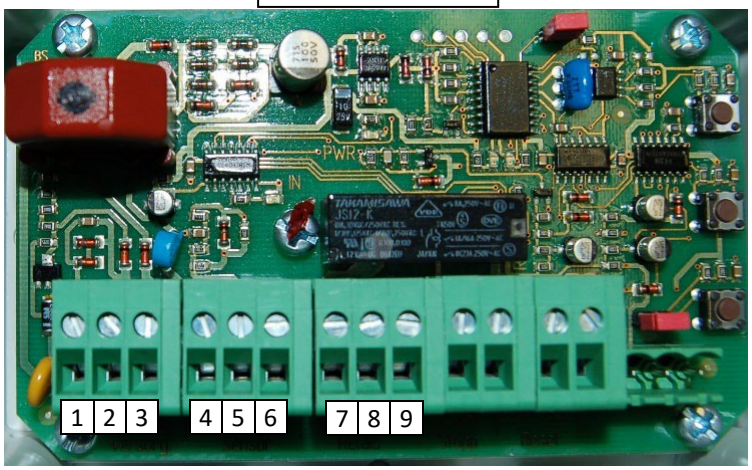
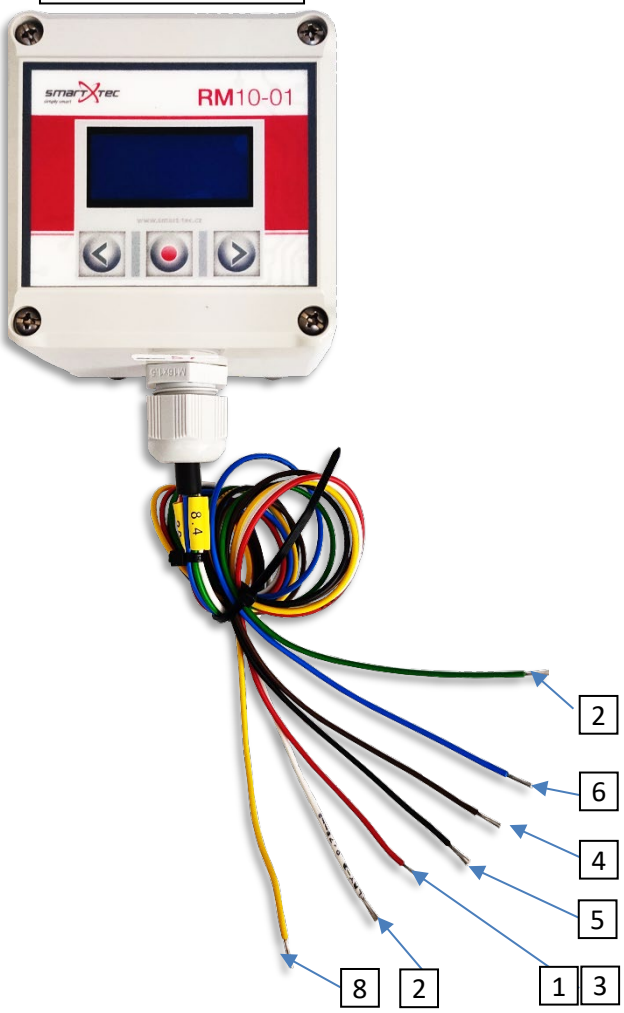
Conversion instructions from DC 0104 to RM10-01

DC 0104 circuit



Smart-Tec RM10-01



Clamp / Cable	DC 0104	RM10-01 (wiring harness)
1	+ Supply voltage 12V	Cable (20) RM10-01 Wire colour red
2	- Mass	Cable (8.3) RM10-01 Core colour white
2	- Ground solenoid valve	Cable (8.4) RM10-01 Wire colour green
3	Only used with 24V : + Supply voltage	Cable (20) RM10-01 Wire colour red
4	Proximity switch speed + = Core colour brown	Cable RM10-01 Core colour brown
5	Proximity switch Speed signal = Core colour black	Cable RM10-01 Wire colour black
6	Proximity switch speed ground - = Core colour blue	Cable RM10-01 Wire colour blue
7	Not documented	
8	Solenoid valve output	Cable (21.1) RM10-01 Conductor colour yellow
9	12 V supply relay only with DC 0104 (jumper from terminal	
	Proximity switch IFM IGS 233 = Core colour white (if present) ⇨ not documented	

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Operating Instructions for RM10-01
dated 17 August 2021

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The company is registered in the Commercial Register kept by the District Court in Hradec Králové, Section C, File No. 27265
Bank account: Komerční banka, a.s., account number: 43-6420180287/0100

Content

1. Description

The RM10-01 controller is primarily intended for controlling the rollers of the shredding machine. Its secondary function is a counter for the daily and total operating hours and as an indicator of the current machine speed.

1.1. Operating states of the controller

Setting the operating parameters

In order to adapt the control to different types of shredding machines, it is necessary for the control to have a function for setting the necessary operating parameters that describe the type of shredding machine in question and, on the basis of this data, to assess the situation correctly and adjust the displacement of the rollers accordingly. This adjustment is primarily made by the machine manufacturer and it is then no longer necessary to intervene. Access to the menu is protected by a PIN code.

Settings menu Hacker	= 3412
Daily operating hours Reset	= 2326

Basic normal operation

After commissioning, the controller is in data display mode. The basic display depends on the set mode, either the blade shaft speed or the deviation from the stored output speed. It is also possible to switch to the display of total and daily operating hours.

Before you use the controller itself, you must first set the basic parameters. The description of the individual parameters and their abbreviated names, which are shown on the display, can be found in the following text.

Operating modes of the unit

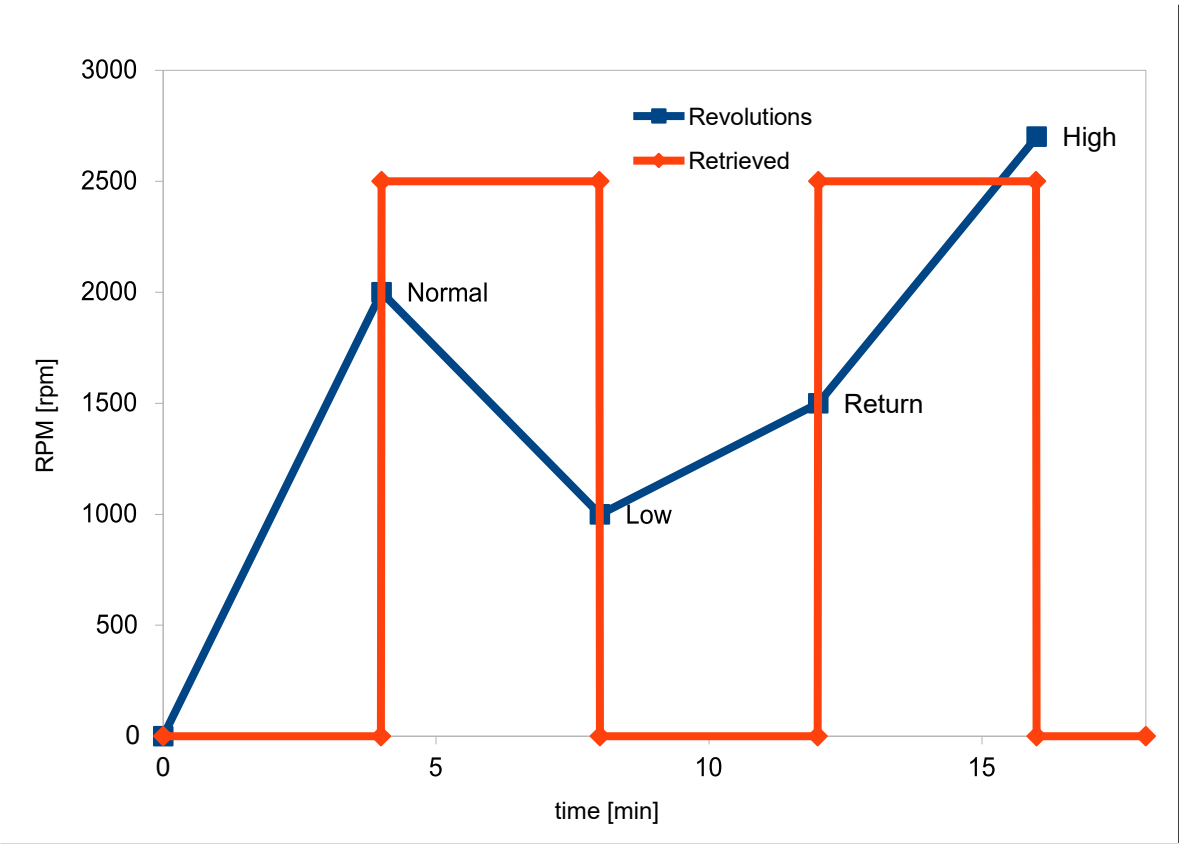
A distinction must be made between two operating modes for the unit: fully automatic (parameter Normal > 0) or semi-automatic (parameter Normal = 0). The value of the parameter Normal selects the operating mode in which the unit is to operate.

In semi-automatic mode, these speeds must always be stored in the machine's memory after the engine has started and the cutter operating speed has been reached. To save the default speed, press and hold the button  for at least 2 seconds. It is confirmed by the display of the message "saved".

In automatic mode, no control is required during commissioning and the process is controlled according to the preset parameters stored in the unit's memory.

1.2. Naming and meaning of the parameters

Designation	Meaning	Note
Low	Min. speed	If the blade shaft speed falls below this value, the wood feed switches off, creating a free space for the blade shaft to start up to the nominal speed. **Permissible value: 0... 2700 Rpm or -100% to 0%** **Initial setting: 1,000 rpm.**
Normal	Nominal speed	Work - nominal speed that the cutter must reach after switching on the machine to initiate the wood feed by the feed rollers. If the "Reverse" parameter is not set, this value also applies to restarting the feed rollers after stopping by the "Low" parameter at low speed. **Permissible value: 200 ... 2,700 RPM** **0% - switches to semi-automatic mode, other speed parameters in %.** **Default setting: 2,000 RPM**
High	Max. speed	The maximum permissible speed of the cutter; if this value is exceeded. If this value is exceeded, the feed rollers stop immediately. The rollers start again when this value falls below the set limit. To deactivate this function, the parameter must be set to zero. **Permissible value: 0... 2,700 rpm or 0% to 100%** **Basic setting: 2,700 rpm.**
Return	Restart	The speed at which the feed rollers resume operation when the "Low" parameter is switched off at low cutter speed. To restore the operation of the feed rollers, this parameter has priority over the "Normal" parameter and should therefore be set to a lower value. To disable this function, the parameter must be set to zero; in this case, the function of restarting the feed rollers depends on the "Normal" parameter. **Permissible value: 0... 2,700 rpm or -100% to 0%** **Output setting: 1,500 rpm.**
IPU	Pulses per revolution	Number of incoming pulses from a sensor element per rotation of the vane shaft. **Permissible value: 1 ... 255.** **Default setting: 1**
NAME	Machine name	This text is displayed for a short time when the control unit is switched on This text is displayed briefly when the controller is switched on **Permissible value: 0 ... 8 characters.**



2. Programming the parameters

The parameters of the RM10-01 controller are programmed in the initial state after switching on, when the current speed is displayed. A short press on the key shows the option "Main menu", by pressing the key we enter a submenu with the menus "Data" and "Param", in front of which the arrow > is shown, by pressing the key the selection means. At this point we are asked to enter the "password" code that locks the programming (password = 3412). This code is given by the manufacturer and is indicated on the label of the control unit. The four-digit code is entered by successively dialling the number by pressing the keys several times so that the key is to increase the digit by one and is to decrease it by one . Press the key to confirm the digit and change the digit by moving it one place to the right. The edited digit is signalled by flashing. After all four digits have been entered correctly, the system automatically switches to setting the parameters, otherwise "Wrong password" is displayed briefly and a return to the previous digit is displayed under the menu.

After entering the correct programming access code, the parameter to be changed is selected by pressing the keys **, the** name of the parameter and the set value are always shown on the top line of the display. To change the selected parameter, first press the key and then use the keys to set the desired value, which must be confirmed with the key . In this way, the following parameters can be set, which are displayed cyclically one after the other: "Name", "IPU", "Return", "High", "Normal", "Low" and the special text Back without value, which is confirmed with the key Press the key to exit the programming mode. Then press the key to move the cursor to the position "Data" before which ">" is displayed, and then select the key to display the current values, in this case the current machine speed "Act rpm".

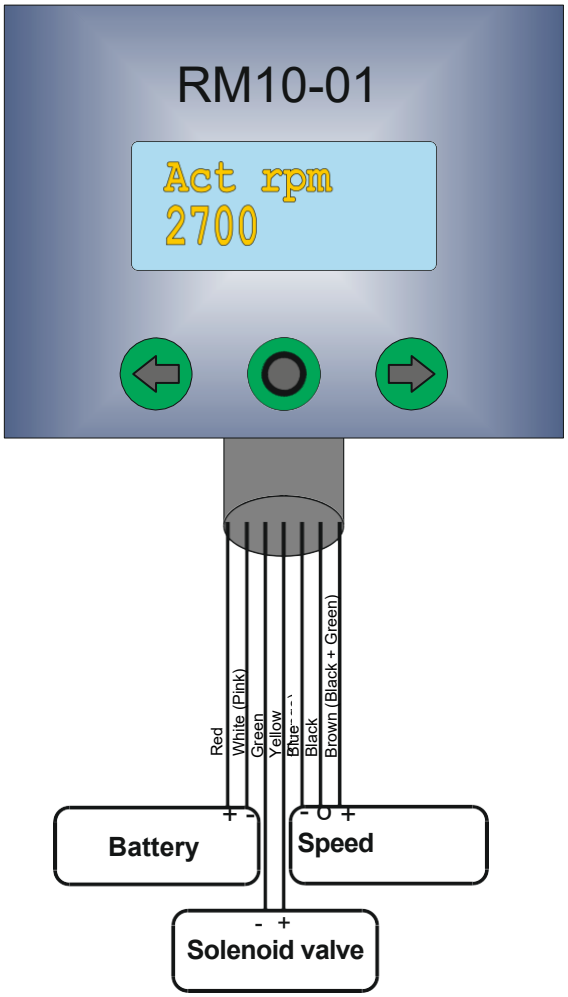
3. Display - Normal operation

The RM010-01 controller has two separate hour counters, which differ only in the possibility of resetting. The first is the "Day hrs" counter, which shows the value in hours since the last reset. The reset is done by pressing the button for five seconds while the daily operating hours are displayed. The second is the total operating hours counter "Work hrs".
This counter can no longer be deleted by the user, resetting is only possible with the manufacturer.
When the controller is switched on in automatic mode, the current status of the vane shaft speed "Act rpm" is always displayed as standard.
By briefly pressing the button, the display can be switched to the current status of the counter "Day hrs", and by pressing the same button, the status of the total operating hours counter "Work hrs" is displayed. Then press the key to return to the initial position and everything repeats cyclically. In semi-automatic mode, the speed difference in % to the last stored value is displayed.

4. Deleting the operating hours

If the manufacturer of the machine in which the control unit is installed wants to delete the current status of the operating hours "Work hrs", he can use the hidden function of deletion. If the control unit has just deleted the value of the operating hours, i.e. the text "Work hrs" in the first line is displayed, the key must be pressed for a long time. He is then prompted to enter the password for deleting the operating hours with "Pass Clr" (password = 2326). The method of entering the password is the same as for entering the password for programming the parameters, only the password is different. If an incorrect password has been entered, "Wrong Pass Clr" appears on the display and the operating hours are not deleted. If the password was entered correctly, "Correct Pass Clr" appears on the display and the current value is deleted.

5. Connection of the controller



6. Technical data

Dimensions:	80 x 80 x 75 mm (W x H x D)
Display:	OLED yellow, 2 lines, 8 characters
Operating voltage:	8 ... 30V DC
Power consumption:	15mA at 12V
Output load:	max. 5A
Operating temperature range:	-40 ... +80°C
Total hours counter:	0 ... 99999 hours
Hour counter:	0 ... 99999 hours
Speed measurement:	0 ... 2,700 rpm
Pulses per revolution:	1 ... 255