

Flexible
Compact
Robust

cSCALE DIO



HIRSCHMANN MCS

WIKAL
MOBILE CONTROL

cSCALE DIO

The cSCALE DIO (= distributed I/O) is a versatile, extremely robust I/O module for local capture of analog and digital sensor signals via a CANbus connection. This I/O module is ideal for controlling actuators and proportional valves in CANopen bus systems.

↗ Compatible and user-friendly

The cSCALE DIO can be placed right where the signals originate making it very easy to install with minimal wiring. This greatly reduces the required number of connections.

The cSCALE DIO uses the CANopen protocol to communicate with stored-program controllers but is very compatible with many types of controllers.

↗ Configurable inputs and outputs

The cSCALE DIO uses the standard CANopen protocol and can be connected to any CANopen master. It supports both binary and analog inputs and outputs.

Users will benefit from the flexible configuration of inputs and outputs. This allows for a variety of solutions and permits the module to be used in a wide range of applications.

The following functions are possible:

- Digital inputs, also with short circuit and wire break detection
- Digital counter inputs with frequency measurement
- Analog power inputs or voltage inputs
- Digital outputs
- Constant-current PWM outputs

↗ Using cSCALE DIO

The cSCALE DIO is ideal when large distances need to be connected between the controller and sensors and/or actuators via CANopen. The CANbus connection is fast and easy and gives the user the flexibility to place the DIO where it's needed. Sensors and actuators are connected via the DIO, which communicates with the controller via the CANbus.

The DIO is compatible with all controllers, including the cSCALE and qSCALE lx, for example when detecting and controlling I/Os in a crane's base (with the CAN signal being transmitted via the slip rings) or outrigger.

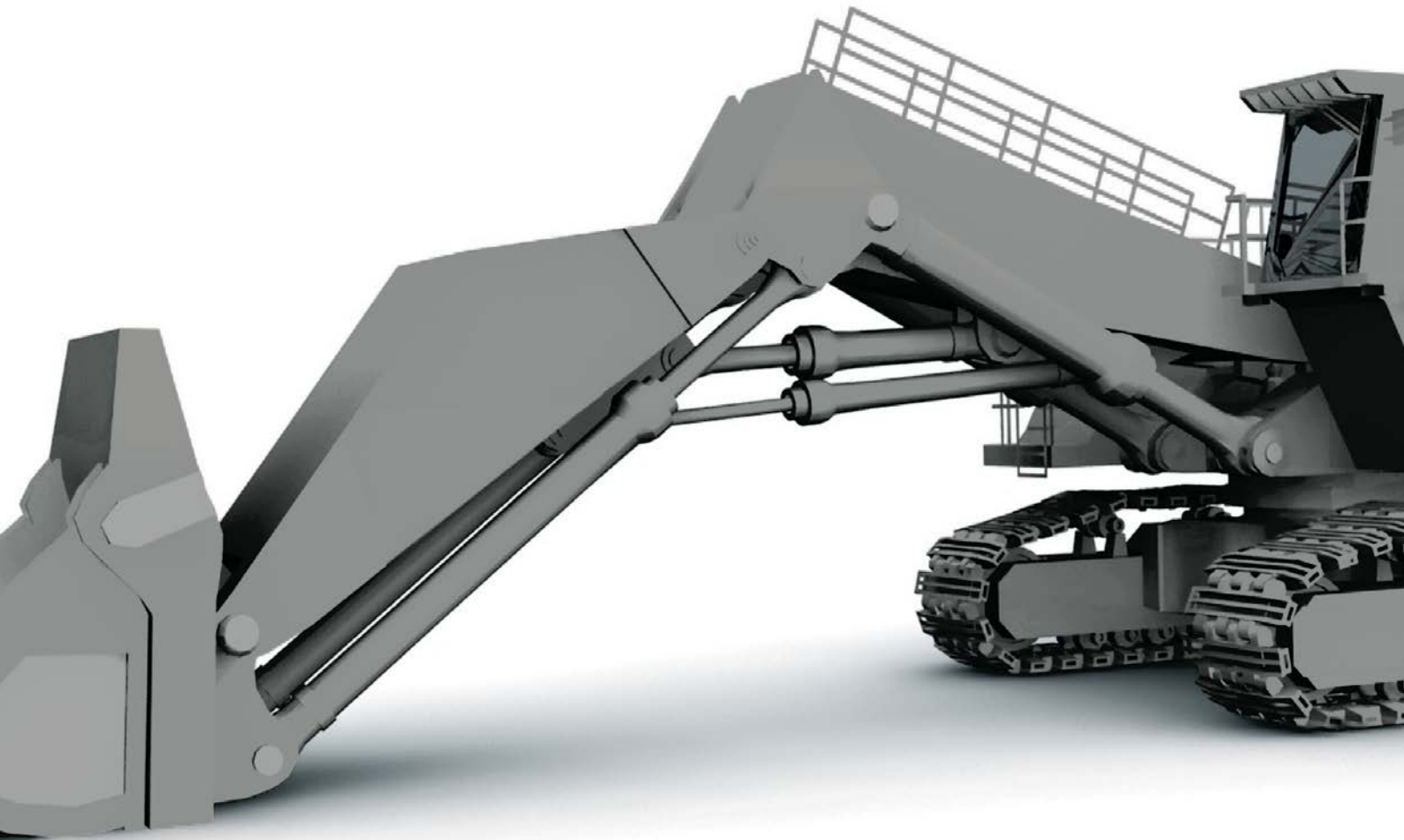
Below are a few examples of the items that can be directly connected:

- Sensors
- Hydraulic valves
- Joysticks
- Horns
- Warning lights and signal lamps
- Remote controllers

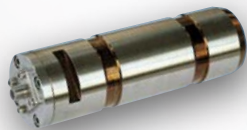


➤ I/O and Modularity

- 28 I/Os or rather 56 I/Os integrated in a single module
 - 10 digital inputs, four of them configurable as high-speed counters (HSCs)
 - 2 DI DIAG: diagnostics-capable digital inputs, optionally with detection of cable breaks or short circuits
 - 8 analog current inputs with 4-20 mA or voltage inputs with 0...10 V
 - 4 digital constant-current PWM outputs
 - 1 relay output
- Possibility of combining multiple DIO modules in a control system
 - Cost-effective solution for increasing the number of inputs and outputs in mobile equipment
 - Good price/performance due to high I/O packing density



pSENS **DAVC**



fSENS **MA**



gSENS **DWG**



gSENS **WGX**

➤ CAN Communication

The standardized CANopen protocol makes it easier to network different kinds of devices via a CANopen bus. All CAN interfaces use the CANopen protocol. Multiple local analog and/or digital signals are bundled and relayed as CAN signals.

The cSCALE DIO supports the standard CANopen and CANopen Safety protocols. Sensors, actuators, and power sources are interconnected via a single standardized connector.

➤ EDS Files

For easy editing with CODESYS, the complete device descriptions are contained in CiA (CAN in Automation)-compliant EDS files.

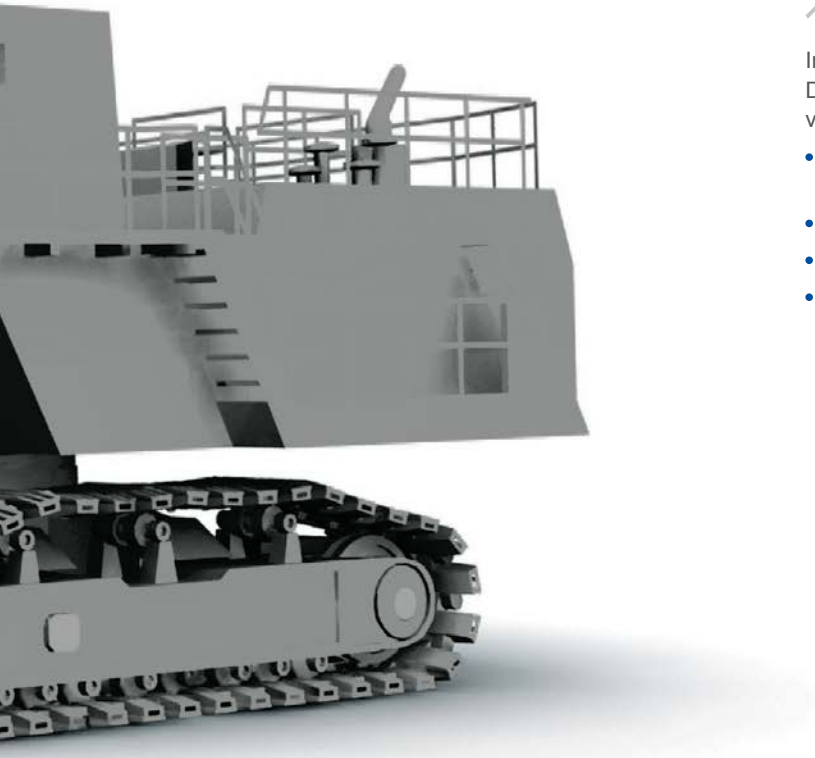
➤ Safety and Power Supply

The cSCALE DIO receives its power via a central connector. The cSCALE DIO has two integrated cutout relays connected in series for emergency shutdown. The permissible voltage range is from 6 to 36 V DC.

➤ Robust and Compact

In addition to boasting a very compact housing, the cSCALE DIO is very robust and features enhanced resistance to vibrations and jolts. This is ideal for use in harsh environments.

- The cSCALE DIO and corresponding plug connectors comply with protection ratings IP66 and 67
- Housing: robust, compact, and suitable for harsh environments
- Vibration- and shock-resistant
- May be installed on a suitable external surface or in a switch cabinet



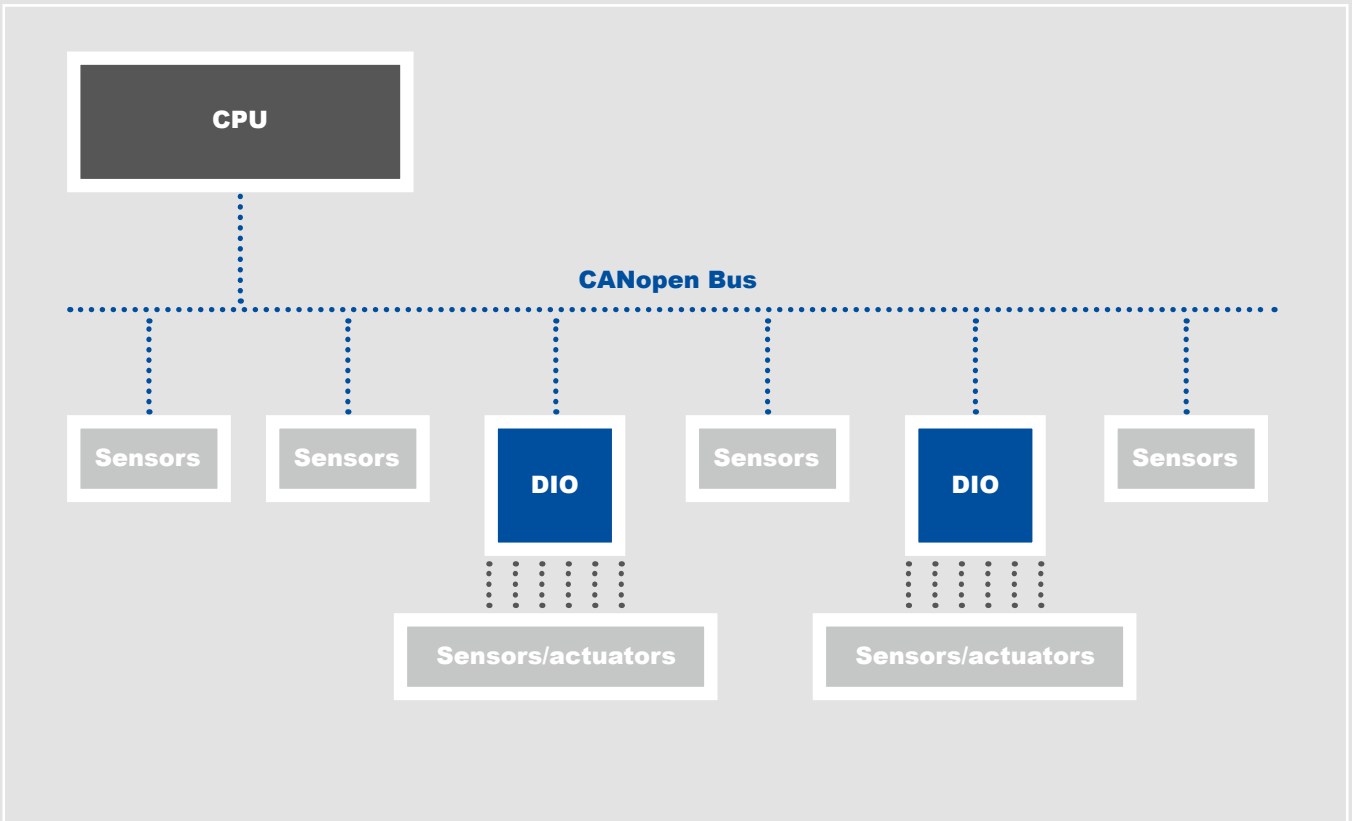
➤ Programming

The device functions and CAN interface of the cSCALE DIO can be programmed by using a CODESYS 2.3 or CODESYS 3.x controller environment editor or other CAN configuration software to edit the EDS file.

- Setting of device parameters via an object directory
- Exchange of time-critical process data of sensors and actuators
- Monitoring of devices and networks
- Display of hardware and software fault states
- Programmable I/O functions

➤ All Benefits at a Glance

- CANopen/CANopen Safety
- Voltage range: 6 to 36 V DC
- Very flexible configuration of the inputs and outputs for a wide range of applications
- Digital and analog inputs
- Very compact and dense: 28 I/Os (56 I/Os) integrated in a single module
- IP66/67 protection ratings make it ideal for use in rough conditions.
- Cutout relay



Technical Data

- **Protection ratings:**

IP66 and IP67

- **Ambient temperature:**

-40...+85 °C (surface temperature)

- **Temperature range:**

-40...+70 °C/-40...+158 °F (operation)

-40...+85 °C/-40...+185 °F (storage)

- **Interfaces:**

1 CANopen

- **Article no.:**

cSCALE DX-66-AM0: 608785

- **Inputs & outputs:**

- 8 x AI (4...20 mA)
- 10 x DI (up to 4 configurable as DI HSC)
- 2 x DI DIAG (diagnosable)
- 4 x DO (1A)
- 4 x DO CC PWM (2A)

- **Operating voltage:**

6...36 VDC

- **Software:**

Configuration via EDS with CODESYS
Version 2.3 or higher



Worldwide



WIKA Mobile Control is one of the most successful providers of rated capacity indicator and overload protection systems in cranes and is a specialist for robust sensors and mobile controllers for mobile machines.

As one of the leading system suppliers of mobile automation platforms for harsh environmental conditions, WIKA Mobile Control continually sets new standards. For more than 50 years, our seasoned, competent experts have been enabling

and optimizing communication between people and machines. Our goal is to raise the bar for safety, functionality and quality while ensuring high uptimes for our customers' mobile work machines. All solutions from WIKA Mobile

Control already meet tomorrow's requirements and comply with future standards today.

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