IO-Link meets
digital I/O

Smart Communication Module
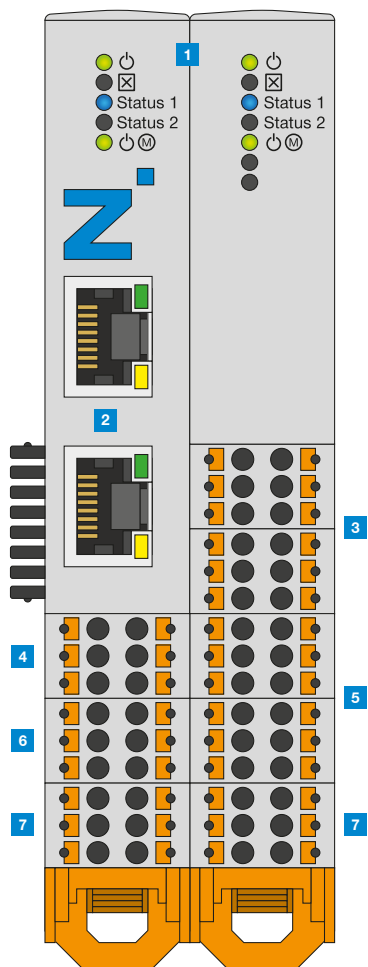
IO-LINK MEETS DIGITAL I/O
SMART COMMUNICATION MODULE

IO-Link meets digital I/O

The Smart Communication Module (SCM) is a master gateway that is suitable for all IO-Link components. With its two channels, the SCM can control two devices and on a functional level, offers the direct implementation of IO-Link to digital I/O. The module thus makes it possible to integrate IO-Link devices into a digital infrastructure and utilize almost the full extended range of functions of the IO-Link device.

► **YOUR BENEFITS**

► Translates IO-Link to digital inputs and outputs (digital I/O) and from digital I/O to IO-Link

► Easy control of intelligent IO-Link grippers via 24 V digital I/O

► Configuration and training take place using the corresponding intuitive guideZ software

► Can be used with one or two grippers depending on the flexibility required

► Up to 15 different workpieces can be trained for one gripper

1 Status
Status display of SCM and IO-Link device

2 Ethernet / RJ45
Temporary connection for gripper configuration

3 Digital input
Digital inputs for controlling the gripper actuators

4 IO-Link / Device 1
Gripper module 1 connection

5 Digital output
Digital outputs for monitoring the gripper sensors

6 IO-Link / Device 2
Gripper module 2 connection

7 Power supply
Voltage supply SCM and gripper

Order No.	Technical data SCM-C-00-00-A
Voltage [V]	24 V ± 10%
Current draw [A]*	SCM without gripper typ. 0.075 A SCM with gripper GEH6040IL without gripping movement typ. 0.215 A SCM with gripper GEP2010IL without gripping movement typ. 0.1 A
Protection class in accordance with IEC 60529	IP20
Operating temperature [°C]	+5 to +50
Configuration	Ethernet with RJ45
Control of the gripper	2 channels with IO-Link port class B
Interface to higher-level control system	12 digital inputs 24 V PNP logic, 12 digital outputs 24 V PNP logic

* For the load current consumption of the gripper, refer to the respective gripper documentation
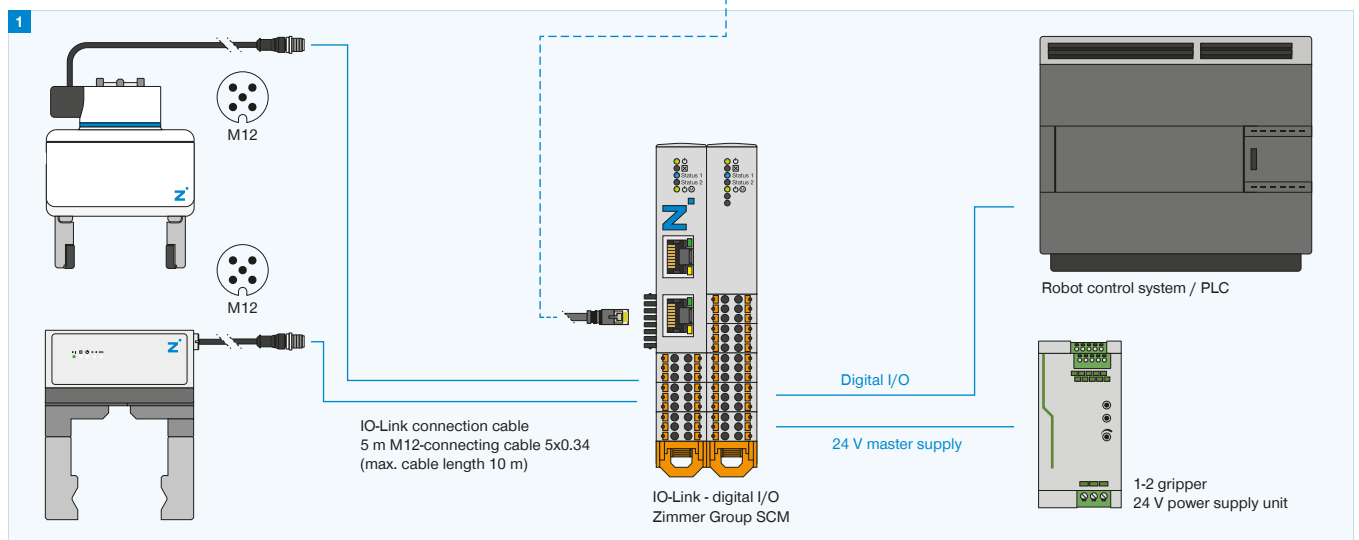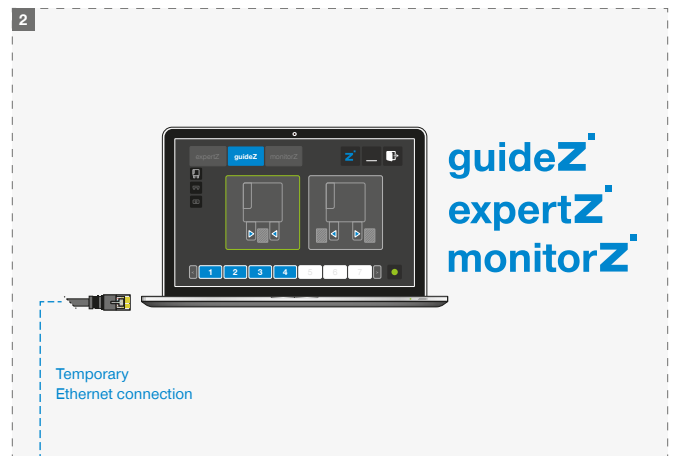
TOPOLOGY
1. CONNECTION

Configuration and operation

Up to two Zimmer IO-Link devices can be connected to one Smart Communication Module. The digital inputs and outputs are wired directly to the robot controller or PLC. Simple digital control enables bidirectional communication. To configure the gripper parameters, a temporary network connection is established to a commercially available PC.

As soon as the parameters have been configured intuitively, this connection is no longer necessary. Next, the handling unit is automatically controlled directly via robot controller or PLC.
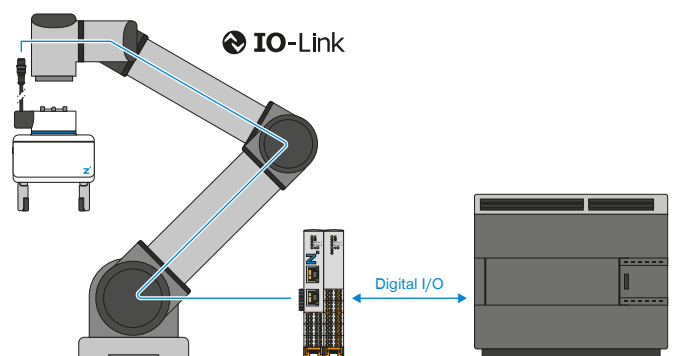

guideZ
expertZ
monitorZ

Temporary
Ethernet connection

M12

M12

IO-Link connection cable
5 m M12-connecting cable 5x0.34
(max. cable length 10 m)

IO-Link - digital I/O
Zimmer Group SCM

Digital I/O

24 V master supply

Robot control system / PLC

1-2 gripper
24 V power supply unit

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1 **Connection**

► IO-Link gripper

► Digital I/Os on the robot control system/PLC

► Power supply

2 **Configuration**

Temporary network connection via PC for use of the guideZ, expertZ and monitorZ software

Application example

The SCM is installed in the robot control cabinet, where it communicates directly with the robot control system using its digital I/O. On the gripper side, the 5 pins of the IO-Link are connected directly to the SCM, using an external or (where available) internal line.


IO-Link

Digital I/O

guideZ
2. CONFIGURATION

guideZ configuration software

guideZ is a wizard for commissioning components quickly and extremely easily. It enables user-guided implementation and commissioning for all skill levels. Users can switch between guideZ, expertZ and monitorZ mode with one and the same software module.
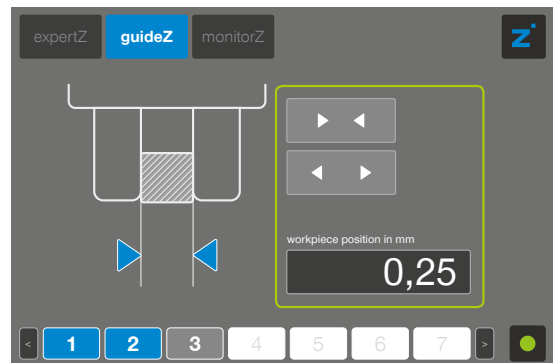
The parameter data of this 7-step commissioning process can be quickly and easily adapted to any PLC control system or even robot controllers. Plug&Work doesn't get any more intuitive!
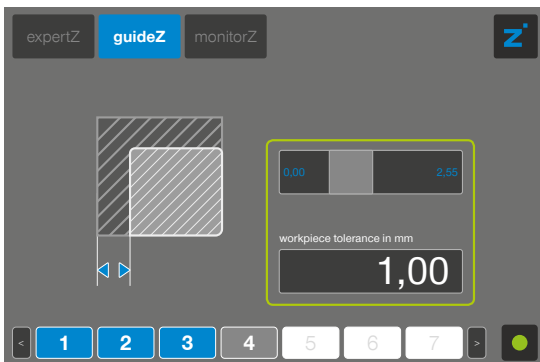
PLUG&WORK
Gripper configuration couldn't be easier!
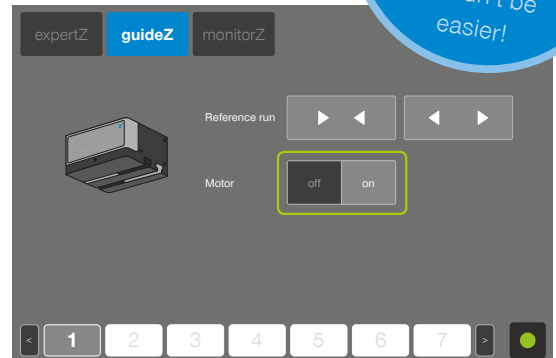
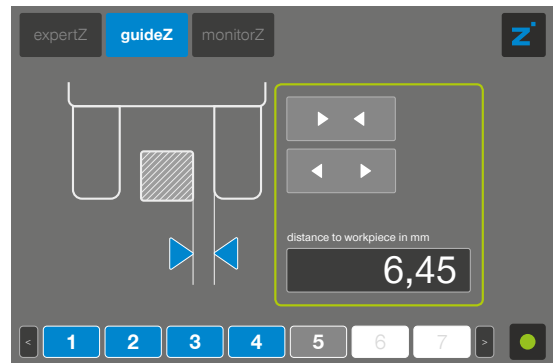**Step 1** *Switching on the motor and referencing*
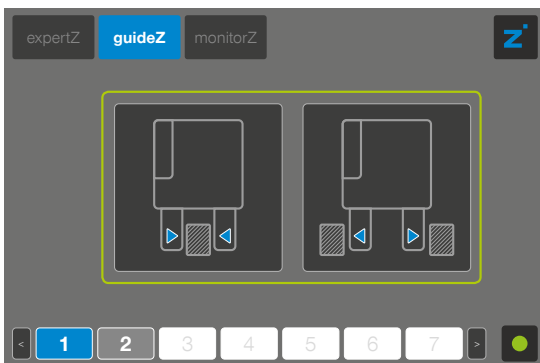
Step 2 *Selecting the desired gripping direction*
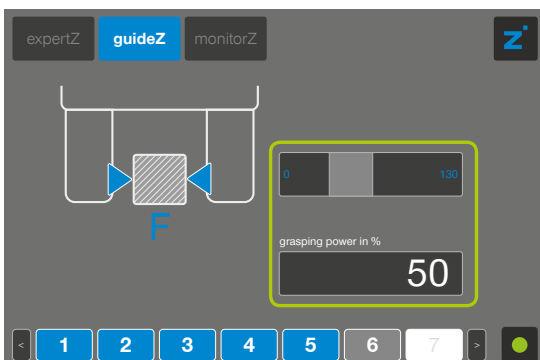

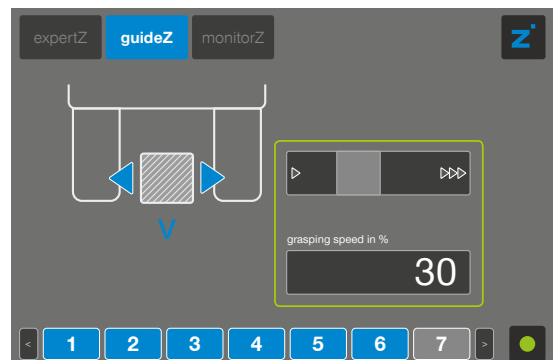**Step 3** *Teaching in the workpiece*

Step 4 *Setting the workpiece tolerance*

Step 5 *Adjusting the open position*

Step 6 *Setting the gripping force*

Step 7 *Setting the speed for opening the gripper*

expertZ AND monitorZ
3. PERFECTION AND MONITORING

Perfection through expertZ

expertZ is the software tool for all gripping experts. It makes it possible to optionally optimize the gripper parameters defined in guideZ for the specific application.

Monitoring with monitorZ

monitorZ is used to monitor gripper unit status at a glance during operation. Gripper positions, operating statuses – everything on one screen to guarantee maximum system availability.

Perfection through expertZ

| expertZ | guideZ | monitorZ |

Gripper GEH6040IL-03-B

Status word in [hex]
44B

Diagnosis in [hex]
0

Actual position in [mm]
19,52

Diagnosis
status ok,
device is ready

- 0 homing ok
- 1 motor on
- 2 in motion
- 3 motion complete
- 4 jog - active
- 5 jog + active
- 6 gripper PLC active
- 7 position error
- 8 base position
- 9 teach position
- 10 work position
- 11 undefined position
- 12 data transfer ok
- 13 control word 0x100
- 14 control word 0x200
- 15 error

- 0 acquire
- 1 store wp
- 2 reset flag
- 3 teach
- 8 to base
- 9 to work
- 10 jog plus
- 11 jog minus

device mode   60
workpiece no   60
position tolerance in [mm]   0,55
gripping power in [%]   55
gripping speed in [%]   55
base position in [mm]   4,55
shift position in [mm]   15,55
teach position in [mm]   18,55
work position in [mm]   19,55

Outward		Inward	
Mode	Type	Mode	Type
50	POSITION	70	HARD
60	HARD	75	ELASTIC
65	ELASTIC	90	PREPOSITION
80	PREPOSITION	95	PREPOSITION...
85	PREPOSITION...		

grip force

| service | plug HMI | motor | auto | device | w.piece | PDU | ISDU | to base | acquire | to work |

Monitoring with monitorZ

| expertZ | guideZ | monitorZ |

Gripper GEH6040IL-03-B

Status word in [hex]
8449

Diagnosis in [hex]
0

Actual position in [mm]
19,52

Diagnosis
status ok

- 0 homing ok
- 1 motor on
- 2 in motion
- 3 motion complete
- 4 jog - active
- 5 jog + active
- 6 gripper PLC active
- 7 position error
- 8 base position
- 9 teach position
- 10 work position
- 11 undefined position
- 12 data transfer ok
- 13 control word 0x100
- 14 control word 0x200
- 15 error

outputs
- is released
- is gripped
- is closed
- on undefined position
- error
- motor on
- homing ok

HMI is active

active WP 4

| plug HMI | | grip | release |