



SMART MOTOR DEVICES

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**PROGRAMMABLE STEP MOTOR
CONTROLLER SMSD-4.2RS-485 modified for addressing control**

Appendix to the manual
Ver. 01



1. General information

This appendix describes only differences, which concern to version of controllers SMSD-4.2RS-485 modified for operation in a multi-slave network. Please, refer to the manual for common technical information.

2. Functions and possibilities

Main functions and possibilities of modified controllers SMSD-4.2RS-485 are the same as the basic version of the controllers. Additionally the modified controllers provide possibility to work in a multi-slave network.

3. Technical characteristics

Technical characteristics of the modified controllers are the same as base version.

Maximum number of the modified controllers in RS-485 network – 32

(more quantity is a subject of considering, depends on network parameters and transmitter type).

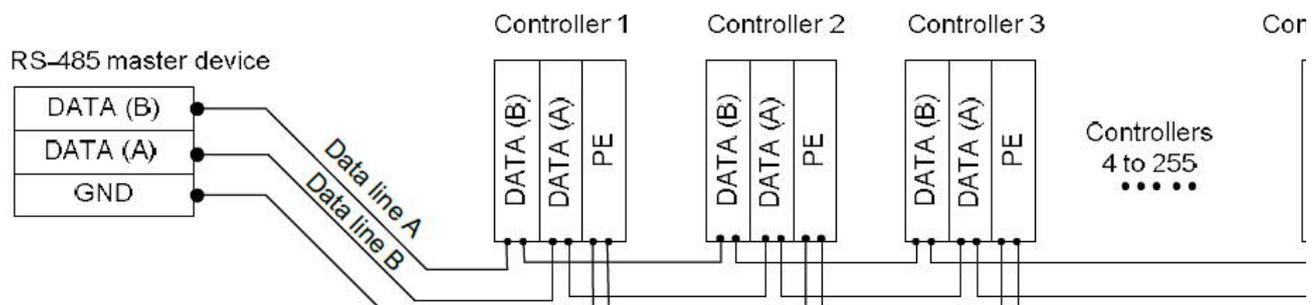
4. Construction

The main construction of the modified controllers is similar to a base version. Some changed in an internal schematic was done in order to provide multi-slave operation possibility. These changes are internal only and are not significant for the connection and operation process.

5. Connection

Please, follow the manual during base connection of the controller.

RS-485 communication interface connection



Connect 2-wire cable to inputs A and B of the controller: data line A – to A input, data B – to B input. It is recommended to use twisted pair for connection A and B data lines. The terminal resistor $R_t=120$ Ohm must be connected to the end slave of the network.

Grounding GND allows reducing interferences. If needed connect GND of master device to GND of interface part of the controller. We recommend connection of under 32 controllers into one bus line. Actually, the maximum number of slaves in the network depends on the master device.

6. Operation

Please, refer to the manual for the information about operation and operational modes.

7. Data communication protocol.

Commands to modified controllers SMSD-4.2RS-485 are sent by frames. Every frame is a string of ASCII symbols.

Start of frame	ID address	Command	Parameter	End of frame
1	2	3	4	5
:	XX (hex)	CC	NN (Dec)	<CR> + <LF> (\r\n или 0x0D 0x0A)

1: ":" Start of the frame

2: "xx" - controller RS-485 address (from 01 to FF), hexadecimal. Address 00 is used for broadcast instructions.

3: "CC" - command code. Commands codes are the same as for base version of the controllers. Please, refer to the manual for the list of base instructions. Please, refer to the table below for the additional commands.

4: Command parameter, decimal.

5: <CR> + <LF> (\r\n or 0x0D 0x0A) - end of the frame

Additional commands:

"EM" - turns on data transfer to client after receiving of a broadcast instruction.

As an example, if send broadcast instruction "ST" (start/stop operation) to all controllers, send then "EM" command if need the controllers to inform about finish of the operation (message "E14" is sent from a controller as the operation is finished).



"IDdd" – set new ID address. "dd" is a new ID address in decimal format (from 1 to 255). As an example, the frame «:00ID93\r\n» will set address 93 (0x5D) to the controller. The controller won't reply this command (as the starting address is 00).

If then send the frame «:5DID1\r\n» the new address – 1 (0x01) will be assigned to this controller and the controller will send the reply: «:01E10\r\n».

Broadcast commands:

After receiving of a broadcast instruction (addressed to ID = 0x00) excluding "EM" command, the transmitter of the controller is turned off, so it will not send a reply to commands till receiving of an addressed command (addressed to ID > 0x00). So to turn on the transmitter of a controller, it is needed to send any addressed command to this controller.

Attention: RS-485 interface doesn't have instruments for conflict resolution, which can be caused by simultaneous data transfer. The customer should provide the data not to be sent simultaneously. Collisions could be caused in case if 2 or more controllers with the same address operate in one RS-485 network. In case of use "EM" command, the customer should keep a close watch on the controllers, which can send reply "E14" simultaneously (message about the end of operation).

8. Delivery in complete sets

Modified programmable stepper motor controller SMSD-4.2RS-485	1 pcs.
Manual for the base version of SMSD-4.2RS-485	1 pcs.
Appendix to the manual for the modified version of the controller SMSD-4.2RS-485	1 pcs.

9. Warranty

Any repair or modifications are performed by the manufacturer or an authorized company.

The manufacturer guarantees the failure-free operation of the controller for 12 months since date of sale when the operation conditions are satisfied.

The manufacturer sales department address:
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Date of sale: