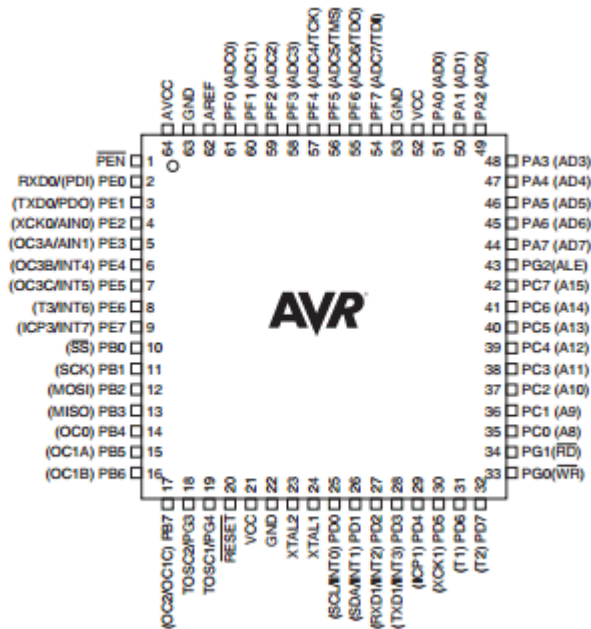


# **Control of SA keys with ATmega128 Micro Controller and C Code Sample Application Note**

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# PIN CONNECTIONS



The port pins of the ATmega128 are connected to the pins of the keys without additional electronics. A series resistor of approx. 47 Ohm is recommended per switch.

For the recognition of multiple keystrokes simultaneously, a diode from SW to CLK is required per key.

Further details can be found in the schematic of the switch matrix 0506\_v1.1.pdf

## FILE LIST

key_functions.c	Functions for sending single bytes to keys
key_functions.h	Port definitions for controlling keys
Main.c	Main program and initialization
0506_v1.1.pdf	Schematic of 5x6 key matrix

# INITIALIZATION OF PORT PINS

The functions are based on an 8x8 key matrix with one port each for CLK, DAT and SW. There are no plans to use these ports in any other way.

The pins of CLK and DAT are configured as output, the pins of SW as input with pullup. In the idle state, all pins are switched to high level (1).

# FUNCTIONS FOR DATA TRANSMISSION

When calling functions it is important to avoid calling multiple, simultaneous functions, for example by using interrupts.

## Key Numbering

The keys are numbered from 0 to 63 (8x8 matrix) according to their connection position. The key number 0 corresponds to the key which is connected to CLK\_Pin 0 and DAT\_Pin 0, key 1 to CLK\_Pin 0 and DAT\_Pin 1 and so on.

## sendByteToKey()

*Send 1 byte to key with "key number"*

## sendByteToAll()

*Send 1 byte to all keys*

## Detect Key Press

To detect a keystroke a CLK pin is switched to low. When the key is pressed the corresponding SW pin is pulled to low. This can be read via the SW pin register and further processed.

# NOTICES

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The knowledge of electronics and the technically correct implementation of the content of this datasheet are required for problem free installation, implementation and safe operation of the described product. Only qualified personnel have the required know-how to implement the specifications given in this data sheet.

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# CHANGE HISTORY

Version	Date	Comments
0.1	05/14/19	Initial draft document
1.0	06/15/22	Updated release document

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