 (to set driver 2)

5.2. Journey type setting

Journey type selection should primarily be carried out with a switch located in the vehicle interior. If such a switch has not been installed, the selection can be made with an SMS message.

Command format: UCcode Tx

where: **x** – journey type: **0** is a business trip (default)
1 is a private journey

Command example:

1111 T1 (sets a private journey)

5.3. Notification of the commencement of a journey

If the TELINFO telephone number has been set using the MC code, the function can be enabled or disabled permanently or it can be activated for a single journey.

Command format: UCcode SINFO ON/OFF

Command example:

1111 SINFO ON (the unit sends a notification about the commencement of a journey each time the ignition key is turned on)

Command format: UCcode SINFO

Command example:

1111 SINFO (the unit sends a one-time notification about the commencement of a journey)

5.4. GEOFENCE function

If the GEOFENCE function parameters have already been set using the MC code, this function can be activated by the following commands, either for a single journey or permanently with the possibility of disabling. When the unit leaves the delimited area, it sends an SMS to TELINFO.

Command format: UCcode GEOFENCE ON/OFF

Command example:

1111 GEOFENCE ON (the unit sends a notification each time it leaves the area)

Command format: UCcode GEOFENCE

Command example:

1111 GEOFENCE (the unit sends a one-time notification when it leaves the area)

5.5. Auxiliary appliance switching

An auxiliary appliance can be triggered with the AUX command, when the yellow 12/24V wire is activated. The ON/OFF commands can be used to change the output state or activate the output for a precisely defined period of time. The maximum length of this period is 60 minutes

Command format: UCcode AUX ON/OFF

Command example:

1111 AUX ON (the output will be activated for one hour, unless it is deactivated with the AUX OFF command)

Command format: UCcode AUX x y

where x – number of seconds or minutes

y – s/m seconds or minutes

Command example:

1111 AUX 25 M (activates the output for 25 minutes)

5.6. SMS command reception confirmation

The device can confirm execution of the received SMS commands to the telephone number from which the command was received. This function is optional, though.

Command format: UCcode RE ON/OFF

Command example:

1111 RE OFF (disables confirmation of SMS commands)

5.7. Ascertaining the current position

The current position of the unit can be ascertained by sending a GPS command. The received SMS contains a link to Google Maps which smart phones can then use to display the vehicle position on the map.

Command format: UCcode GPS

Example of a command to ascertain the current position:

1111 GPS

5.8. Current vehicle status

The current vehicle status can be ascertained with the STATUS command. The unit reacts to this command with an answer stating the current status of the unit.

Command format: UCcode STATUS

Command example:

1111 STATUS

5.9. HELP command

The HELP command can be used to obtain basic help about how to control the unit using SMS commands.

Command format: UCcode HELP

Command example:

1111 HELP

5.10. CREDIT and LOCATOR commands

If the CREDIT and LOCATOR functions have already been set, single commands can be used to ascertain the credit balance and position.

Command format: UCcode CREDIT

Example of a command for ascertaining the credit balance on a prepaid card:

1111 CREDIT

Command format: UCcode LOCATOR

Example of a command for ascertaining the position in a mobile operator's network:

1111 LOCATOR

6. Other functions

6.1. Forwarding of unidentified SMS messages

The unit forwards all SMS messages which it is unable to identify by password or by the caller's number to the TEL1 number. These could be messages from the operator concerning the credit balance, information about changes to flat-rate tariff terms and conditions, one-time passwords, etc.

This function also serves as protection against possible testing by an unauthorized person trying to break the unit's code.

The forwarded SMS always contains the telephone number from which the message was sent and the wording of the message with the exception of the first word which is replaced with asterisks. The maximum number of forwarded SMS messages is 10 per 24 hours.

6.2. Unit reset

The unit can be reset to default via an SMS command.

Note: In such a case all parameters will be reset to default.

Command format: MCcode RESET MASTER

Example of a command for unit reset:

1234 RESET MASTER

7. Technical specifications

Power supply voltage	8 - 30 V
Maximum current consumption	500 mA / 12 V
Nominal current in on-line mode	50 mA / 12 V
Standby current consumption	14 mA / 12 V
working range of the GSM module E-GSM / GPRS	850/900/1800/1900MHz
Dimensions without the terminals and mounts	
L x W x H	68 x 91x 34 mm
Unit weight	125 g
Operating temperature range	-20 to +80 °C

Intended for connection to a 12 V or 24 V DC vehicle power supply. The unit is intended for operation in road vehicles.

This product is identical to the type approved by the Ministry of Transportation of the Czech Republic under the number E8 10R-04 6950.



10R-04 6950



JABLOTRON ALARMS a.s. hereby declares that the CU-08 is in a compliance with the relevant Union harmonisation legislation: Directives No: 2014/53/EU, 2014/35/EU, 2014/30/EU, 2011/65/EU. The original of the conformity assessment can be found at www.jablotron.com - Section Downloads.



Note: Although this product does not contain any harmful materials we suggest you return the product to the dealer or directly to the producer after use.