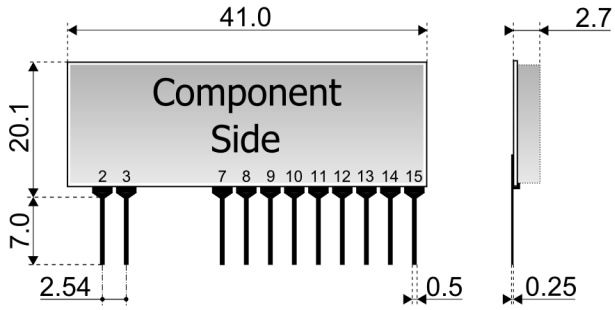
433MHz OOK RECEIVER WITH MICROPROCESSOR - General product hardware info

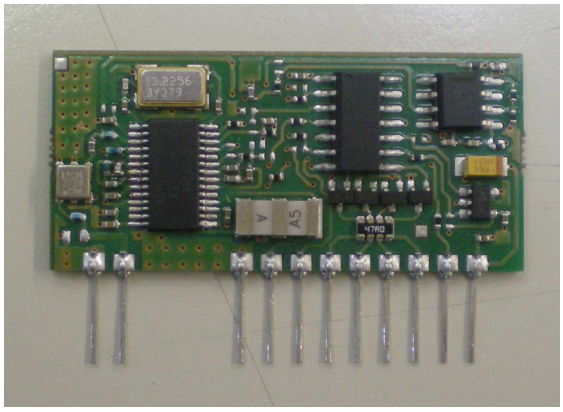
Description here follows of a module integrating a 433 MHz OOK (AM) superhet receiver, a microprocessor based small Computing Unit and several input/output pins.

The component is intended to be a modular base for specific hardware configurations running under a dedicated microprogram.

Following picture shows the **full configuration** hardware for receiver.

DIMENSIONS and PIN-OUT





CONNECTIONS

Pin 2-7	**Ground**	GND connection
Pin 3	**Antenna**	Antenna Connection, impedance 50 ohm.
Pin 8-9-14	**OPEN**	Defined from software and hardware installed components. Usefull as input or output pins
Pin 10-11-12-13	**OPEN**	Defined from software and hardware installed components. Usefull as Open Collector output pins
Pin 15	**+V_S**	Voltage Supply connection.

Technical Data

	Min	Tipico	*Max*	*Unità*	Annotazioni
Receiver frequency		433.92		MHz	
Supply V_s	4,5	5	5,5	V	
Current at full RF and microP function		12	14	mA	
RF sensitivity	-109	-111	-113	dBm	
Pass bandwith at –3dB		280		KHz	
Work Temperature	-20		+80	□C	
Dimensions	41 x 20.1 x 2.7 mm				

Hardware configuration modularity

- RECEIVER UNIT: based on AUREL RX 4MM5 , with low profile crystall as used in in RX 4MM5X++. Front end SAW filter available. Digital filter for motors inducted output interferring signals available.
- MICROPROCESSOR: Basic hardware is mounted with a PIC16F636. Any other PIC with same pin out can be mounted.

Also ATMEL selected microP can be mounted.

- ADDED EXTERNAL MEMORY: Installation place provided for SOT23 PinOut Ic (examples: Microchip 24AA16 or 24LC32)

VERSION 6500201168G PRELIMINARY specific Info

Pin OUT

Pin 2-7	**Ground**	GND connection
Pin 3	**Antenna**	Antenna Connection, impedance 50 ohm.
Pin 8	**RSSI**	Analog voltage signal proportional to received RF signal strenght
Pin 9	**Key**	Connection to external push button (other contact to GND). Push buttons used to RESET microprocessor, teach in new transmitters, etc...
Pin 10-11-12-13	**Output pins**	Output signals paired to keyfob(s) button being pressed (see LEARN IN). Max 100mA Max 40V
Pin14	**LED**	Direct connection to LED anode (no load resistor needed). LED catode to GND
Pin 15	**+V_S**	Voltage Supply connection.

Hardware configuration.

- No receiver Front End Filter installed
- No output signal digital filter installed
- Microprocessor installed: PIC16F636
- No additional memory Ic installed.

Software configuration

- Can "learn in" up to 10 hand transmitters.

- Hand transmitters with Max. 4 buttons.
- Duty Cycle (software turns receiver on for 1 millisecond every 100 millisecond quiescent)
- Decoder can recognize Microchip KEELOQ MODIFIED frames . **The associated transmitter, therefore, must generate the frame from a PIC running a modified KEELOQ code generation software, rather than from a normal HCS300/301 Ic.** (This is obtained using a microprocessor in the transmitter circuit).
- Released software validates modified KEELOQ frames identified with the "AUREL standard Manufacturing Code" and related parameters.
- Each Output pin can be set to mono or bystable operation (when ANY output is set to bystable operation and this specific output is in ON condition, the receiver looses the duty cycle timing and therefore sets to FULL 7mA current consumption).

Model specific Electrical Characteristics:

	Min	Tipico	*Max*	*Unità*	Annotazioni
Receiver quiescent average current		100		microAmp	

LEARN In procedures

Clearing memory (memory reset)

To clear memory and to erase Receiver memorized data (=reference to already trained in transmitters and related key button), press and realease the button connected to pin 9, LED will start to flash for 10 seconds. Push and keep pressed the button for few seconds, at least. The LED, after 3 seconds, will go ON, indicating that push button can be released. The complete reset function will be indicated from 5 flashes from LED.

A cleared module will not recognize any more any of keyfobs previously learned in and will have all four EXITS to monostable.

Transmitter(s) learning procedure

MAX 10 transmitters accepted
When the decoder module/card is powered up, the LED will light up for about 1 second: this indicates a correct function of item.
Press and release the connected push button to have the LED going ON and OFF (1 second cycle) for 12 seconds. Press button “A” of your keyfob during the 12 seconds to associate this button of the transmitter being used to EXIT 1 of Module/Card.
Press and release the connected push button to have the LED going ON TWICE (fast timing) and then OFF for 1 second: this cycle will be executed for 12 seconds. Press button “B” of your keyfob during the 12 seconds to associate this button of the transmitter being used to EXIT 2 of Module/Card.
Press and release, for the third time, the connected push button to have the LED going ON THREE TIMES (fast timing) and then OFF for 1 second: this cycle will be executed for 12 seconds. Press button “C” of your keyfob during the 12 seconds to associate this button of the transmitter being used to EXIT 3 of Module/Card.
Press and release, for the forth time, the connected push button to have the LED going ON FOUR TIMES (fast timing) and then OFF for 1 second: this cycle will be executed for 12 seconds. Press button “D” of your keyfob during the 12 seconds to associate this button of the transmitter being used to EXIT 4 of Module/Card.

A fifth action on push button will start the learning procedure for a different keyfob (up to 10 transmitters can be learned in).
If no more transmitter should be learned in, just let the 12 second time elapse out.

Special conditions

1. if you try to associate a keyfob button to an EXIT already paired with a button of the same transmitter, the LED will rapidly flash for 10 second to indicate that the action is not possible.

2. When you start to learn in a new transmitter, this will be automatically recognized from the decoder, that will start the full 4 button/Exit pairing.

Monostable and bistable outputs

Switching output(s) from monostable to bistable is done, again, via push button.
Pressing and releasing , the LED will be flashing for 12 seconds.
During this time, press and keep pressed up to full LED ON (keep pressed for about 3 seconds). Release button, LED goes OFF. LED ON/OFF one time will indicate that EXIT 1 is bistable.
Repeat for exit 2, 3 and 4 (Led will indicate with ON/OFF sequences what exit is changed)
Pls note that change on a specific Exit will be valid for activation from ANY of associated transmitters.