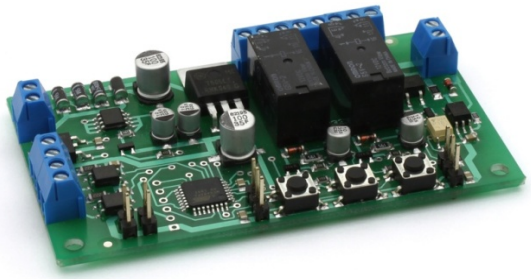
TM-73733

TRAINMODULES



Servo controller and decoder

User's manual

5 998975 300728

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⚠ Safety warning

During the operation of the device the specified technical parameters shall always be met. At the installation the environment shall be fully taken into consideration. The device must not be exposed to moisture and direct sunshine.
A soldering tool may be necessary for the installation and/or mounting of the devices, which requires special care.
During the installation it shall be ensured that the bottom of the device should not contact with a conductive (e.g. metal) surface!

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Properties

- Developed for DCC systems
- Polarizing outputs (2 pcs)
- End-position feedback contacts (2 pcs SPDT)
- External control inputs
- Independently controllable outputs
- Quick programming possibility
- Detailed DCC CV programming
- Storage of the last output status
- Can be supplied from rail signal or separate supply unit
- Low idle mode current consumption

Technical parameters

Supply voltage: 7-24V
Idle mode current consumption: 20 mA
Max. current consumption: 1500 mA
Dimensions: 83x50 mm

Short description

The module is capable of controlling two servo units. The module is provided with DCC signal input, external control possibility, end-position feedback and switch polarizing output.
The digital addresses can be set by quick programming as well.

Wiring

The supply voltage is connected to the **"POWER"** terminals. The rail signal output of the digital centre is connected to the **"DCC IN"** terminal (Figure 1).
If you do not wish to use a separate power supply for the module, connect the **"POWER"** and the **"DCC IN"** as a common terminal to the rail signal output of the digital centre (Figure 2).

IN1 and **IN2:** Galvanically isolated external control input. The operation mode of the inputs can be selected by means of jumpers **"MODE1"** and **"MODE2"**.
Modes, which can be selected: Switch pulse / Continuous operation
In continuous mode the servo unit remains in the given end-position only while the input is active. It returns to the original position when the input signal is taken off. The IN1 and IN2 inputs shall be connected so as if they were traditional bulbs or other loads, which obtain their own supply voltage from an external source.

The frog point (cross-rail) of the switch is connected to the **"FROG OUT1"** and **"FROG OUT2"**. Depending on the end-positions, one of the poles of the **"DCC IN"** input (rail signal) appears on this output (Figure 3).

The **"SWO1"** and **"SWO2"** connectors are single alternative contacts (SPDT) according to the current end-position.
They can be used for e.g. feedback and automatic light signal setting.

Connecting the servo motor

The servo motors can be connected at points indicated in the figure. At connection take care of the correct direction! (Figure 1).

Adjusting the end-positions and the moving speed

1. Apply voltage on the module and check whether the servo(s) is/are connected
2. Keep the "PROG" button pressed for **min. 1 sec.**
3. Lighting of "LED1" indicates that "Servo 1" is programmed
4. Set the first end-position by the UP/DOWN buttons
5. Press the "PROG" button shortly
6. Set the second end-position by the UP/DOWN buttons
7. Press the "PROG" button shortly
8. Set the transition speed between the two previous end-position by the UP/DOWN buttons

9. Press the "PROG" button shortly
10. Lighting of "LED2" indicates that "Servo 2" is programmed
11. Repeat steps 4 to 8 also for the other servo
12. To exit from the programming mode press the "PROG" button shortly

Quick programming of digital addresses

The digital addresses can be set simply by the quick programming, without CV programming.

1. Apply voltage on the module
2. Keep the "PROG" button pressed for **min. 3 sec.**
3. Short flashing of "LED1" indicates that the address belonging to the servo unit connected to the "Servo 1" output is programmed
4. On the digital centre, set the required switch address
5. Send the switching command (in any direction)
6. A long lighting period of "LED1" indicates that the address is accepted
7. Press the "PROG" button shortly
8. Short flashing of "LED2" indicates that the address belonging to the servo unit connected to the "Servo 2" output is programmed
9. Repeat the address setting (steps 4 and 5)
10. To exit from the programming mode press the "PROG" button shortly.

After the exit from the programming mode the decoder can be controlled from the digital centre.

Detailed programming (CV changing)

By CV changing further settings can be made for module operation.

Steps of CV programming:

1. Connect the "DCC IN" input of the decoder to the programming rail output of the digital centre

2. Apply voltage on the decoder
3. Enter in the Programming menu of the digital centre
4. Select the Direct CV - Byte programming mode
5. Enter the CV number of the setting to be changed (e.g. 1)
6. Confirm the entered number then give the new CV value as well (e.g. 190)
7. After confirmation the digital centre executes programming.

The programming process can be different depending on the digital centres; thus always study the user's manual of the given digital centre.

Address programming by CVs

E.g.: Required address: 1045. The address is composed by two CVs.

Required address divided by 256:
1045 / 256 = 4 with remainder 21

Address MSB = 4
Address LSB = 21

CV table of the decoder

CV	**Description**	**Value range**	**Default value**
7	Version	-	-
8	Manufacturer's ID / Reset*	-	61
112	Servo 1 address LSB	0-255	1
113	Servo 1 address MSB	0-7	0
114	Servo 2 address LSB	0-255	2
115	Servo 2 address MSB	0-7	0

Guarantee and legal statement

Each parameter of the device was submitted to comprehensive testing prior to marketing. The manufacturer undertakes one year guarantee for the product. Defects occurred during this period will be repaired by the manufacturer free of charge against the presentation of the invoice.

The validity of the guarantee will cease in case of improper usage and/or treatment.

Attention! By virtue of the European EMC directive the product can be used solely with devices provided with CE marking.

The mentioned standards and branch names are the trademarks of the firms concerned.

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Figure 1

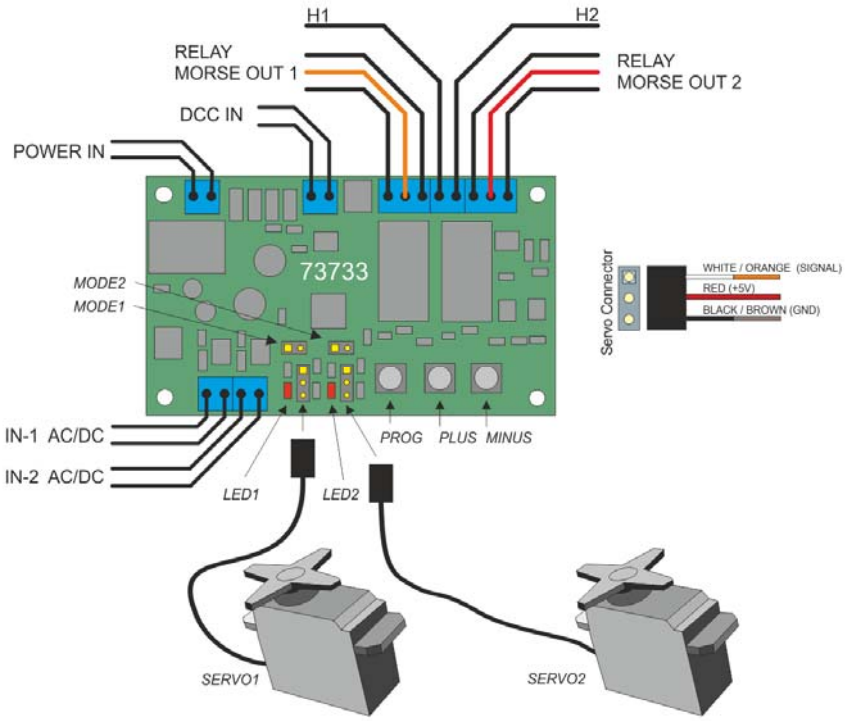

Figure 2

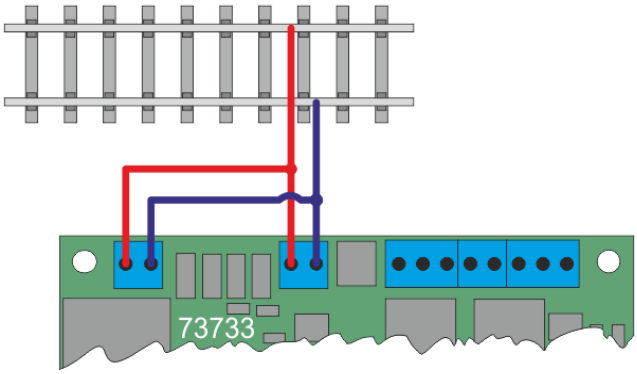
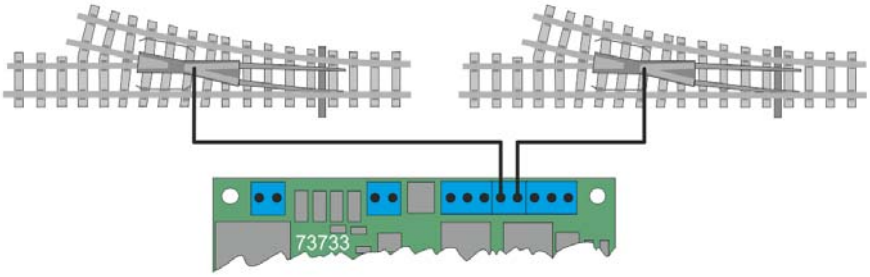
Figure 3: Wiring of polarizing outputs