KEETEC®

⚠ ATTENTION: BEFORE INSTALLATION, MAKE SURE YOU READ ALL INSTRUCTIONS AND RECOMMENDATIONS OBTAINED IN THIS MANUAL CAREFULLY. THE DEVICE MUST BE INSTALLED AND USED ACCORDING TO THIS MANUAL. YOU CAN INSTALL THIS DEVICE EITHER TO 12 OR 24-VOLT ELECTRICAL SYSTEMS. THE GROUND CONNECTION OF THIS DEVICE MUST BE CONNECTED TO A NEGATIVE POLE OF THE BATTERY. MANUFACTURER AND DISTRIBUTOR ARE NOT RESPONSIBLE FOR DAMAGE CAUSED BY INCORRECT INSTALLATION OR PROGRAMMING OF THIS DEVICE OR BY USING NOT IN ACCORDANCE TO THIS MANUAL. GIVEN THESE REASONS WE RECOMMEND TO RELY ON A PROFESSIONAL SERVICE IN CASE OF INSTALLATION. THE DEVICE OR VEHICLE CAN POSSIBLY GET DAMAGED BY UNPROFESSIONAL MODIFICATIONS AND INSTALLATION.

I. SYSTEM DESCRIPTION

The Keetec BLADE car alarm is designed for vehicles with both 12 and 24V power supply. It is used to monitor doors, trunk and hood. In case of disruption the system indicates alert by optical (hazard lights) and sound signaling (siren). System is operated by using the original remote control. Alarm can be connected to vehicle via analog or CAN bus connection. CAN bus provides information about doors, trunk or hood opening, locking/unlocking the vehicle by remote control or Ignition status.

II. SYSTEM INSTALLATION

Remove plastic covers from the car dashboard. Find appropriate wiring for car alarm connection. Use digital multimeter to test the function of wires in a vehicle, even if you are sure about the function of each wire. After choosing the correct wires, disconnect the car battery and connect Keetec BLADE wire harness to car wiring according to the wiring diagrams. Wiring diagram is a part of this manual. Solder and isolate all connections. After finishing the car alarm installation, reconnect the car battery and plug in a fuse to the fuse cover of the car alarm. Test correct functionality of the car alarm and the electrical installation of the car (ignition, hazard lights,...). Reinstall the plastic covers of the dashboard.

CAUTION: Siren used during installation must meet the parameters of supply voltage of the vehicle (12 or 24V). Do not use the siren outside of it´s operational range. Damage of the siren and/or output of Keetec BLADE can occur.

CONTROL UNIT AND SERVICE BUTTON LOCATION

The control unit should be hidden at difficult to access place, for example from inside of the dashboard. Service button should be positioned so that it is easily accessible.

- **WIRES DESCRIPTION**

Connector CN 1 (3 PIN)
Connector used to connect service button
Connector CN 2 (3 PIN)
Connector used to connect external sensor (only for vehicles with 12V power supply)
Connector CN 3 (10 PIN):
(2) Black ..... Ground
(4) Red ..... Power supply (+12/24 V)
(8) Brown ..... Siren output (+1A)/(-150mA)
(10) Orange/Brown ... CAN L
(9) Orange/Green ..... CAN H
(6) Red/Black ..... Universal IN/OUT 5 (+/-), max150mA
(7) White/Black ..... Universal IN/OUT 4 (+/-), max150mA
(5) Pink ..... Universal IN/OUT 3 (+/-), max150mA
(3) Green ..... Universal IN/OUT 2 (+/-), max150mA
(1) Yellow ..... Universal IN/OUT 1 (+/-), max150mA
Connector CN 4 (4 PIN)
Serial port. Currently not used.
Connector CN 5 (4 PIN)
Connector used to connect authorisation module RF SMART v2
Connector CN 6 (Micro-USB)
Connection to PC for configuration and updating purposes using Keetec BLADE software.

CAUTION: Do not exceed maximum current limits of the outputs. The sum of currents through the universal analog outputs must not exceed 400mA. Use additional devices to control higher current loads!

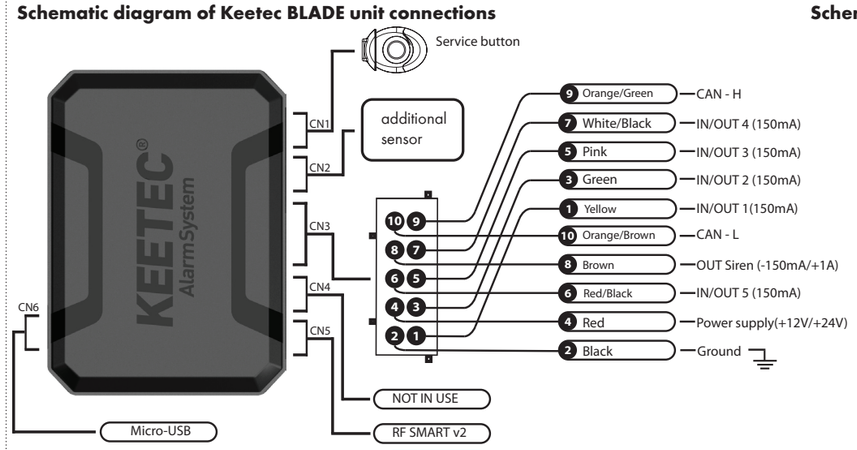
- **Universal analog inputs and outputs (IN/OUT)**

The Keetec BLADE has 5 configurable inputs / outputs. Analog inputs offer configurable polarity (+ or -) as well as NO / NC function logic. Outputs are of (-) polarity with the exception of Siren output, which offer configurable polarity. It is strictly forbidden to exceed maximum value of the output current limit.

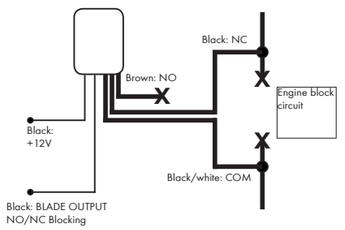
- **Universal analog inputs:**

Validator - Analog input to recognize validation sequence via original vehicle control buttons
Ignition – Analog input for Ignition status
Doors - Analog input for Door status
Hood – Analog input for Hood status
Trunk – Analog input for Trunk status
Trunk blocking – Analog input to allow unlocking only the trunk while the system is armed.
Alarm activation – Analog input from external sensor for alarm triggering.
Analog Arm – Analog input to arm the system when car Locks
Analog Disarm – Analog input to disarm the system when car Unlocks
Arm/Disarm blocking - Analog input used to block Arming/Disarming via analog

Schematic diagram of Keetec BLADE unit connections



Schematic diagram of IMO20 blocking relay



Note: The choice of NO or NC blocking depends on vehicle and is at discretion of installer.
Blade unit must be set via software depending on the type of blocking circuit.

connection and for some vehicles CAN bus connection to block mechanical key signal
Interior light – Analog input for Door status when door limit switch is not accessible. This setting implements delay in order to cope with comfort dimming of the interior light.

- **Universal analog outputs (max 150mA) :**

Status – Output is active when the system is Armed.
Alarm – Output is active when alarm is triggered and stays active until alarm stops.
Buzzer – Output used to connect buzzer. Buzzer is used for acoustic signaling of the system statuses.
NO/NC blocking – Output used to connect blocking relay
Hazard lights - Output used to connect hazard lights.
Authorisation state – Output is active when user is authorised
Lock – Output used to lock the vehicle using RC SMART2.
Unlock – Output used to unlock the vehicle using RC SMART2.
Open trunk – Output used to open the trunk using RC SMART2.

III. SYSTEM CONFIGURATION

System settings and parameters are configured using PC software Keetec BLADE
It is recommended to update firmware of the main unit before installing and configuring the system.

- **Settings wizard**

Guide for easy basic setup of the BLADE unit. Wizard includes car brand and model selection, authorisation setup and more. For detailed configuration, manual setup is required.

- **Hazard lights**

- Off
- Permanent – used when high-current connection or in case of latching hazard switch
- Pulse – used when connected to impulse hazard button. Option to set pulse length and off-time duration between pulses.

- **Acoustic and optical confirmation of Arming/Disarming**

- Acoustic confirmation (siren) of Arm/Disarm ON/OFF
- Optical confirmation (hazard lights) of Arm/Disarm ON/OFF

- **IMO Logic**

Logic of blocking relay. The setting must correspond to the actual wiring of the relay.
- NO/NC

- **Re-arming**

If no doors or trunk is opened after Disarming, system will automatically Arm again.
- ON
- OFF

- **Siren type**

- Horn – setting used when connection to original car horn is used (pulse output).
- Siren – setting used when connection to external siren is used (permanent output).

Warning: When connecting to original car horn, current limits of the output must not be exceeded. Using additional relay is recommended.

- **Authorisation**

System can be authorised by using validation sequence or via external authorisation module RF SMART v2. Authorisation configuration is possible only via PC software Keetec BLADE. Authorisation modes:
- NONE
- IGNITION
- DISARMING
- BOTH

- **Default settings**

- Restores factory settings of the Blade unit.

- **Connecting the system to CAN bus**

When connected to vehicle CAN bus system reads all necessary information from the bus. It is recommended to check the list of supported vehicles prior to installation whether the vehicle you plan to install is supported and what information can be obtained from CAN bus (e. g. door status, lock/unlock, ignition,...). Information not obtainable from the CAN bus should be connected via analog inputs. Some vehicles have the same CAN bus information for locking/unlocking via remote control as well as for mechanical key. In such case connect also analog inputs for Arm/Disarm blocking so the system is not disarmed when opening with mechanical key. In order for the system to read CAN information it is necessary to insert three digit vehicle code. Code is available in Keetec BLADE software.

- **Analog connection to central lock**

If the vehicle is not equipped with CAN bus or is not supported, it is possible to connect BLADE unit to central locking via analog inputs.
For proper Arm/Disarm funcionality it is required to set three inputs via Keetec BLADE software. Set IN1 as „Analog Arm" and connect it to wire where +12 or 24V pulse will appear when car Locks. Set IN2 as „Analog Disarm" and connect it to wire where +12 or 24V pulse will appear when car Unlocks. Majority of vehicles have limit switches in door locking servos to control central locking.
To prevent alarm Disarming when doors are unlocked using mechanical key it is necessary to connect key switches via diodes (1N4007, not included) to IN3 set as „Arm/Disarm blocking". Inputs polarity is adjustable, default setting is „-". Connecting Arm/Disarm blocking input is important as it prevents the alarm Disarming when only mechanical key is used instead of remote control.

IV. AUTHORISATION AND VALIDATION SEQUENCE PROGRAMMING

System can be authorised by using programmed validation sequence or by using external RF SMART v2 module. Maximum of 4 validators can be used to enter a validation sequence, i.e. 4 vehicle controls. The maximum number of validator presses is 10. The system can recognize validation elements using the analog inputs „Validator" or via digital CAN bus protocol. Validation sequence programming as well as learning RC SMART2 remote controls is only possible via Keetec BLADE software.
Authorisation types:

NONE

Blade system is controlled only by original remote control of the car. Authorisation is not required.

IGNITION mode.

Engine start depends on entering validation sequence or by presence of RC SMART2 in the vehicle.

Entering validation sequence is confirmed with 3 beeps. System is authorised for 120 seconds or 60 seconds after turning off ignition.

DISARM mode

System Disarming depends on unlocking the vehicle with original remote as well as entering validation sequence or by presence of RC SMART2 in the vehicle. Entering validation sequence is confirmed with 3 beeps.

In case system is not authorised within15 seconds since opening doors, acoustic warning will sound.

In case system is not authorised within 20 seconds since opening doors, alarm will be triggered.

BOTH mode (Ignition + Disarming)

Engine start and system Disarming depends on unlocking the vehicle with original remote as well as entering validation sequence or by presence of RC SMART2 in the vehicle. Entering validation sequence is confirmed with 3 beeps. System is authorised for 120 seconds or 60 seconds after turning off ignition.

In case system is not authorised within 15 seconds since opening doors, acoustic warning will sound.

In case system is not authorised within 20 seconds since opening doors, alarm will be triggered.

Example: The validation sequence is as follows: press ESP button 4 times, press window heater button 2 times. To enter the validation sequence, 2 validators (ESP button and window heater button) are connected by installer.

V. EXTERNAL RF SMART v2 MODULE

Since firmware version REV02 it is possible to connect external authorisation module RF SMART v2. Authorisation via RF SMART v2 can completely replace validation sequence and brings the option to control central locking of the vehicle.

Authorisation

RF SMART v2 authorisation can be set for the same modes as for validation sequence (see point IV.). Learning new RC SMART2 remotes is possible in PC software Keetec BLADE. Authorisation works in either manual or hands-free mode. Mode setting is done on remote control, for detailed information please see manual for RC SMART2.

Central lock control

To use RF SMART v2 for system control (Arm/Disarm) and at the same time to control Locking/Unlocking of the car it is necessary to set outputs of the Blade unit for "Lock", "Unlock" and possibly "Trunk opening". Output setup is done via Keetec BLADE software.

WARNING: In central lock control mode authorisation must be deactivated!!!

VI. SERVICE MODE

We recommend to activate service mode before leaving the vehicle in a workshop or parking service. In this mode the system stops performing all blocking activities. It is not necessary to reveal authorisation method to the staff.

Activation:

- Make sure ignition is off.
- To activate the service mode, deactivate the system and enter the service PIN code using the service button.
- Press and hold the service button for 5 seconds (until the LED indicator on the service button lights up). Release the button.
- Press the service button as many times as the value of the first digit of the PIN code, the LED indicator flashes 3 times
- Press the service button as many times as the value of the second digit of the PIN code, the LED indicator flashes 3 times
- Press the service button as many times as the value of the third digit of the PIN code, the LED indicator flashes 3 times
- Press the service button as many times as the value of the fourth digit of the PIN code, the LED indicator flashes 3 times

Activation of the service mode is confirmed by 5 beeps. Service mode is signalled by the LED indicator on the service button when the ignition is switched on. Default PIN code is (**4321**).

Deactivation:

Make sure the ignition is off. Enter the service PIN code using service button the same way as when activating. Deactivation of service mode is confirmed by 5 beeps.
Default PIN code is (**4321**).

VII. EMERGENCY DEACTIVATION

- Press and hold the service button for 5 seconds (until the LED indicator on the service button lights up). Release the button.
- Press the service button as many times as the value of the first digit of the PIN code, the LED indicator flashes 3 times
- Press the service button as many times as the value of the second digit of the PIN code, the LED indicator flashes 3 times
- Press the service button as many times as the value of the third digit of the PIN code, the LED indicator flashes 3 times
- Press the service button as many times as the value of the fourth digit of the PIN code, the LED indicator flashes 3 times, siren sounds twice, system gets deactivated. Default PIN code is (**4321**).

VIII. PIN CODE CHANGE

The service PIN code can be changed only by the Keetec BLADE PC software. The default PIN code is (4321).
When changed, write the new PIN code on the owner's card.

IX. ONE-TIME DEACTIVATION OF ADDITIONAL SENSOR

To one-time deactivate additional sensors please follow:
- Press service button once within 30 seconds after Ignition is switched off
- Leave the vehicle and Arm the system.

Additional sensor is deactivated until next Ignition turn-on.

X. TECHNICAL SPECIFICATIONS

Operating voltage	12/24V
Operating temperature of the device	-40°C to 80°C
Idle current draw*	3mA
Maximum current load of universal outputs	(12V-150mA)/(24V-75mA)
Maximum current load of siren output	**(+)** (12V-1A/24V-0.5A) **(-)** (12V-150mA/24V-75mA)

*Without the use of external sensor