**Magnetic Solenoid**
For Motorola and DCC digital layouts

**Description**
Uhlenbrock Solenoid and Switch decoder can operate in Motorola digital layouts (from Uhlenbrock and Marklin) and in DCC digital layouts (from Uhlenbrock, Lenz, Arnold, LGB and Roco).

For the first time, the programming of the address in a Motorola format, is as simple as it has to up to now only been in DCC systems. The building block remembers the ‘listening’ format for key pair for which it has been set up. The cumbersome encoding of addresses is now superfluous.

The Uhlenbrock Magnetic solenoid and switch decoder can use all addresses that the various controllers can assign. Intellibox und IB-Switch can use addresses 1 to 320 in Motorola format and addresses 1 to 2040 in DCC format. With keyboards from other manufacturers address range 1 to 256 in Motorola format, and in DCC format between 1 and 2040.

**Solenoid Decoder MD2**
This decoder switch two double solenoid devices by means of pulses on two independent addresses; that is two magnetic device with independent drive,(Turnout, signal) or a single device with 2 drivers (Three way Turnout, double slip crossing or Signal with warning signal).

Both switch addresses can be freely chosen. They must however be different.

Connect the decoder and device as shown in the diagram on the right.

**Technical Data**
2 Outputs, 2 addresses, for each twin solenoid device, max. current load 2A (short circuit protected)

**Switch Decoder SD1**
The switch decoder has a single relay with electrically insulated changeover switches which are operated under a single address. e.g. changing a light signal and supply to the track. The decoder can be programmed to any desired address.

Connect the decoder and device as shown in the diagram on the right.

**Technical Data**
2 change over switches with a common address, max. current load 1A

**Programming**
After the decoder and the devices it is to switch are correctly connected the decoder must be assigned to the appropriate keys on the control center’s keyboard. This so the controller can switch the devices.

Use the following steps to setup the decoder to the desired address and key, paying attention that all the outputs of the particular decoder have been assigned.

1. **Start Programming**
   Press the Program Switch on the decoder.
   The control LED will blink 3 times.

2. **Operation in Motorola format**
The decoder expects to receive the address next.

3. **Switching to DCC format operation**
   Press the Program Switch again.
   The control LED will blink 3 times.

4. **Set the first address**
   On the keyboard, press a key that from the key pair that is to control device connected to A1/U1.
   The control LED will blink 3 times.

5. **Set the second address**
   Only possible with Decoders 67200 and 67600.
   On the keyboard, press a key that from the key pair that is to control device connected to A2/U2.
   The control LED will blink 5 times.

6. **End Programming**
   If all possible options have been setup, the decoder will automatically exit Programming mode.

**Switch decoder SD2**
This switch decoder has two independent and electrically isolated changeover switches that can be operated on different addresses. It can switch two totally independent devices such as e.g. Lighting or a light signal.

The two devices can be individually addressed. They must however have different address.

Connect the decoder and device as shown in the diagram on the right.

**Technical Data**
2 change over switches with an independent addresses, max. current load 1A

**Operation**
The decoder should now switch the connected device(s) when the matching keys are activated on the control center. When the decoder receives a data packet intended for it the control LED beside the program switch will turn on. If this does not happen then check the wiring and the connections to the decoder and the device.

**Warranty**
This product has two year warrantee.

If it is defective send decoder along with the receipt of purchase to the following address:

Uhlenbrock Elektronik * Mercatorstr. 6 * 46244 Bottrop * Tel: 02045-85830 * Fax: 02045-86840

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If you have any questions call us. Hotline times are: Mon - Tue - Thu - Fri., 14:00-16:00 and Wednesdays 16:00-18:00