

# Controller for the fischertechnik Intelligent Interface (Art-No. 30402)

## 1 Interface, Without Extension Module:

### 1.1 Interface Settings

Baud rate	9600
Bits	8
Parity	no
Stop bits	1

### 1.2 Communication

Basic control of the interface is provided by sending two bytes to it. The first byte is the interface command (see below), and the second byte contains the motor state. The motor state defines which motors are to be started, and in which direction they are to run. Depending on the interface command, the interface responds with one or three bytes.

1st byte: Interface command

Binary	Hex	Decimal	Description
11000001	C1	193	I/O status only
11000101	C5	197	I/O status and analog value EX
11001001	C9	201	I/O status and analog value EY

2nd byte: Motor state

Bits	Description
1	Motor 1, left
2	Motor 1, right
3	Motor 2, left
4	Motor 2, right
5	Motor 3, left
6	Motor 3, right
7	Motor 4, left
8	Motor 4, right

All 4 motors can be started simultaneously. However, if the left and right bit of a motor are set simultaneously, the motor will not start and the indicator light will not go on.

### 1.3 Interface Responses:

To command	Response bytes	Description
193	One byte	Each bit corresponds to the value of the input.
197	Three bytes	1st byte, see above; 2nd and 3rd bytes, analog input EX
201	Three bytes	1st byte, see above; 2nd and 3rd bytes, analog input EY

In general, programming should be performed in loops. If the interface fails to receive a command approx. every 300 ms, the motors automatically switch themselves off.

## 2 Intelligent Interface with Extension Module, (part no. 16554)

### 2.1 Interface Settings

Baud rate	9600
Bit	8
Parity	no
Stop bits	1

### 2.2 Communication

Basic control of the interface expansion is provided by sending three bytes to the interface. The first byte is the interface command (see below), the second byte contains the motor state of the intelligent interface (interface 1), and the third byte contains the motor state of the Extension module (interface 2).

The motor state defines which motors are to be started, and in which direction they are to run. Depending on the interface command, the interface responds with two or four bytes.

The interface commands (193, 197, 201) that only apply to interface 1 can also be used here (refer to Section 1.2)

1st byte: Interface command for the interface expansion

Binary	Hex	Decimal	Description
11000010	C2	194	I/O status only, 1interface 1 & 2
11000110	C6	198	I/O status and analog value EX, interf. 1 & 2
11001010	CA	202	I/O status and analog value EY interf. 1 & 2

2nd byte: Motor state, interface 1

Bits	Description
1	Motor 1, left
2	Motor 1, right
3	Motor 2, left
4	Motor 2, right
5	Motor 3, left
6	Motor 3, right
7	Motor 4, left
8	Motor 4, right

3rd byte: Motor state, interface 2

Bits	Description	
1	Motor 1, left	in the software, motor 5
2	Motor 1, right	
3	Motor 2, left	in the software, motor 6
4	Motor 2, right	
5	Motor 3, left	in the software, motor 7
6	Motor 3, right	
7	Motor 4, left	in the software, motor 8
8	Motor 4, right	

All 8 motors can be started simultaneously. However, if the left and right bit of a motor are set simultaneously, the motor will not start and the indicator light will not go on.

### 2.3 Interface Responses:

To command	Response bytes	Description

194	Two bytes	Each bit corresponds to the value of the input. 1st byte, interface 1; 2nd byte, interface 2
198	Four bytes	1st and 2nd byte, see above. 3rd and 4th byte, analog input EX for interface 1
202	Four bytes	1st and 2nd byte, see above 3rd and 4th byte, analog input EY for interface 1

In general, programming should be performed in loops. If the interface fails to receive a command approx. every 300 ms, the motors automatically switch themselves off.