CHIP READER
DALLAS
type DSRS2433

$$C\!E$$

www.aterm.cz

1. Introduction

This product has been designed according to actual state of the engineering, and corresponds to a valid European and national standards and directives. The product is corresponding with the relevant standards. All declarations and documents are deposited at the producer.

The product has a corresponding level of electromagnetic resistance to his ability of undisturbed running in the usual environment.

You should read this documentation, before you start using this product.

The producer doesn´t take responsibility for damaging device and accidents caused to individuals, which result from the incompetent manipulation. The producer also isn´t responsible for damaging property and casualties caused by incompetent manipulation with this product or by contravening safety regulations. For security reasons and reasons of registration (CE) you hasn´t to make any changes in its internal arrangement. The product is intended for using by persons with relevant qualification. Incompetent handling can damage product.

After the end of its working life, the product must be disabled or scrapped according to the laws. Protect your environment and deliver your product to the central collection electro-scrap or return to producer to ensuring its liquidation.

2.   Generally about Dallas chips

Dallas identification chips are a product of Dallas Semiconductor. This is essentially a semiconductor memory enclosed in a 16mm diameter metal case. These memories contain a unique 48-bit code that allows unambiguous identification of the subject or person. The Dallas chips contain no power source and the information contained therein is transmitted to the reader at the moment of direct contact with the reading surface. Data transmission takes one wire and is very fast (20ms).

The advantage of the Dallas chips is their simplicity and favorable price. Compared to non-contact chips, they are more prone to contamination, as they have to be read with quality contact with the reading surface.

3.   Chip reader DSRS2433

Chip reader type DSRS2433 is an electronic device that allows you to read the DS1990A chips and transfer 48-bit code to your computer via the RS232 serial line. *(The CRC chip is shown to the left above the serial number of the chip, then the "family" code is always on the right).*

As can be seen from the picture on the front side, this device is assembled from a contact reading surface mounted on a 48 x 40 x 22 mm plastic box. Next to the read contact is the LED indicator. To the computer, this device is connected with a 1,5m cable ending with a USB-A connector.

The device is equipped with a single-chip microprocessor that provides reader code reading from the chip and immediately transfers data to the computer. This whole process is very fast and does not exceed 100 ms including receipt and basic code processing by computer.

The LED is light when the power is switch on, otherwise it is controlled from the computer. The device is powered by USB.

4.   Serving the Dallas Chip Reader

Communication between the DSRS2433 and the computer is bi-directional. The computer sends a query and the reader responds. The only exception is sending the read Dallas chip code to your computer immediately after reading it. The code can also be repeatedly requested by a separate query. The transfer protocol contains ASCII characters, and its use is simple and clear. Each question and answer are completed with a CR sign (13).

Transfer protocol:
a) Identification of the reader:
   Computer query: **'Q', 'I', CR**
   Reader response: **'A', '2', '4', '3', '3', CR**
Example: The computer sends an array of bytes: 81,73,13 and accepts an array of bytes: 65,50,52,51,51,13.

b) Reading the Dallas chip code:
   Computer query: **'Q', 'D', CR**
   Reader response: **'A', d12, d11, d10, d9, d8, d7, d6, d5, d4, d3, d2, d1, c2, c1, CR**
Where **'A'** is the initial character
d12 ... d1 are the individual ASCII characters of the chip code in the same order as those on the chip
c2 and c1 are CRC characters (shown on the left above the serial number of the chip)
 CR is the end sign
Example: A sequence of 'A', '0', '0', '0', '0', '1', '2', 'E' , 'D', '3', '0', 'B', '8' , 'C', 'E' is sent for the serial number of the chip "000012ED30B8" and CRC chip 'CE'.

c) Lights up LED:
   Computer query: **'Q', 'R',CR**
   Reader response: **' A ', 'O', 'K', CR**

d) Turn off LED:
   Computer query: **'Q', 'Z',CR**
   Reader response: **' A ', 'O', 'K', CR**

e) Blocking the reader:
   Computer query: **'Q', 'B',CR**
   Reader response: **' A, 'O', 'K', CR**

f) Unblocking the reader:
Computer query: **'Q', 'O',CR**
Reader response: **' A ', 'O', 'K', CR**

    When the power supply is turned on, the LED flashes three times and then goes out. After attaching the chip to the contact area, the code is read out immediately and sent to the computer. At the same time, the LED is on.

5. Software for reader operation DSRS2430

    At Web site http://www.aterm.cz/Aterm.htm#E2400 is a downloadable PC software called **DSRS2400E.EXE**. It allows you to test all functions of the reader, display the read code of the chips even with the time, save the selected data to the computer disk, or redirect the data to the keyboard memory.

    Installing software: The communication interface of the device uses the FT232B circuit for which the appropriate driver must be installed on the computer. This is a VCP driver that adds a new COM port to the computer system. Newer operating systems get the proper driver downloaded and installed when the computer is connected to the Internet and install it when the computer is first connected to the device. Alternatively, you can download the driver from: http://www.ftdichip.com/ Drivers/VCP.htm . The user software is not installed. Just copy the DSRS2400E.exe program to the hard drive.

    Connecting to a computer: By connecting the reader to the USB port, the computer should immediately recognize the reader as a USB Serial Converter and assign it to one of the virtual serial ports COM4 to COM29. Run the DSRS2400.EXE program after connecting the reader to the USB port. At the start of the program, a reader connection link is displayed in the status bar (at the bottom of the window). The LED flashes on the reader when the reader is successfully found. If the reader was not found, the DEMO button is displayed to start the demonstration mode of the program. In this demonstration mode, a random chip code is generated at regular intervals and displayed in the appropriate window. Apart from the control buttons, all other functions are available.

    The left part of the window displays the order, time and code of the reading chip. The order is memorized by the program even when it is

turned off. You can reset it with the *Reset Order* button. In the right part of the window above, there is a group of control buttons. If the reader is blocked, the LED flashes and the reader cannot read the chip codes. The LED of the reader is automatically lit when the new code is sent to the computer. The LED goes off from the computer. The code of the most recently read chip can be read back using the *Chip Repeat Read* button. The result of this reading is displayed in the status bar.

In the *Redirect* group is an adjustment element *Chip code to keyboard*. When selecting, two other setting elements are displayed: *Order to Keyboard* and *Time to Keyboard*. These elements allow you to redirect the selected values to the keyboard. If we have an active window of another program (eg Notepad), this data is written to this active window as if it were input directly from the keyboard. After entering the chip code, the transition to the new line is followed.

The last set of elements called *Parameters* allows you to set some other program features. An audible signal may sound whenever the chip code is read. The LED of the reader can be automatically turned off after receiving the code. The resulting data can be written to the computer disk. The file name in text format is automatically selected, and one day's data is always written to the same file. The program can be minimized immediately after it starts. The resulting data will then be redirected to the active window. The serial number of the chip can be extended by the *CRC* code, which is then placed at the end of the chip code. Software can be customized and expanded according to user requirements.

6. Technical parameters

Power:	7 to 30V DC (pin 9)
Communication speed:	9600Bd, without parity, 1 stop
Dimension:	48 x 40 x 22mm (š x v x h)
Operating temperature:	-10 až 40 °C
Electromagnetic environment:	level2-protected environment

Service and production:

Aterm.cz

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ES DECLARATION OF CONFORMITY

Producer: Aterm.cz
                Náves 7, 763 61 Pohořelice
                Czech Republic
                IČO: 1 3 0 9 2 7 5 8
Product: Chip reader type DSRS2433.

The manufacturer declares under its sole responsibility that the product meets the above requirements of technical regulations and under the conditions specified by the manufacturer using safe.

Evaluation of conformity: Conformity assessment was carried out in accordance with §12, para. 3a) of the Act No.22/1997 Coll. as amended.

In accordance with Government Regulations:
č.17/2003 Sb., č.616/2006 Sb. a č.481/2012 Sb.

In accordance with the directives of the European Parliament and the Council: 2004/108/ES, 2006/95/ES a 2011/65/EU.

Harmonized standards: ČSN EN 61010-1, ČSN EN 61326-1.

CE marking: the year of first marking CE: 17
Technical documents: are deposited at producer.

Name: Ing. Radomír Matulík   Position: OSVČ

In: *Pohořelice*   Day:*30.8.2017*