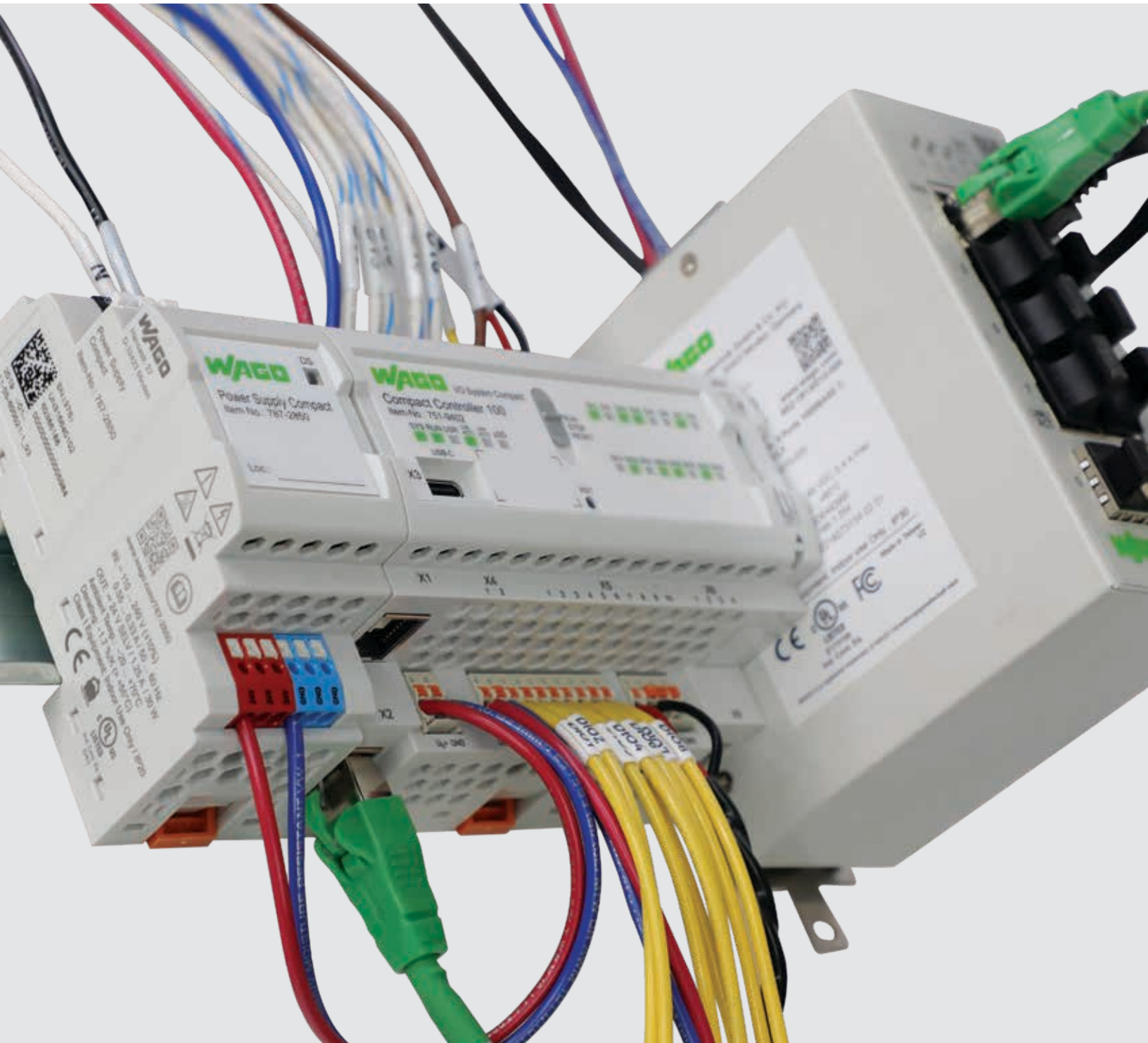
751 Series Compact Controller 100

Max Performance in a Minimum Space



COMPACT CONTROLLER 100 SERIES

WAGO's Compact Controller 100 family offers powerful programming in a small-scale PLC, combined with on-board I/O.

Carefully engineered for a wide range of applications, these devices are cost effective and easy to use.

The two Ethernet ports provide unparalleled flexibility and support the most popular fieldbuses to help engineer your application.

Device	Part Number
Compact Controller 100	751-9301
Compact Controller 100 CANopen	751-9401
Compact Controller 100 with Configurable I/O	751-9402
Compact Controller 100 Expansion Kit	8003-0099 /0000-0644
Micro SD Card 2 GB	758-879/000-3102
MicroSD Card 8 GB	758-879/000-3108

Powerful control

Powerful Cortex Processor

- 751-9301 Single Core
- 751-9402 Dual Core

Onboard memory

- Ample Internal Memory
- Micro SD Card for Extra Storage

Help protect assets with built-in network security

- Built-In Firewall
- Support of VPNs
- Enable/Disable Communication Ports

Ultimate connectivity for industrial networking

- Two Configurable RJ-45 Ethernet Ports
- Serial Ports
- USB-C Service Port
- CANopen Port 751-9401

Ready for digital transformation applications

- Easy Cloud Server Configuration
- Support of MQTT Protocol

CODESYS V3.5 Engineering Tool

Enabling you to use the most appropriate programming languages for your applications, the Compact Controller 100s are programmed using market leading CODESYS V3.5 development software, helping to reduce time and costs.
In addition, the software is used to create web visualizations that can be used by equipment operators and maintenance staff to interface with machines.

Professional engineering software for IEC 61131-3 compliant projects
- CODESYS V3.5 Programming Software at no cost
- Use the language of your choice (or any combination) -
  Ladder Diagram, Sequential Function Chart, Function Block Diagram, Continuous Function Chart, Structured Text

Build your own operator interfaces via HTML5 Web Visualizations
- Develop user interfaces via a web browser
- One software for logic and screen development, with common data tags

Expand your options via a Linux based real-time operating system
- Docker applications in parallel with IEC 61131-3
- Add data handling apps like Node-RED

Adept Control

Machine Control
Ideal for small machine automation applications, the Compact Controller 100 family is engineered to provide exceptional control performance within a compact footprint.

IIoT Application
Perfect for plant floor digitalization projects thanks to its wide-ranging technologies including:

MQTT protocol for connecting to Cloud Services as well as on-board network security.

HVAC Applications
Compact Controller 100s support BACnet* and can be used as a gateway to other fieldbuses such as Modbus TCP or even OPCUA for use in HVAC and building automation applications.

* Additional licensing required

Two Configurable RJ-45 Ethernet Ports
- Use as a switch or separated with unique IP address per port
- Support of popular Industrial Ethernet protocols: Modbus TCP/UDP, Ethernet/IP & EtherCAT, OPCUA, MQTT, DNP3 and more

HTML5 Visualization
- Built-in web server for configuration and operator interface screens
- State-of-the-art technology for visualizations to be displayed on mobile devices like smartphones and tablets

IIoT Ready
- Easy to connect to Cloud servers with MQTT
- JSON function blocks for data handling

Cybersecurity
- SSH and SSL/TLS encryption methods are integrated by default
- Built-in firewall provides additional protection against unwanted access
- Network broadcast protection & rate limiting

Micro SD Card Slot
- Expand memory capabilities up to 32 GB
- Save user program, application data, source code, and device settings

Easy Handling
- USB-C service port for configuration & programming
- Start/stop/reset switch for system control

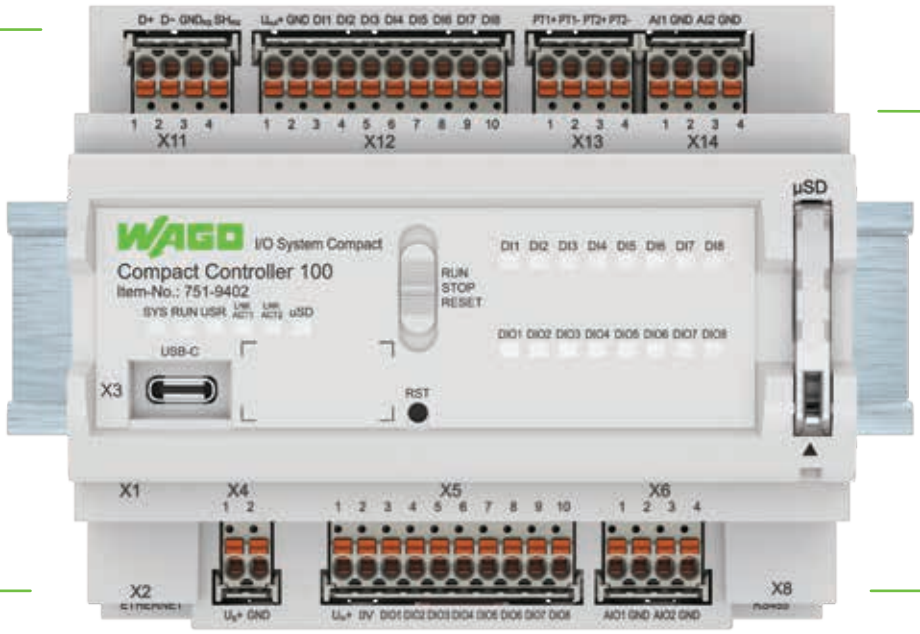
Inputs

Serial Port (X11)
- RS-485 Up To 250,000 Baud
- Half-Duplex
- Internal Termination Resister

8 Digital Inputs (X12)
- 24 VDC Nominal
- 5.0 µs Time Constant
- High Side Switching

2 Resistive Temperature Inputs (X13)
- Platinum or Nickel RTDs
- Potentiometer Inputs
- 16 Bit Resolution

2 Analog Inputs (X14)
- Configurable (Current/Voltage)
- 16 Bit Resolution



Inputs/Outputs

2 RJ-45 Ports, Configurable

Controller Power Supply (X4)
- 21 - 28 VDC
- Power Consumption 0.5 Amps

8 Digital Inputs/Outputs (X5)
- Configurable (DI/DO)
- 24 VDC Nominal
- 0.5 Amps Per Channel

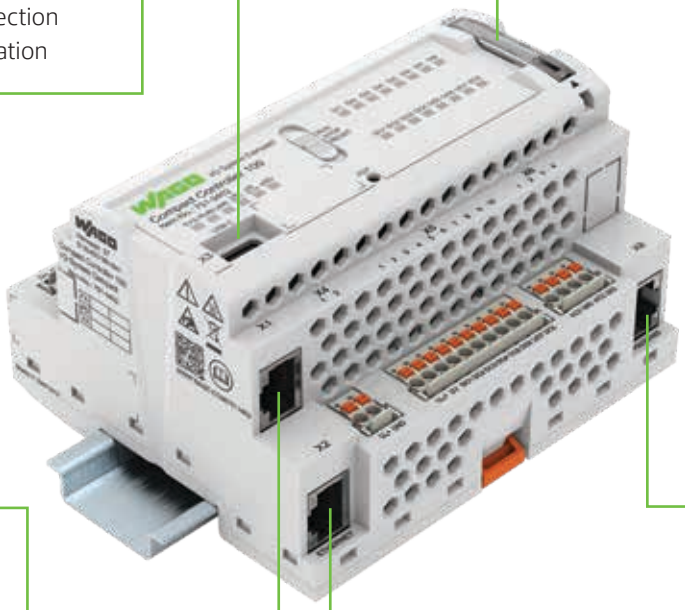
2 Analog Inputs/Outputs (X6)
- Configurable (Current/Voltage)
- 12 Bit Resolution

Serial Port (X8)
- RJ-45 Port
- RS-485 Up To 250,000 Baud

Communications & Storage Features

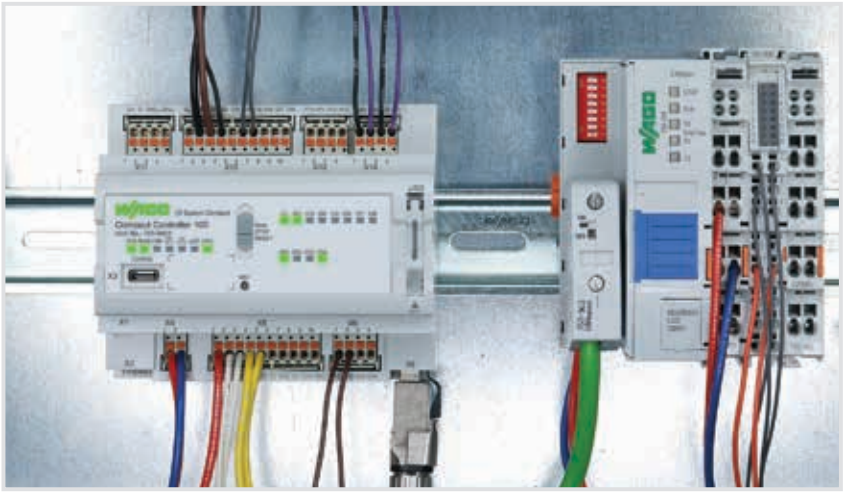
USB Programming Port
- USB-C Connection
- Direct Connection for Configuration

Micro-SD Card Slot
- Expand Memory for Data Collection
- Run OS from SD
- Update Firmware



CANopen Port (750-9401)
Serial Port (750-9402)

Two Ethernet Ports
- Configurable for Your Application
- Use as a Switch
- Separate with 2x IP Addresses
- Built-In Firewall
- Support of Industrial Protocols



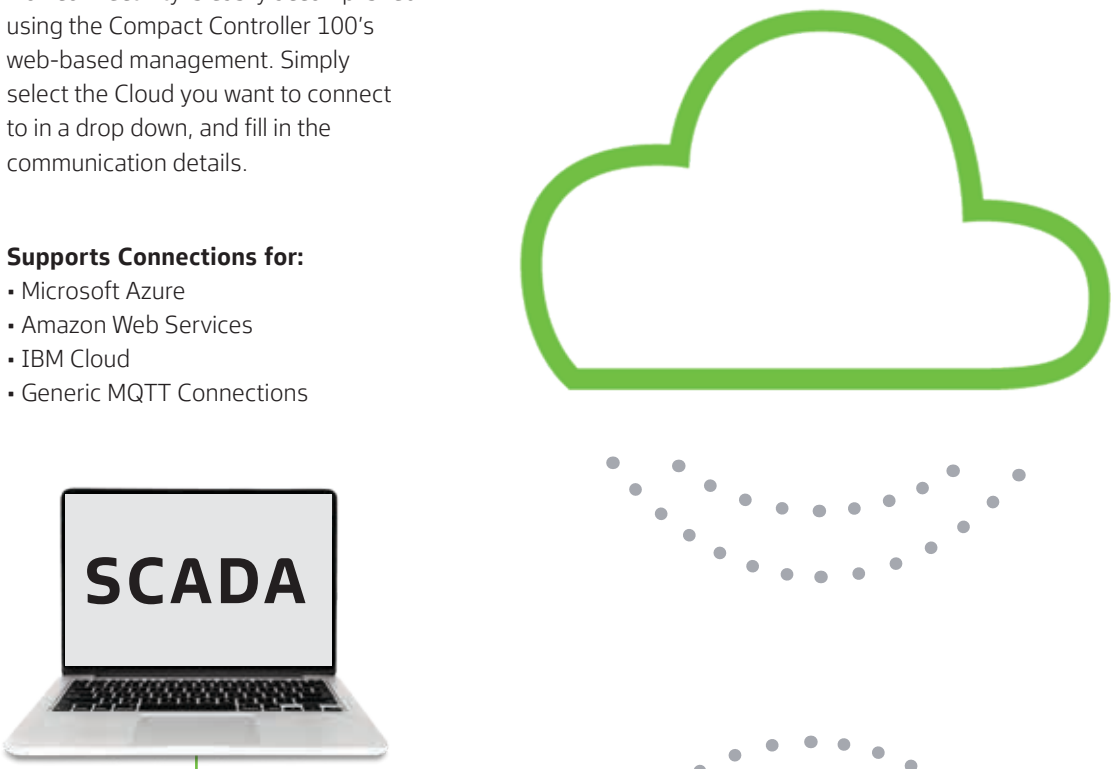
Communication and memory expansion is easy with the Compact Controller 100s. The dual configurable Ethernet ports offer the flexibility you need for your applications. The CANopen port implements an interface to a wide variety of sensors, I/O, and devices. The USB programming port provides direct connection for configuration and programming.

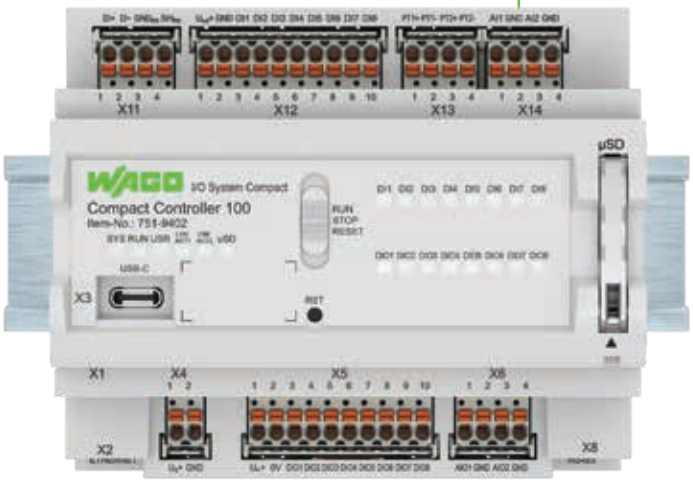
Cloud Connectivity

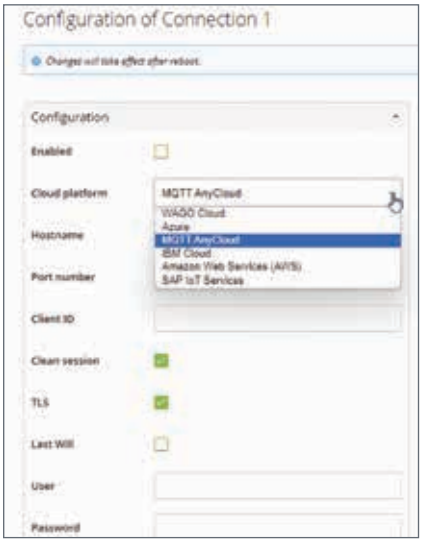
IIoT connectivity is easily accomplished using the Compact Controller 100's web-based management. Simply select the Cloud you want to connect to in a drop down, and fill in the communication details.

Supports Connections for:

- Microsoft Azure
- Amazon Web Services
- IBM Cloud
- Generic MQTT Connections







Industrial Protocols Supported

The two Ethernet ports on the Compact Controller 100s support the most popular industrial protocols. Exchange data with remote devices such as sensors or variable frequency drives over Modbus, Ethernet/IP or EtherCAT. The communication is ideal for fundamental control and monitoring of a few control devices.

Microgrids and Renewable Energy

The Compact Controllers are ideal for microgrids and renewable energy controls, supporting common standards, such as IEEE 2030.5, IEEE 1547, and SunSpec Modbus 700. The controllers can be enabled via a license to support DNP3, IEC 60870 and IEC 61850. These protocols connect to field devices for local control and monitoring. The controllers use the second Ethernet port as a gateway to higher level system via OPCUA, MQTT, or via supported fieldbuses.

HVAC and Building Automation

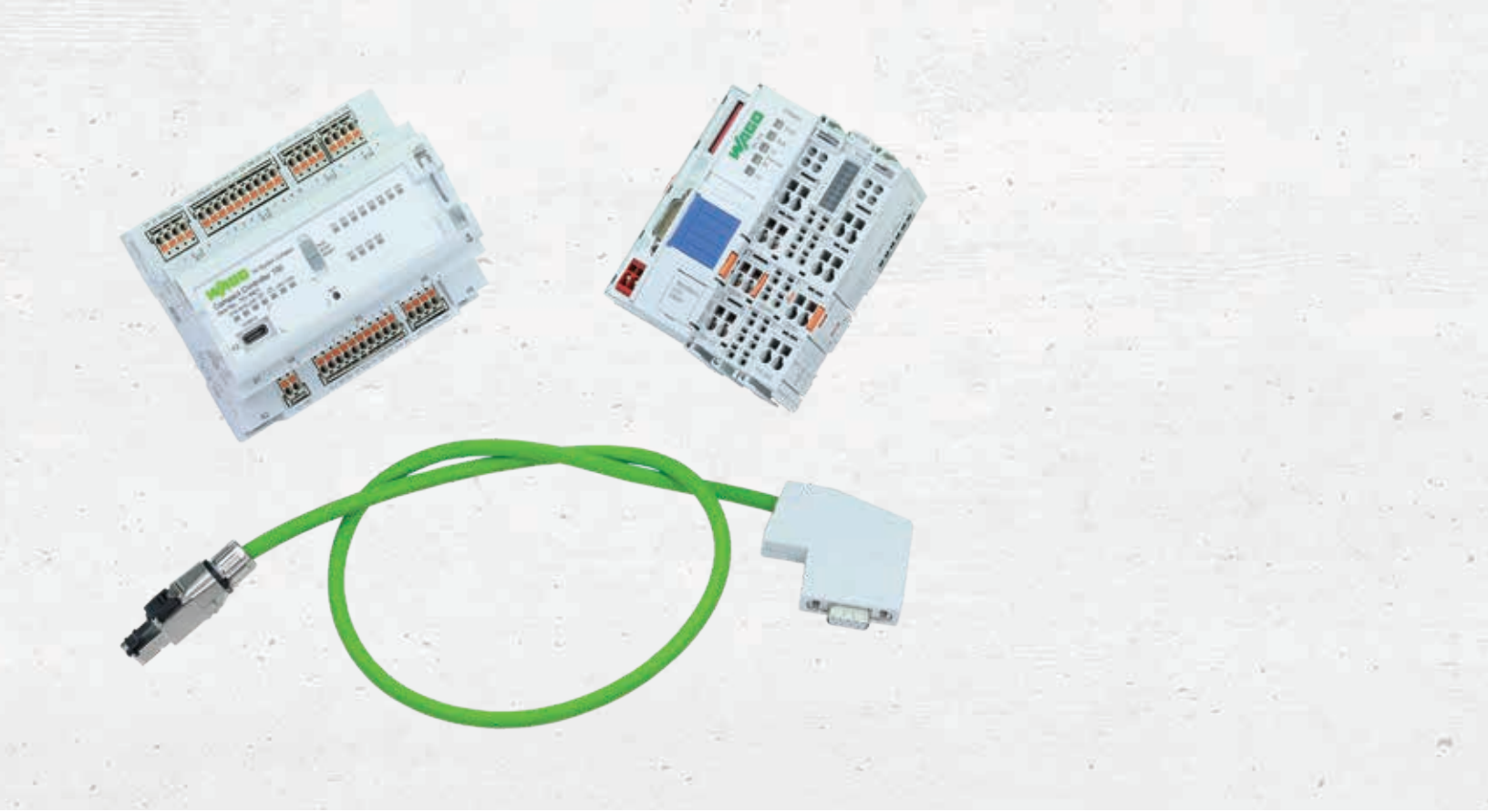
With the onset of smart buildings, Compact Controller 100s can help building controls engineers meet the requirements of modern BAS applications. The controller supports BACnet communications via a license, offering an effective way to interface with building automation supervisory systems.

SCADA Systems

OPCUA and MQTT are the standards for connecting to SCADA and Cloud servers. Our family of Compact Controller 100s supports both of these. It may be beneficial in some SCADA applications to take advantage of the MQTT based protocol Sparkplug. This can easily be added to the Compact Controller 100 via a license.

Available Add-On Licenses for the Compact Controller 100

Description	License	Comment
BACnet 300 M	2759-2283/211-1000	BACnet 256 tag objects
BACnet 300 S	2759-2273/211-1000	BACnet 48 tag objects
IEC 60870 Server	2759-290/211-1000	Simultaneously maintain up to 4 connections to the control system
IEC 60870 Master M	2759-293/211-1000	Support connections up to 16 IEC 60870-5 devices
IEC 61850 Server	2759-2240/211-1000	Creation of gateway converter & supports GOOSE Publisher
IEC 61850 Client M	2759-2243/211-1000	Process data from up to 4 servers with each 10 requests
DNP3 Server	2759-2290/211-1000	Send digital, analog & count values to the controller
DNP3 Master M	2759-2293/211-1000	Maintain connections for up to 4 DNP3 devices
Sparkplug	2759-247/210-1000	Add MQTT-based Sparkplug & define both topic and payload



I/O Expansion Kit

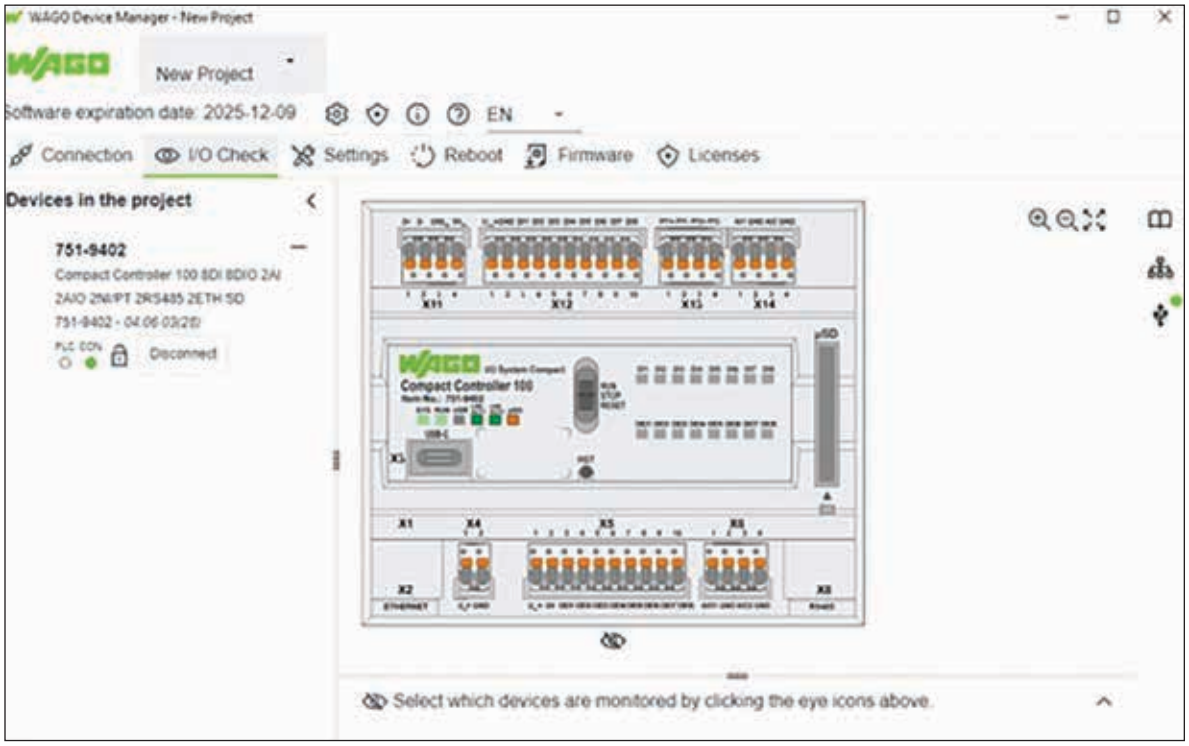
For applications that require additional I/O, the CANopen coupler kit is just what you need to expand the 751-9401's I/O. This kit includes a CANopen coupler with an I/O module with 8 digital inputs and 8 digital outputs. If additional I/O is needed, you can choose from over 500 I/O modules from WAGO's 750 and 753 series. The kit is mounted onto a DIN-Rail and comes with a 3-foot communication cable. The cable connects to the RJ-45 CANopen port on the Compact Controller 100 and the other end with a 9 pin D-sub to the CANopen Coupler.

Adding the I/O within your CODESYS 3.5 program is a breeze. Just add the CANbus, coupler and I/O in the communications tree for straight forward setup. You can even add tag names for the I/O points from this tree and use them in your program.

Kit Bill of Material (8003-0099/0000-0644)

Part Number	Description
751-9401	Compact Controller 100 with CANopen
750-348	CANopen Coupler
750-602	Supply Module
750-1506	8 DI / 8 DO
750-600	End Module
N/A	Communication Cable 3 ft.

SCAN HERE for instructions



WAGO Device Manager

Efficient Configuration and Lifecycle Management for WAGO Products

WAGO's Device Manager is a locally installed software solution designed to configure and parameterize individual WAGO devices. Supporting both initial commissioning and ongoing lifecycle management, it streamlines tasks such as backups, fault analysis, and system status monitoring.

Key Features

Device Configuration & Parameterization
Easily set up and adjust hardware components to meet your system requirements.

Parameter Upload & Download
Transfer parameters between devices with simple upload and download functionality.

Online & Offline Parameterization
Prepare configurations offline and apply them to devices when ready.

Firmware Management
Update or downgrade device firmware using *.wup files for optimal performance.

License Management
Activate and manage licensed features directly within the software.

Accessories

Compact, Reliable Power Supply
WAGO offers the 787-2850 Power Supply which delivers 13/4 A at 24 VDC. With the same housing dimensions as the Compact Controller 100s, it is an ideal pairing. The combination controller and power supply has a compact footprint to fit well within the physical limits of smaller machines.

WAGO Micro SD Card
Industrial applications call for industrial memory. WAGO offers a 2 GB & 8 GB Micro SD card (758-879/000-3108) that are rated at -40 °C...+90 °C.

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