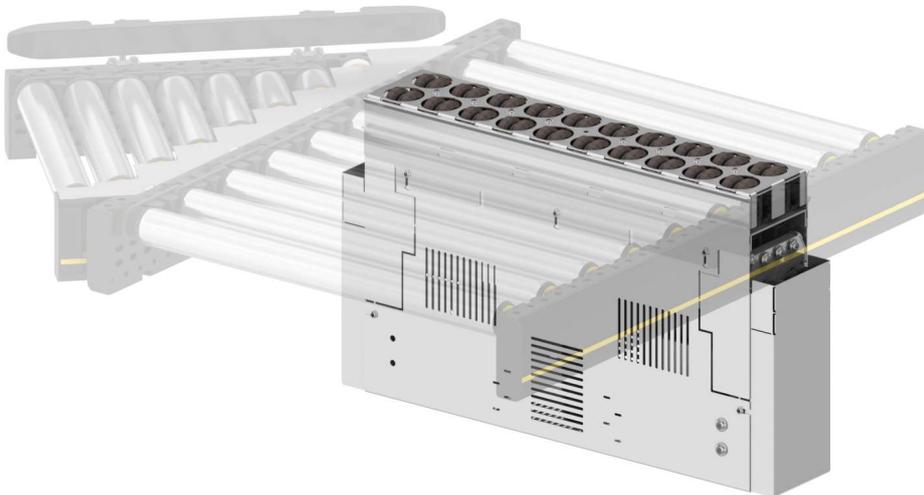


HPD RM8711 in Device I/O mode - commissioning



The High Performance Divert HPD RM8711 is a 24V driven swivel wheel transfer, so both possible movements, swivel and roller movement, are driven by a 24V drive.

The HPD is controlled through the Interroll MultiControl, a bus slave for either Profinet, EthernetIP or Ethercat fieldbus systems.

Control signals and sensor signals are either available on the chosen bus, or on the digital Inputs and Outputs of the MultiControl. Please refer to the MultiControl manual for more information.

General Information:

The main power of the HPD DC motors and the MultiControl is supplied through the "Interface Box" right next to the MultiControl. The power supply connects to the Interface Box, which then splits power to both DC motors and the MultiControl.

If only one powerbus (PB1) is used, the connection of the Interface box to the power supply is sufficient.

If motors and sensors/control are split into two different powerbus lines (PB1 and PB2), the MultiControl must be additionally connected to PB2, the connection to PB1 from the Interface Box remains.

Power consumption:

There are two motors in the HPD, one to swivel the wheels, one for driving the wheels. Each motor needs 5,2A nominal power, 9A peak power (e.g. Puls QT20 power supply).

The voltage of the power supply must be between 24V and 26V.

Each motor connection includes a brake chopper inside the Interface Box, which reduces peak voltage (in brake mode) to a normal level.

If two powerbus lines are used, the brake chopper gets active in PB1 if the voltage exceeds 30V and switches off if the voltage drops again under the value of 28V.

If only PB1 is used, typically the MultiControl controls the voltage peaks internally and the HPD brake chopper is inactive.

The HPD RM8711 is prewired. Cables connect the MultiControl to the Interface Box (signal and power). The motors plug directly to the Interface Box with M12 connectors.

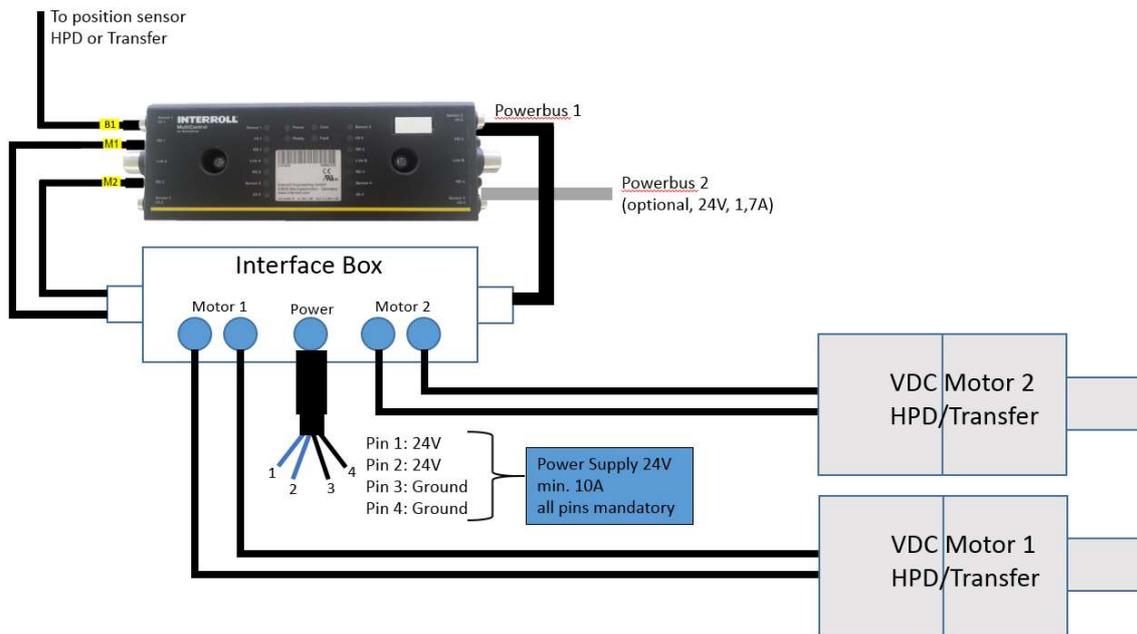
The main power is connected to the central M12 connector, which is scope of supply.

You can see the wiring in the following pictures:



Sensors 2-4 and I/Os 1-4 are free to use. I/Os 1-4 might be occupied for digital interfaces.

VDC Motor connection to 24V MultiControl with Interface Box



The connection to the power supply is a 4-pin-plug. The connection is as follows:

- Pin 1: +24V
- Pin 2: +24V
- Pin 3: 0V
- Pin 4: 0V

It is mandatory to connect all pins as described due to power consumption!



Configuration information slave mode (remote I/O):

The MultiControl offers using the HPD as a fully PLC controlled device. All functions have to be realized by the PLC. The MultiControl is a bus slave device.

The MultiControl is the interface to the two motors in the HPD.

| Motor | Function | | Sensors | |
|---------|----------------|--|----------|-------------|
| Motor 1 | Swivel rollers | | Sensor 1 | 0° position |
| Motor 3 | Turn rollers | | Other | Optional |

Control Signals:

Motor 1 is controlled by the Output-byte “Motor-Speed 1”:

Homing:

Value 127 = HPD will do an initialization to Home-position (straight, 0°)
 During this, the Input-byte “Motor-speed 1” shows the value 127.
 As soon as the Home-position is reached, the value shows 0.

Note: Start homing preferably when the transfer should be at or around 0° position anyway, as the process then only takes less than 200ms.
 Start a homing command **only** if HPD is between 80° and -80°, otherwise the homing will not work in the correct way! It is not suggested to start a homing procedure in other positions than 0°, as it takes seconds. It is only possible to start a new homing procedure every 30 seconds.
 We suggest doing the initialization on a regular basis, e.g. every minute when the HPD is at 0° position and there is no traffic for about 2 seconds.

Setting the angle:

Value 0 - 90 = the motor turn the corresponding angle in degrees in left direction.
 Value 0 - -90 = the motor turn the corresponding angle in degrees in right direction.
 The actual position will show in the input-byte.

Motor 2 is controlled by the Output-byte “Motor-Speed 2”:

Value 0 – 100; positive values is forward and negative is backward movement.

What happens during initialization/homing:

1. If Sensor1 is low: motor will turn left till Sensor1 is high. (finish)
2. If Sensor1 is high: motor will turn right till Sensor 1 is low, then back to left till Sensor1 is high. (finish)



MultiControl Program: Remote I/O

The parameters of the Remote I/O program have to be set as shown in the following diagram:

Motor Settings

| Motor 1 | Motor 3 |
|---|---|
| <input checked="" type="checkbox"/> Enable | <input type="checkbox"/> Enable |
| Roller diameter (30.0-99.9 mm) : <input type="text" value="50.0"/> | Roller diameter (30.0-99.9 mm) : <input type="text" value="50.0"/> |
| Gearing ratio (1-99) : <input type="text" value="16"/> | Gearing ratio (1-99) : <input type="text" value="16"/> |
| Direction : <input checked="" type="radio"/> clockwise <input type="radio"/> counterclockwise | Direction : <input checked="" type="radio"/> clockwise <input type="radio"/> counterclockwise |
| Normal speed (0.1-1.99 m/s) : <input type="text" value="0.97"/> | Normal speed (0.1-1.99 m/s) : <input type="text" value="0.97"/> |
| Alternate speed (0.1-1.99 m/s) : <input type="text" value="0.50"/> | Alternate speed (0.1-1.99 m/s) : <input type="text" value="0.50"/> |
| Acceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> | Acceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> |
| Deceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> | Deceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> |

| Motor 2 | Motor 4 |
|---|---|
| <input checked="" type="checkbox"/> Enable | <input type="checkbox"/> Enable |
| Roller diameter (30.0-99.9 mm) : <input type="text" value="50.0"/> | Roller diameter (30.0-99.9 mm) : <input type="text" value="50.0"/> |
| Gearing ratio (1-99) : <input type="text" value="16"/> | Gearing ratio (1-99) : <input type="text" value="16"/> |
| Direction : <input checked="" type="radio"/> clockwise <input type="radio"/> counterclockwise | Direction : <input checked="" type="radio"/> clockwise <input type="radio"/> counterclockwise |
| Normal speed (0.1-1.99 m/s) : <input type="text" value="0.70"/> | Normal speed (0.1-1.99 m/s) : <input type="text" value="0.97"/> |
| Alternate speed (0.1-1.99 m/s) : <input type="text" value="0.50"/> | Alternate speed (0.1-1.99 m/s) : <input type="text" value="0.50"/> |
| Acceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> | Acceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> |
| Deceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> | Deceleration (0.0-9.99 m/s²) : <input type="text" value="0.00"/> |

Digital I/O Settings

| | |
|---|--|
| <p>Sensor 1</p> <p>Type : <input checked="" type="radio"/> PNP <input type="radio"/> NPN</p> <p>Polarity : <input checked="" type="radio"/> positive <input type="radio"/> negative</p> | <p>Sensor 3</p> <p>Type : <input checked="" type="radio"/> PNP <input type="radio"/> NPN</p> <p>Polarity : <input checked="" type="radio"/> positive <input type="radio"/> negative</p> |
| <p>I/O 1</p> <p>Type : <input checked="" type="radio"/> PNP <input type="radio"/> NPN</p> <p>Polarity : <input type="radio"/> positive <input checked="" type="radio"/> negative</p> <p>Function : <input type="text" value="VDC motor #1 Direction Out"/></p> | <p>I/O 3</p> <p>Type : <input checked="" type="radio"/> PNP <input type="radio"/> NPN</p> <p>Polarity : <input type="radio"/> positive <input checked="" type="radio"/> negative</p> <p>Function : <input type="text" value="VDC motor #2 Direction Out"/></p> |
| <p>Sensor 2</p> <p>Type : <input checked="" type="radio"/> PNP <input type="radio"/> NPN</p> <p>Polarity : <input checked="" type="radio"/> positive <input type="radio"/> negative</p> | |
| <p>I/O 2</p> <p>Type : <input checked="" type="radio"/> PNP <input type="radio"/> NPN</p> <p>Polarity : <input checked="" type="radio"/> positive <input type="radio"/> negative</p> <p>Function : <input type="text" value="VDC motor #1 Step Pulse Out"/></p> | |

I/O State LEDs enabled

No input needed in Digital I/O setting

You will find further detailed information about controlling the drives via bus or digital I/O in the Manual MultiControl.