OMRON

Product News

2011

OS32C SAFETY LASER SCANNER

The perfect scanner for AGV applications

>>> Page 4

FLEXXPECT-PICKING

Alignment and quality inspection in one system

>>> Page 7

TRAJEXIA OVER ETHERCAT

Total freedom in motion control

>>> Page 10

CX-SUPERVISOR V3.1

New features – free upgrade

>>> Page 20

KP100L PHOTOVOLTAIC INVERTER

Highest quality – fastest return on investment

>>> Page 26

realizing

Omron goes even GREENER

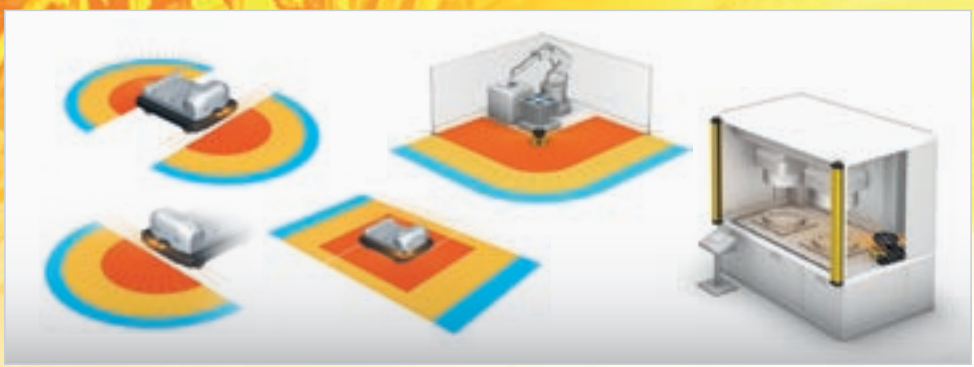
The need for sustainable and environmentally friendly industrial technologies and solutions is becoming increasingly important. Our goal is to provide support and facilitate learning through the launch of a “Green Omron Website”.

This green web portal will inform, support and assist you in becoming energy efficient and developing new systems and technology in order to ensure a sustainable future. The site is due to be launched by mid 2011.

Our first two case studies focus on wind turbine technology and solar energy technology. We will introduce a new case study monthly and share our experiences in environmental friendly and efficient automation with you.

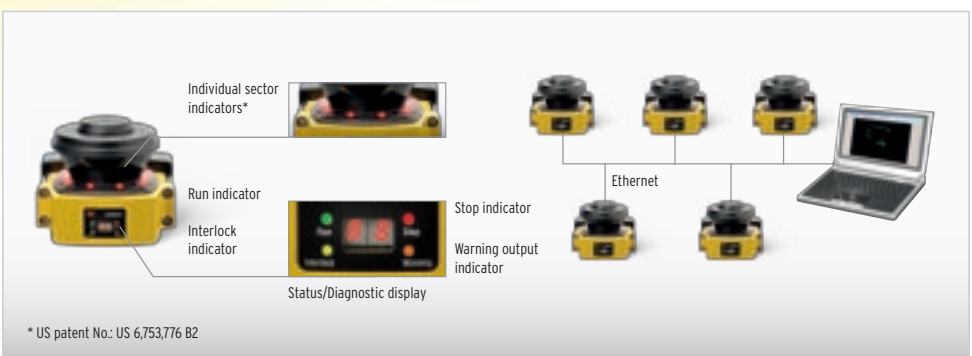
In addition to this, a newsfeed will highlight topics of interest related to renewable energy initiatives, new technologies and developments within the industry and within Omron.

OS32C safety laser scanner



Flexibility of installation is ensured by 70 field sets of safety zone and warning zone combinations covering complex layouts of AGV routes in mobile applications.

Presence detection is supported by reference boundary monitoring. Continuous monitoring of machine parts helps to find gaps in the protective structure to enhance safety.



* US patent No.: US 6,753,776 B2

Simple monitoring of several OS32C units is achieved by integrated Ethernet communication for programming and maintenance. Clear maintenance information is given by sector indicators for easy recognition of which sector is blocked and the OS32C's status is given by a 7-segment display.

Features and benefits:

- Complies with IEC61496-1/-3
- 70 field sets of safety zone and warning zone combinations
- Settable safety zone of up to 3 m and 2 warning zones of 10 m per field set
- Scanner status indication at a glance via LEDs and individual sector indicators
- Reference boundary monitoring function prevents unauthorized tampering

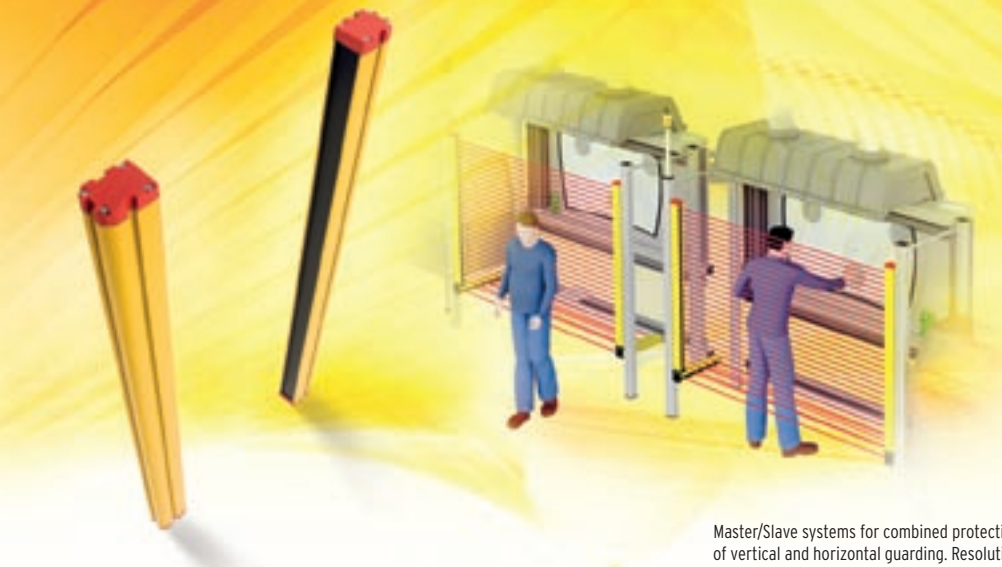
The perfect scanner for AGV applications

Small size, light-weight and low power consumption are extending the operating time of battery powered systems like automated guided vehicles (AGVs). The OS32C safety laser scanner meets all of these requirements in collision avoidance, presence and intrusion detection applications. Maintenance is made simple since diagnosis is clearly visible via LED displays.

Replacement of sensor heads is easy as all configuration data is kept in a separate I/O block. So, no reprogramming is needed when replacement is due.

industrial.omron.eu/os32c

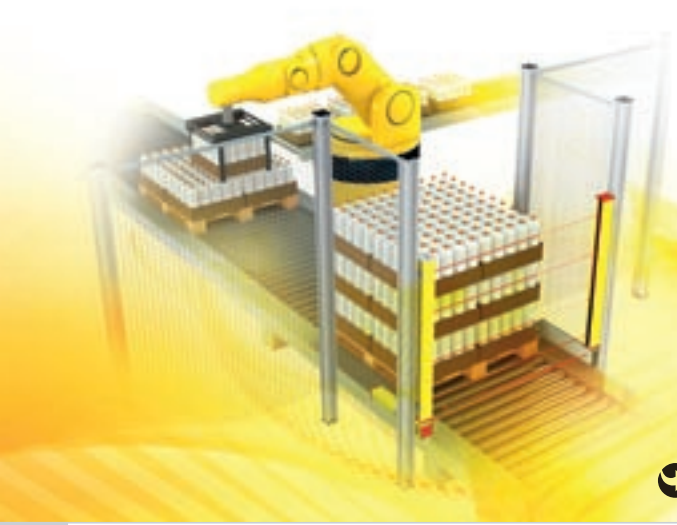
F3S-TGR-CL safety sensors



Master/Slave systems for combined protection of vertical and horizontal guarding. Resolution of the vertical and horizontal parts can be selected from 14mm and 35mm models.

New additions to this popular safety sensor family

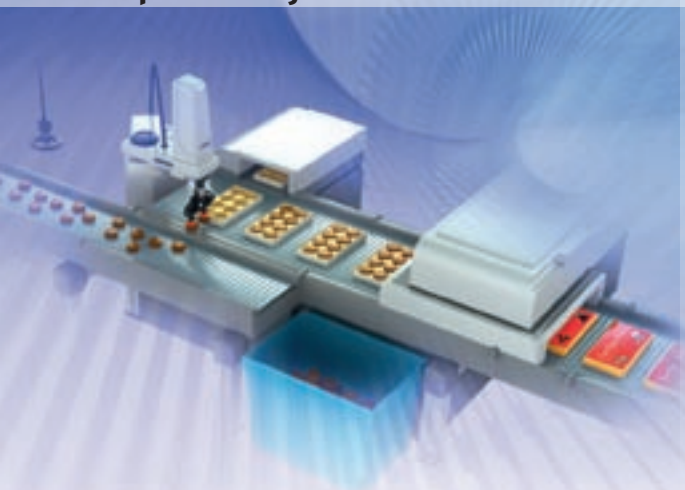
Introduced a year ago, the F3S-TGR-CL family already featured basic and advanced lines covering a wide variety of applications. Now these lines have been extended to cover an even wider rang of applications.



Extended muting functions - infinite muting for applications where the material is blocking access to the dangerous zone and where process time is long. Typical applications are conveyor systems in the ceramics or beverage industries.

industrial.omron.eu/f3s-tgr-cl

FlexXpect-Picking



Features and benefits:

- Easy and guided setup using the application wizard
- Simple auto-calibration with the picker
- High-speed cameras and positioning algorithm
- Simultaneous quality inspection
- EtherCAT, EtherNet/IP, TCP/IP

Alignment and quality inspection in one system

In combination with Omron's powerful Xpectia hardware, the FlexXpect modular vision software platform delivers tailored functionality for accurate positioning and alignment in high-speed pick and place applications. In shape-based object positioning, it enables separation of attached objects, detection of partially hidden objects, and has built-in compensation for rounded or broken edges. The software features an easy four-step set-up and calibration and is ideal for the inspection of scratches and defects, and is capable of detection even with dirty or overlapping objects.

Separation of attached objects

Detection of partially hidden objects

Compensation of rounded or broken edges

industrial.omron.eu/flexxpect

E3T-C M5 and M6 miniature photoelectric sensors

Features and benefits:

- M5 through-beam axial and radial models
- M6 diffuse reflective axial models

When size does matter

Ideal for applications where size matters, the E3T-C series of miniature cylindrical photoelectric sensors features M5 and M6 sized housing.

The models with axial or radial optics complete Omron's portfolio of cylindrical photoelectric sensors with housing sizes from 500 µm diameter up to M18. Just choose the size you need.

industrial.omron.eu/e3t-c

EE-SX97 photomicrosensor in plastic housing

Features and benefits:

- Accurate contactless end position detection for all materials at best value for money
- Smaller and more robust housing design compared to previous standard models

Accurate end position detection for all materials

The position detection of smaller objects with mechanical sensors can damage the surface or influence the position of these objects. The fork shaped photomicrosensors provide accurate contactless position detection for all materials at best value for money.

The new EE-SX97 series has an integrated connector design making the product even smaller and more robust compared to previous models.

industrial.omron.eu/ee-sx97

E3T miniature photoelectric sensors – new models

Features and benefits:

- New through beam model with 2m sensing distance
- New models with M3 screw mounting holes instead of M2

Precision and performance

Omron's popular E3T family of miniature photoelectric sensors has been extended with new models that further simplify mounting. New through-beam, diffuse reflective and limited reflective models are now available with larger M3 screw mounting holes. In addition, a new through-beam model with 2m sensing distance is available, extending the maximum sensing distance in this miniature shape.

industrial.omron.eu/e3t

E3X-SD easy-teach digital fiber amplifier

Features and benefits:

- Easy one-button teaching
- Easy to read display
- Simple threshold adjustment with up/ down keys for intuitive usage
- GIGA RAY LED for high performance and precision

Power and precision yet easy to use

The E3X-SD easy-teach fiber amplifier is the ideal solution for all standard fiber applications. The one-button teaching and/or the simple threshold adjustment with up/down keys and the easy to read display enable intuitive usage and fast set-up.

industrial.omron.eu/e3x-sd

Trajexia motion controller over EtherCAT

Total freedom in motion control

Trajexia EtherCAT master

Omron has expanded its Trajexia stand-alone product line with an EtherCAT Master TJ2-ECT that together with the new controller TJ2-MC64 provides a big improvement in performance and accuracy allowing you to run your machines faster. Controlling all 64 axes with a total system cycle time of 1 ms and with the use of 64 bit integers, Trajexia TJ2 ensures the fastest operation at the highest accuracy. It is ideal for high-demand packaging, printing and textile machines. As you would expect, a wide choice of best-in-class actuators are available to meet your needs for size, performance and reliability.

G5 Servo with EtherCAT built-in

Accurax G5 gives you the extra edge to build more accurate, faster, smaller and safer machines. You will benefit from an almost 25% reduction in motor weight and gain 50% cabinet space. You will achieve sub micron precision and ms settling time.

MX2 inverter with EtherCAT

The MX2 is designed to control the most advanced machines. The advanced design and algorithms of the MX2 provide smooth control down to zero speed, plus precise operation for cyclic operations and torque control capability in open loop.

SmartSlice I/O on EtherCAT

The SmartSlice family has been extended with the GRT1-ECT EtherCAT communication unit. The SmartSlice family comprises digital and analogue I/O units, ranging from basic relay outputs to configurable temperature inputs. All SmartSlice units feature screw-less ‘push-in’ I/O wiring, detachable I/O connectors, and hot-swap capability.

Features and benefits:

- Perfect control of 64 axes
- Scalability provided by the 3 versions of EtherCAT masters for 4, 16 and 64 axes
- Support for servos, inverters, I/O and vision systems in a single network
- Each axis can be programmed using linear, circular, helical or spherical interpolation, electronic cams and gearboxes
- Open communication – Serial and Ethernet/IP built-in, PROFIBUS-DP, DeviceNet and CANopen options
- Reuse of engineering. Compatible programming with existing Stand-alone and PLC based Trajexia CPUs

FZM1 vision system on EtherCAT

The Omron FZM1 machine vision controller is optimized to detect the position and orientation of any object with high speed and high accuracy. It features new generation image processing technologies and an intuitive user interface optimized for positioning applications. High speed communication via EtherCAT enables an easy integration with the motion control master. This increases the overall performance from positioning through to control.

industrial.omron.eu/trajexia

CJ1W-NC position control unit with EtherCAT interface

Complete and compact controller system for your machine

In a minimum of space you can have a complete and powerful positioning system when combining the Omron CJ2 PLC, the CJ1W-NC (EtherCAT) unit and the G5 servo drives with EtherCAT built-in. This configuration offers up to 16-axis positioning with linear and circular interpolation, as well as support for 64 I/O, inverter and vision device nodes over the network.

Ratings

Position Control Unit (2/4/8/16 axes) CJ1W-NC_81

- High-speed start-up of 0.15 - 0.4 ms per axis
- High-precision control achieved under the fastest control cycles of 0.5 ms

Position Control Unit (4/8 axes) CJ1W-NC_82

- Same performance in positioning control as CJ1W-NC_81
- Connection of 64 I/O, inverter and vision device nodes, in addition to the controlled servo drives

Features and benefits:

- Position controller supporting up to 16 servo axes
- Support for 64 I/O, inverter and vision device nodes
- Compact unit compatible with CJ1 and CJ2 PLCs
- High-speed communication EtherCAT (250µs min. communication cycle)
- Circular and linear interpolation
- Linear and infinite axes management
- Position registration capture
- Zone outputs CAM outputs)
- Certified PLC open motion control function blocks: Part 1 and 2
- Support for servos, inverters, visions systems and I/O in a single EtherCAT network

Accurax G5 servo

G5 family is extended up to 15 kW

Accurax G5 gives you the extra edge to build more accurate, faster, smaller and safer machines. Accurax G5 has extended its product range with servo motors and drives up to 15kW. The drives offered include embedded EtherCAT communications and Analogue/Pulse control.

Features and benefits:

- Drive models with EtherCAT and Analogue/Pulse built-in
- Safety conforms with ISO 13849-1 Performance Level d
- High-response frequency of 2 kHz
- Large range of motors up to 96 Nm nominal torque (224 Nm peak)
- Low cogging torque servo motors
- Available with 1000 rpm and 2000 rpm and 3000 rpm motors

Servo option unit

Advanced safety unit

Movements of machinery present risks for operating and maintenance personnel. Therefore, it is of the utmost importance to protect people against machine-related hazards. The Advanced Safety Option for the servo drive of the Sigma-5 series helps you to implement safe and cost-effective motion automation.

Features and benefits:

- The safety option board provides functional safety: STO, SS1, SS2 and SLS
- Safety conforms with EN ISO 13849-1 Performance Level d
- Stop functions: Stop category 0/1/2
- Safety Integrity Level: SIL 2

Accurax Linear Motors

From components up to the system solutions

Omron offers linear motor solutions, from components to entire systems, from a single source. Over many years, sectors such as the semiconductor, photovoltaic, pharmaceutical and packaging industries have come to value Omron as an expert supplier and partner in this field. We are pleased to advise and support you with our experience and expertise, starting from the initial idea, through design to optimum integration in your machine and system concept.

High-efficiency, iron-core linear motors and magnet tracks provide the basis for a wide range of over 100 standard linear motor axes. In addition to components and complete axes, Omron also offers a wide range of X/Y tables and gantry systems. The systems are adapted and optimized for the required application, as necessary.

Iron core linear motor components in printed circuit board processing for high dynamic and precise positioning of tools and PCBs.

Precision measurement with laser interferometer for quality assurance to create the data for stage mapping.

Features and benefits:

Iron-core linear motors

- Compact, flat design
- Optimum ratio between force and volume
- Weight-optimized magnetic track
- Optional digital hall-sensor

Iron-less linear motors

- Compact, efficient design
- Excellent force-to-weight ratio
- No latching force
- Optional digital Hall-sensor

Linear motor axes

- Low moving mass
- Optimized stroke/product length ratio
- Compact design
- 5 m/s maximum speed
- 1 µm repeatability

SmartSlice on EtherCAT

Features and benefits:

- Up to 64 I/O units per station
- Automatic I/O assignment
- Easy configuration backup
- Hot-swap with auto-restore
- Optional address setting

Plug-and-Play I/O for Trajexia

For Trajexia systems using MECHATROLINK-II as a control network, the versatile SmartSlice I/O series already provided an extensive range of remote I/O units via the GRT1-ML2 communication unit. Now, to also offer the same range of I/O functions on EtherCAT-equipped Trajexia systems, the SmartSlice family has been extended with the GRT1-ECT EtherCAT communication unit.

SmartSlice I/O units extend Trajexia's I/O functions with digital and analogue I/O units, ranging from basic relay outputs to configurable temperature inputs. All SmartSlice units feature screwless 'push-in' I/O wiring, detachable I/O connector, and hot-swap capability.

The SmartSlice EtherCAT "coupler" automatically scans the connected I/O units at startup. A TJ2 controller with EtherCAT master will automatically map the detected I/O data to its designated I/O allocations. Configuration could not be easier.

After the configuration of an I/O station is fixed, it can be stored in the coupler so that any unwanted change in the configuration is detected.

For fast initial machine set-up, EtherCAT's automatic address allocation is undoubtedly useful. However, machine builders increasingly need flexibility in their system configurations. Therefore to ease system changes, all Omron EtherCAT slaves have the option to manually set a node address. By fixing addresses, machine sections can easily be identified, even if the topology of the total system varies from application to application, without the need to change the PLC program.

EtherCAT® Technology Group

NQ HMI series

Features:

- Ethernet for 3.5 and 5.7 inch
- High brightness TFT LCD
- Improved software
- Model conversion function
- Easy USB file transfer in runtime

Connect, Create and Operate

In addition to the NQ HMI equipped with serial ports, Omron now offers Ethernet connectivity for the 3.5 and 5.7 inch TFT touch screens, which use LED backlight to ensure high brightness and sharp colours. Communication to several Omron PLCs is supported, as is up-/down-loading of project data. Using the default settings like the IP-address, you can immediately connect with Ethernet to quickly download your created project.

The Omron Ethernet FINS protocol even makes it possible to read and write data memory inside the NQ HMI from PC applications so that any data can be shared easily.

NQ-Designer version 2.0 supports the new NQ HMI with Ethernet and also brings some new functionality, e.g. a function to convert an NQ project from one model to another, thus making it easy to convert an existing project from serial to an Ethernet NQ type with just a few clicks. Other features include improved workspace and easier file transfer to a USB stick in runtime.

industrial.omron.eu/nq

NS5 HMI series

Features:

- Sharp and vivid colours with new LCD
- Better brightness with LED backlight
- Brightness control function (dimming)

Your application will look even better

Several important improvements have been made to the highly successful NS5 HMI series. All colour models now feature an enhanced LCD with LED backlight, resulting in improved brightness and contrast, sharper colours and improved viewing angle from all sides.

With the new LED display, the brightness can now be controlled easily via an internal memory. You can choose from a range of values to balance brightness against the surroundings light. In addition, you can link this memory address to automatically change the brightness at a specific time, or by using a sensor connected to an analogue input.

The latest CX-One auto-update (with CX-Designer v3.2) supports all these new features.

industrial.omron.eu/ns5

Now supporting arrays and structures

The latest versions of Omron's programming tools now support arrays and structures as data types.

Whereas an array is a collection of data items of the same type, a structure is a user-defined assembly of various data items of different types. This may even include other (nested) structures.

By arranging all data of an automation device in a structure, it becomes easier to access and transfer information related to a particular device.
For example, consider the input and output data of an Omron FZ-series vision system. Its total set of communication data consists of some control bits and status flags, plus command and response blocks of several words in size.

This data structure can be represented in the programming tool with a single, symbolic name. The PLC program can now refer to the entire structure and to each data item by a symbolic name instead of the absolute address.
There is also support for such data structures in the Network Configurator for EtherNet/IP. This tool can read all symbolic names, which are defined as network variables in CX-Programmer.

The Network Configurator for EtherNet/IP will create a tag set of the same size as the imported symbol. The tag set is then used to establish the connection to the FZ vision system via EtherNet/IP. All bits and words from the FZ vision system will by definition match the structure of the symbol created in CX-Programmer.

In the same way, data links between PLCs can be created and structures defined in the PLC can be imported into CX-Designer for NS-series HMIs. By using EtherNet/IP, screen items can now be controlled using a symbolic name from a structure like Motor1. Running, instead of an absolute bit address in the PLC.

The use of structures and EtherNet/IP tag sets will help to avoid address duplication in the PLC, speed up program modifications and make it easier to re-use code in new projects.

CX-Supervisor v3.1

New features – free upgrade

CX-Supervisor v3.1

Omron's PC based machine visualisation package, CX-Supervisor, has been extended to include a brand new set of features designed to make 21 CFR Part 11 compliance so much easier to achieve for your machine.

CX-Supervisor v3.1 is also a free upgrade to all registered CX-Supervisor v3 customers – download itt now from the Omron Europe Software Registrations & Downloads centre.

Within the pharmaceutical market, traceability of production is essential. Therefore 21 CFR Part 11 compliance has been developed especially for this market. However, the functionality within CX-Supervisor V3.1 is relevant to any requirement for machine audit trails.

The new data log viewer allows you to quickly and easily compare the process parameters of one week against those of another – enabling you to identify which settings work best.

FDA

Features and benefits:

- 21 CFR 11 features to simplify compliance
- Log securely to Microsoft Access® or SQL databases
- Windows 7 supported

The audit trail produced by CX-Supervisor is tamper proof by logging into an encrypted database (or SQL server). This allows an accurate log of machine operation to be recorded that can easily be analysed at any time in the future. The new features allow points, alarms and even user logs to be logged to an encrypted Microsoft Access® database, or even an SQL Server.

It couldn't be easier to generate a secure audit file: simply click "Generate Audit Trail" for each point that needs to be included in the audit trail. Auditing is controlled by two new script commands StartAuditTrail & StopAuditTrail during the runtime.

When using Microsoft Access®, each time the audit trail is started, a new file is created which enables batch information to be stored in one place.

Security is also very significant to ensure an accurate log in the audit trail. With integration to Windows™ password authentication other important 21 CFR Part 11 requirements such as password aging can easily be achieved.

The validity of audit trail data is so important regardless of what is being manufactured. This functionality produces a tamper proof file that can accurately record not only what data changed, or which alarms were raised, but who changed the data and who acknowledged the alarms. This can be invaluable in finding the root cause of problems. Equally, this data can be directly used when producing batch reports.
Besides audit trail functionality, CX-Supervisor v3.1 also includes support for Windows 7 (both 32bit & 64bit editions).

industrial.omron.eu/cx-supervisor

EJ1N-HFU-ETN ETHERNET to SERIAL gateway

Features and benefits:

- Connects Modbus serial slaves to PROFINET and Modbus/TCP
- Built for integration into the CelciuX° system
- Usable as a gateway for discrete units like E5_N-series Temperature Controllers
- Flexible implementation with standard .gsd files

Connect Modbus slaves to Ethernet

The Ethernet-based fieldbus is mandatory in today's machines, but due to cost and/or space limitations, a lot of instrumentation is provided with only serial communications. The EJ1N-HFU-ETN provides a reliable and flexible solution to connect a CelciuX° in-panel multi-loop PID controller to PROFINET and Modbus/TCP. Altough built on the CelciuX° platform, this unit can be used as a gateway for discrete Modbus units when only using the EJ1N-EDU endplate.

MODBUS

MODBUS/TCP

E5_N-HT temperature controllers with SV profiling

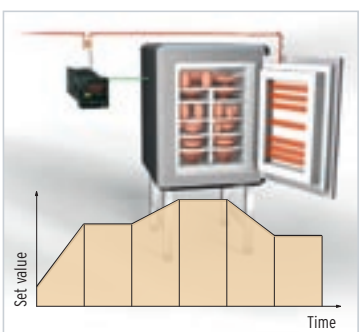
Features and benefits:

- ame easy and intuitive menu structure as E5_N series
- Fast (60 ms) and accurate (0.1% PV)
- Flexible connection to any sensor or actuator via universal inputs and modular outputs
- Set-point profiles (8 x 32)
- Recipe support with parameter banks
- Logic operations

COLOUR CHANGE DISPLAY

SV programmable controller

The E5_N-HT series is the latest addition to the Omron E5_N family and enables ramp and dwell of the SV in a preprogrammed recipe over time. The series offers the highest PID control accuracy available from an Omron temperature controller.



In time-based process applications, banks are used to hold PID and alarm values. They can also hold soak times as another way of creating an SV program.

industrial.omron.eu/e5_n-h

H3DK slim timer series

Easily fits into panel designs

Covering a wider range of applications than ever before, the H3DK is a completely new and versatile series of slim timers offering full compatibility with its predecessor, the well established H3DE, both in terms of performance, functionality and dimensions.

Features and benefits:

- Finger-safe terminal block and captive screws according to EN 50274
- New 12 VDC model available in all the sub-families
- New Star-delta model with supply voltage up to 440 VAC
- 24 and 48 V integrated in the same model for the OFF-delay timer
- Wider time setting range (0.1 s to 1,200 h)

industrial.omron.eu/h3dk

E5CB basic temperature controller

Cost effective performance

The new E5CB represents Omron's dual-display solution in the basic temperature controller segment. With eight models to choose from and all featuring Omron's unique 2-PID control algorithm, this series provides you with the best control available. All models have an alarm relay and auto-tuning as standard.

Features and benefits:

- Precise control using Omron's unique 2-PID system
- Easy to read from a distance via large 16.2 mm PV display
- Low unit depth (only 60 mm)

industrial.omron.eu/e5cn

K8AB-PH1 monitoring relay

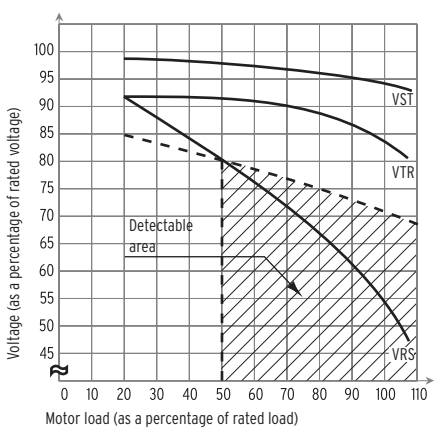
Features and benefits:

- Only one unit required to monitor between 200 to 500 VAC
- Displays both control power supply and relay output condition
- Distinguishes between positive phases, reversed phases, and phase loss when power is turned ON
- Output releases when phase-phase voltage drops below 80% of the others
- Output status can be monitored using the LED indicator

Improved phase-loss detection

Part of the K8AB monitoring relays family, the K8AB-PH1 is used to monitor three-phase phase sequence and phase loss, preventing reverse motor rotations due to incorrect wiring. Now the range of applications covered by the K8AB-PH1 has been further extended by enabling it to detect the phase loss during operation (after the start-up of the motor). This was not an option on previous models.

Characteristic Curve Diagram



Notes:

1. For phase loss of phase R. VST, VTR, and VRS indicate the motor terminal voltage at phase loss.
2. This graph shows that K8AB-PH1 can detect phase loss during operation when the motor load is more than 50%.
3. This is a general example and it doesn't guarantee the characteristics. Use K8AB-PH1 in view of the motor characteristics.

industrial.omron.eu/k8ab-ph

KP100L Photovoltaic inverter

Highest quality – fastest return on investment

As a world leader in industrial automation, Omron has a reputation for high quality and reliability, which also extends to our range of PV solutions. Our commitment to this is reflected in the latest addition to our solar range - the KP100L. This new inverter offers smart control and advanced performance. It can also be used with many kind of solar panel or module. This simplifies the selection task, making the KP100L solar Inverter the right choice every time.

The KP100L's versatile matching enables monocrystal and polycrystal solar modules. Furthermore, three MPPT devices with a wide MPPT voltage range mean that maximum output power and high efficiency are assured. This is made possible by special electronic circuitry, which was jointly developed between Omron and a leading Japanese University.

industrial.omron.eu/kp100l

Versatile matching

KP100L is a transformerless inverter. Our technology enables the connection of most types of solar module.

Easy sizing

The KP100L has 3 individual MPP (Maximum Power Point) trackers, which convert PV input into a common BUS voltage and search for the maximum power point of PV input at all times. Designers can connect differently aligned PV strings as a DC input from a wide MPP voltage range.

Easy monitoring

Omron can provide monitoring solutions to meet any requirement.

Remote control and monitoring system

Acquisition and monitoring of data from different locations can be achieved.

Features:

- Smart control for solar tracker – one-stop solution (control components & software)
- Top-level performance – 3 MPPT devices with wide MPPT voltage range ensures max output power
- Versatile matching – monocrystal and polycrystal solar modules on the same inverter driven by different MPPT
- Utmost reliability through high quality
- Easy monitoring – solutions for monitoring & remote control available

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Motion & Drives
• Motion controllers • Servo systems • Inverters

Control Components
• Temperature controllers • Power supplies • Timers
• Counters • Programmable relays • Digital panel indicators
• Electromechanical relays • Monitoring products
• Solid-state relays • Limit switches • Pushbutton switches
• Low voltage switch gear

Sensing & Safety
• Photoelectric sensors • Inductive sensors
• Capacitive & pressure sensors • Cable connectors
• Displacement & width-measuring sensors
• Vision systems • Safety networks • Safety sensors
• Safety units/relay units • Safety door/guard lock switches

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