

ecos500: Room automation station

How energy efficiency is improved

High-performance function modules in the ecos500 allow energy-optimised room regulation with control of the lighting and the window blinds to ensure minimal energy consumption.

Areas of application

Room automation for temperature regulation, control of lights, window blinds etc.; integration of non-SAUTER installations via BACnet/IP.

Features

- Part of the SAUTER EY-modulo 5 system family
- Communication: BACnet/IP (EN ISO 16484-5)
- Room automation station for up to 4 rooms or 4 functional axes
- Individual setting of room conditions via ecoUnit 3 (EY-RU3..) and ecoUnit 1 (EY-RU1..) room operating units: any combination of the two types is possible
- Optimisation of energy consumption thanks to occupancy function, window contact monitoring, demand-led fan speed, control of the lighting and the window blinds, and time-dependent setpoint specification.
- Time and calendar function
- Integration into the building management system via Ethernet / BACnet/IP data interface
- Programming/parameterisation via PC with CASE Suite (based on IEC 61131-3)
- Control libraries

Technical description

- Power supply 230 V~ ± 10%
- Ethernet system bus, BACnet/IP protocol



Products

| Type | Description |
|--------------|-------------------------|
| EY-RC500F001 | Room automation station |

Technical data

Electrical supply

| | |
|----------------------------|-------------------------------------|
| Power supply | 230 V~, ± 10%, 50...60 Hz |
| Power consumption | up to 34 VA (incl. 12 VA external) |
| Dissipated power | up to 15 W |
| Battery (buffer: RTC/SRAM) | Lithium button cell CR2032, plug-in |

Interfaces, communication

| | |
|------------------------|----------------------------------|
| Ethernet network | 2x RJ45 sockets (switch) |
| 10/100 BASE-T(X) | 10/100 Mbit/s |
| Communication protocol | BACnet/IP |
| Operating devices | total of up to 4 operating units |
| EY-RU3.. | RS-485 A |
| EY-RU1.. | via EY-EM580 to RS-485 A |
| Extension interface | RS-485 B |

Inputs/outputs

| | |
|------------------|-------------------------------------|
| Universal inputs | 8 (Ni1000, Pt1000, U (0...10V), DI) |
| Digital inputs | 4 |
| Analogue outputs | 4 (0...10V) |
| Triac outputs | 8 (24 V~) |
| Relay outputs | 16 (250 V~) terminals 1 to 28 |

Architecture

| | |
|----------------------------|-----------------|
| Processor | 32 bit, 200 MHz |
| SDRAM (operational memory) | 32 MB |
| SRAM (static memory) | 128 kB |
| Flash | 16 MB |
| Operating system | Linux |
| Cycle time, user programme | 100 ms |
| User data | via CASE Engine |

1) Degree of protection IP 10 with terminal cover (accessory 090024002); Degree of protection IP 20 with wiring box (accessory 090024011)

Function

| | |
|------------------------------------|-------------------------|
| BACnet data point objects incl. HW | 256 |
| Dynamic objects | |
| Time programmes | 32 (Schedule) |
| Calendar | 8 (Calendar) |
| Alerting | 16 (Notification Class) |
| Historical data | 16 (Trend Log) |
| | up to 2000 entries |
| Control | 32 (Loop) |
| COV Notifications | 500 |
| Structured view | 64 (Structured View) |
| BACnet client links | 200 (peer to peer) |
| BBMD in BDT | 32 |
| FD in FDT | 32 |

Permissible ambient conditions

| | |
|-----------------------------------|-----------------|
| Operating temperature | 0...45 °C |
| Storage and transport temperature | -25...70 °C |
| Humidity | 10...85% rh |
| | no condensation |

Installation

| | |
|---------------------------|-------------------------------|
| Fitting | top-hat rail or wall mounting |
| Dimensions W x H x D (mm) | 299 x 120 x 73 |
| Weight (kg) | 2.5 |

Standards, guidelines and directives

| | |
|----------------------|--------------------------------|
| Degree of protection | IP 00 (EN 60529) ¹⁾ |
| Protection class | I (EN 60730-1) |
| Environmental class | 3K3 (IEC 60721) |

Technical data (continued)

| Standards, directives (continued) | | Additional information | |
|-----------------------------------|----------------------------|------------------------|-------------------------------|
| CE conformity as per | | Fitting instructions | MV P100002325 |
| EMC Directive 2004/108/EC | EN 61000-6-1 | Material declaration | MD 94.108 |
| | EN 61000-6-2 ²⁾ | | |
| | EN 61000-6-3 | Dimension drawing | K10479 |
| | EN 61000-6-4 | Wiring diagram | A10641 |
| Electrical safety | EN 60730-1 | | |
| 2006/95/EC | EN 60730-2-9 | | |
| Software class A | EN 60730-1 Annexe H | | |

2) If it is mandatory to comply with the industrial standard (EN 61000-6-2), the connecting cables for the digital inputs (DI), analogue inputs and outputs (AI/AO) and the RS485 cables must not be longer than 30 metres.

Accessories

| Type | Description |
|------------|------------------------------|
| 0900240002 | Terminal covers, 295 mm (2x) |
| 0900240011 | Wiring box, 295 mm (2x) |

Engineering notes

The I/O mix of the ecos500 is designed for up to 4 typical rooms or 4 functional axes, i.e. one device incorporates 4 room controllers. The program created during the programming sequence is equally valid for all rooms/functional axes. The possible numbers of axes are 1, 2 or 4.

Installation and power supply

The ecos500 is a compact device which is suitable for wall mounting or installation in rows (DIN 43880) on a 35 mm top-hat rail. The plant devices are connected via screw terminals. The following conditions must be met:

- The unit should be connected only when the power has been removed (i.e. dead).
- The unit must be protected against physical contact.
- The maximum power that can be tapped on the LS terminals is 12 VA.
- The ground terminals are internally connected to the earth connection (PE) (PELV power circuits).
- External primary disconnection device
- Protective earth connected to the relevant terminal

Cross-section of conductors: min. 0.8 mm² (AWG 18), max. 2.5 mm² (AWG 13), compliant with standards and national installation regulations.

Two RJ-45 network connections with switch functionality are available for communication; they can be switched in series via the ecos500. The network topology structure must take Ethernet network standards into consideration.

Communication wiring must be undertaken correctly and must meet the requirements of standards EN 50174-1, -2 and -3. Communication wiring must be kept at a distance from other current-carrying cables.

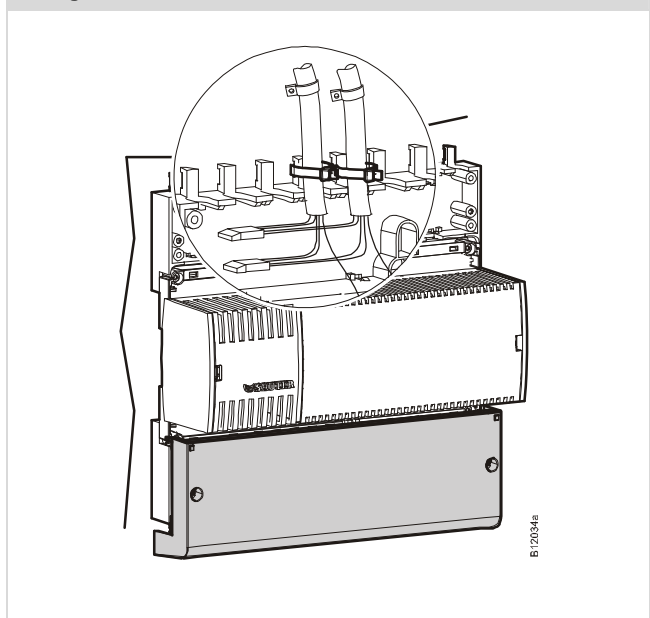
No account has been taken of special standards such as IEC/EN 61508, IEC/EN 61511, IEC/EN 61131-1 and 2 or similar standards. Local regulations on installation, application, access, access authorisations, accident prevention, safety, dismantling and disposal must be observed. Compliance is also required with installation standards EN 50178, 50310, 50110, 50274, 61140 and similar.

For further information, consult the fitting instructions, P100002325.

Wiring box

The wiring box is used to ensure correct connection of the supply and control lines with cable fixing clips. When the cover is in place, the box – together with the ecos500 – guarantees degree of protection IP 20.

Wiring box



Wiring rules

The feedback cables for the Ni1000 and Pt1000 sensors must be separated from the other inputs and outputs (DI 1.2 mA, 0...20 mA), i.e. separate GND terminals (⊥) must be used.

Inputs/outputs

The ecos500 has 40 inputs/outputs offering the following functions:

Universal inputs

- Number of inputs: 8 (UI)
- Type of inputs: Ni1000 (DIN 43760)
- (software coding) Pt1000 (EN 60751)
- Voltage measurement (U)
- Current measurement (I) (with ext. resistance)
- Resistance measurement
- Digital input (DI)

Protection against extraneous voltage

Ni/Pt/U/DI ± 30 V / 24 V~ (without damage)

Scan rate 100 ms (digital values)

500 ms (analogue inputs)

Resolution > 14 bit

EY-RC500

| | |
|--------------------------|--|
| Measuring ranges | |
| Voltage (U) | 0 (2)...10 V, 0 (0.2)...1 V |
| Current (I) (via ext. R) | 0 (4)...20 mA |
| Resistance | 200...2500 Ω |
| Temperature | |
| Ni/Pt1000 | -50...+150 °C |
| Digital input | Potential-free contacts, wired to earth Opto-coupler, transistor (open collector) I_{out} : ~1.2 mA for UI ~1.2 mA for DI |
| Counter | max. 3 Hz (100 ms scan rate) |

Temperature measurement (Ni/Pt)

The Ni/Pt1000 sensors are connected using the two-wire method between one of the input terminals for universal inputs (channels 26...33) and an earth terminal. Inputs do not require calibration and can be used directly. A corresponding line resistance of 2 Ω is pre-compensated as standard. With the corresponding line resistance of 2 Ω (cable cross-section: 1.5 mm²), the connection cable (wire) may be a maximum of 85 m in length. Greater line resistances can be compensated using the software. The measuring voltage is pulsed so that the sensor does not heat up (I_{Meas} ~0.3 mA).

Voltage measurement (U)

The voltage is connected between one of the input terminals for universal inputs (channels 26...33) and an earth terminal. The signal must be potential-free. The measurement ranges with or without offset 0 (0.2)...1 V and 0 (2)...10 V are selected by means of the software. The input's internal resistance R_i (load) is 9 MΩ.

Current measurement (I)

The current can be measured via an external resistor (e.g. 50 Ω). The current is connected in parallel to the resistor, to one of the two input terminals for universal input (channels 26...33) and an earth terminal. The current signal must be potential-free.

In case of faults on other channels: see the *wiring rules*.

Resistance measurement

The ecos500 can measure an ohmic resistance of 200 to 2500 Ω. The measurement is taken with respect to earth. Higher resistance values can be scaled to approximately 2500 Ω by adding another fixed resistor to the circuit in parallel. It may be necessary to implement linearisation in the user program.

Digital inputs (DI with UI)

The ecos500 also uses the universal inputs to record binary information. This information (alarm/status) is connected between an input terminal and earth (channels 26...33). The station applies a voltage of approx. 13 V to the terminal. This usually corresponds to INACTIVE (bit = 0) for an open contact. When a contact is closed, it is ACTIVE (bit = 1) and 0 V is applied, whereby the current flow equates to approximately ~1.2 mA.

Each input can be defined via software configuration as an alarm or status input.

Counter outputs for potential-free contacts, opto-couplers or transistors with an open collector can be connected to the universal inputs. The maximum pulse frequency is 3 Hz.

Digital inputs (DI fixed)

| | |
|---------------------------------------|--|
| Number of inputs | 4 (DI fixed) |
| Type of inputs | Potential-free contacts, wired to earth Opto-coupler, Transistor (open collector) |
| Counter | up to 3 Hz (100 ms scan rate) |
| Protection against extraneous voltage | ± 30 V / 24 V~ (without damage) |
| Maximum output current | ~1.2 mA to earth |
| Scan rate | 100 ms |

Binary information is connected between one of the input terminals (channels 38...41) and earth. The station applies a voltage of approx. 13 V to the terminal. In normal cases (NORMAL), this corresponds to INACTIVE (bit = 0) for an open contact. When a contact is closed, it is ACTIVE (bit = 1) and 0 V is applied, whereby the current flow equates to approximately 2 mA.

Each input can be defined via software configuration as an alarm or status input.

Counter outputs for potential-free contacts, opto-couplers or transistors with an open collector can be connected to the digital inputs. The maximum pulse frequency is 3 Hz.

Operating devices

Number of devices total of up to 4 operating units;
EY-RU3.. and/or EY-RU1..

Interface RS-485 A

The EY-RU3.. operating devices are connected directly to the serial RS-485 A interface with four-core twisted wire. The line can be up to 100 m in length. The communication protocol is SLC.

The EnOcean EY-RU1.. wireless operating units are connected to the ecos500 via an EY-EM580 bidirectional wireless receiver, which is also connected with four-core to the serial RS-485 A interface. The line can be up to 100 m in length. The communication protocol is SLC.

Up to four operating units can be connected to each ecos500. It is possible to combine wired (EY-RU3..) and wireless (EY-RU1..) room operating units.

Extension interface

Interface RS-485 B

This ecos500 interface is reserved for future extensions.

Four-core twisted cable must be used for the connection to the serial RS-485 B interface. The line can be up to 100 m in length.

Digital outputs (relays)

| | |
|---------------------|---|
| Number of outputs | 16 (DO) |
| Type of outputs | Relays, normally-open contacts (0-1) |
| Load for outputs | see the <i>technical specifications</i> table |
| Switching frequency | 10 ⁶ cycles |
| Switching voltage | 24...250 V |

Note:

The following are not permitted: mixed connections for power circuits, different phases (L1, L2, L3) or different voltage ranges (low voltage).

The actuator to be switched is connected directly to the relay terminals (channel 0...15).

Outputs can be defined for single or multi-level functions. Real feedback signals can be implemented only via the digital inputs (BACnet COMMAND FAILURE).

Digital outputs (triac)

| | |
|-------------------|-------------------------------------|
| Number of outputs | 8 (DO) |
| Type of outputs | triac, normally-open contacts (0-I) |
| Load for outputs | 24 V~ / 0.5 A (resistive load) |

The actuator to be switched (e.g. thermal actuator) is connected directly to the triac terminals (channels 18...25). The triacs are wired to GND.

Triac outputs can be defined for single or multi-level functions. Real feedback signals can be implemented only via the digital inputs (BACnet COMMAND-FAILURE).

The power supply for thermal drives can be tapped from the LS terminals. The maximum tappable current should be referenced from the table *ecos500 load calculation*.

Analogue outputs

| | |
|-------------------|--|
| Number of outputs | 4 (AO) |
| Type of outputs | 4x 0(2)...10 V can be used as a sink from 1 V |
| Load | ≤ 2 mA |
| Updating rate | 100 ms |
| Resolution | 13 bit |

The output voltage is measured between the relevant output terminal (channels 34...37) and an earth terminal. The outputs are designed as push-pull outputs with active sink capability. A load of 2 mA can be applied to each output. The total of all analogue output currents should not exceed 8 mA, in order to ensure reliable functioning.

The analogue output of the ecos500 is protected against short circuits with respect to earth, but not against extraneous voltage. However, the permanent short-circuiting of *several* outputs leads to their being damaged by heat. They are still protected against static discharges.

Technical specifications of inputs and outputs

| Universal input | Measuring range | Resolution | Accuracy | |
|-----------------|-----------------|------------|----------------|------------------------|
| | | | Measuring span | plus measurement value |
| Ni/Pt1000 | -50...+150 °C | < 0.05 K | ± 0.5% | 0.5% |
| U (0/0.2...1 V) | 0.02...1.05 V | < 0.1 mV | ± 0.5% | 0.5% |
| U (0/2...10 V) | 0.15...10.2 V | < 1 mV | ± 0.5% | 0.5% |
| R | 200...2500 Ω | < 0.1 Ω | ± 1% | 1% |

Relay outputs

| Terminals | Continuous load per switching contact (max.*) | Start-up current | Intended application |
|--------------------------|---|------------------|---|
| 1-2, 8-9, 15-16, 22-23 | 5 A | 80 A (20 ms) | Electric heater |
| 3-4, 10-11, 17-18, 24-25 | 5 A | 80 A (20 ms) | Lights or fan (1-speed or, if 3-speed, then speed 3) |
| 5-7, 12-14, 19-21, 26-28 | 1 A | 30 A (20 ms) | Fan (2-speed, or if 3-speed, then speeds 1 and 2) or window blind, max. 100 VA rated motor power / 5 Nm |

* The following are not permitted: mixed connections for power circuits, different phases (L1, L2, L3) or different voltage ranges (low voltage).

Triac outputs

| Terminals | Continuous load (max.) | Intended application |
|-----------|------------------------|---|
| 59-66 | 0.5 A | Thermal drives A triac can switch up to 0.5 A. If the power supply for thermal drives is taken from the LS terminal, then the sum of all currents switched simultaneously via the triacs can be up to 0.5 A. |

| Analogue output | Correcting range | Resolution | Accuracy |
|-------------------------|------------------|------------|-----------------|
| AO (0/2...10 V, ≤ 2 mA) | 0.01...10.2 V | < 2 mV | 1% of end value |

| Binary input (O-I) | Universal input (UI) | Digital input (DI) |
|-------------------------------|----------------------|--------------------|
| Switching threshold, inactive | > 3 V | > 8 V |
| Switching threshold, active | < 1.5 V | < 1.5 V |
| Switching hysteresis | > 0.4 V | > 0.4 V |

Controlling continuous drives

A permanent load of up to 2 mA can be applied to an analogue output (10 V=). This results in a load of ≥ 5000 Ω.

Sizing/rating the internal transformer

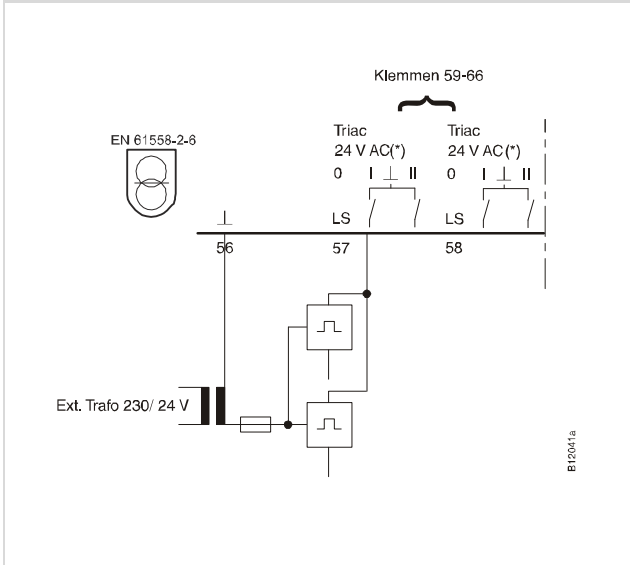
The transformer incorporated in the ecos500 provides power for the electronic system, the control current for internal relays and 24 V~ on the LS terminals for thermal drives.

Care should be taken not to overload the internal transformer when wiring the ecos500. The *ecos500 load calculation* table can be used to calculate loads.

Adding an external transformer

If the maximum permissible current of the internal transformer is exceeded, an external transformer can be used to remedy the problem. In this case, the external transformer is used to supply current to thermal drives. The maximum permanent load on the triac must not exceed 0.5 A.

Circuit diagram: external transformer



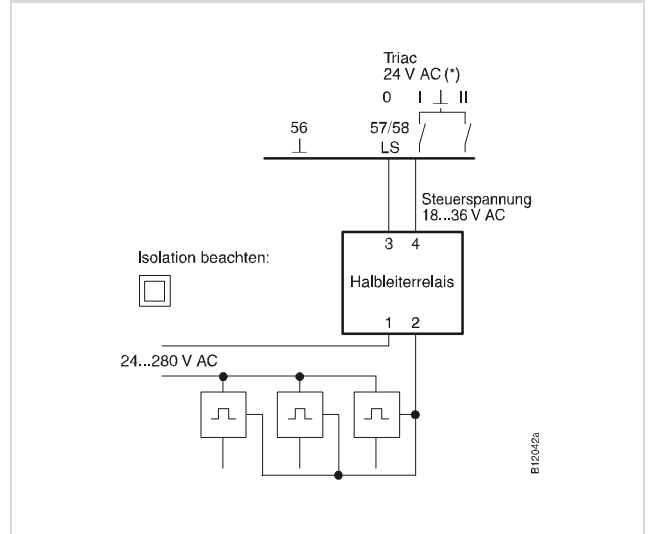
Parallel operation of more than 4 thermal actuators

A semiconductor relay can be interconnected if higher currents are required. The current supply to drives is also provided by an external transformer. The number of actuators is limited by the rating of the semiconductor relay.

Example:

24 to 280 V~, 8 A without heat sink at 230 V~, control voltage 18...36 V~.

Circuit diagram: parallel operation



ecos500 load calculation table

The ecos500 is designed for 4 rooms/axes, each with the following application:

- 1x electric heater
- 1x light
- 1x window blind UP/DOWN
- 2x thermal drives (heating/cooling)

Additional combinations are possible, e.g. 1x light and 3-speed fan etc.

The internal transformer is rated for this application.

Care should be taken not to overload the transformer if the ecos500 is used with a different configuration.

The following table can be used to calculate the load of a configuration.

ecos500 load calculation

| Terminal no. | Type | Start-up currents max. | Continuous load (A) max. | Current load (mA) internal transformer | Application: continuous load (mA) internal transformer |
|--------------|-------------|------------------------|--------------------------|--|--|
| 01 | IN | | | | |
| 02 | Relay | 80 A (Inrush) | 5 | 40 | |
| 03 | IN | | | | |
| 04 | Relay | 80 A (Inrush) | 5 | 40 | |
| 05 | IN | | | | |
| 06 | Relay | 30 A | 1 | 20 | |
| 07 | Relay | | | 20 | |
| 08 | IN | | | | |
| 09 | Relay | 80 A (Inrush) | 5 | 40 | |
| 10 | IN | | | | |
| 11 | Relay | 80 A (Inrush) | 5 | 40 | |
| 12 | IN | | | | |
| 13 | Relay | 30 A | 1 | 20 | |
| 14 | Relay | | | 20 | |
| 15 | IN | | | | |
| 16 | Relay | 80 A (Inrush) | 5 | 40 | |
| 17 | IN | | | | |
| 18 | Relay | 80 A (Inrush) | 5 | 40 | |
| 19 | IN | | | | |
| 20 | Relay | 30 A | 1 | 20 | |
| 21 | Relay | | | 20 | |
| 22 | IN | | | | |
| 23 | Relay | 80 A (Inrush) | 5 | 40 | |
| 24 | IN | | | | |
| 25 | Relay | 80 A (Inrush) | 5 | 40 | |
| 26 | IN | | | | |
| 27 | Relay | 30 A | 1 | 20 | |
| 28 | Relay | | | 20 | |
| 57 | LS_out | | 12 VA | | |
| 58 | LS_out | | (= 0.5 A) | | |
| 59 | triac 24 V~ | | | 125* | |
| 60 | triac 24 V~ | | | 125* | |
| 61 | triac 24 V~ | | | 125* | |
| 62 | triac 24 V~ | | | 125* | |
| 63 | triac 24 V~ | | | 125* | |
| 64 | triac 24 V~ | | | 125* | |
| 65 | triac 24 V~ | | | 125* | |
| 66 | triac 24 V~ | | | 125* | |
| | | | | Total | |
| | | | | | Permanent current max. 1000 mA |

*) e.g. AXT111F202

General functional description

The room automation station is based fully on BACnet/IP communication.

Note:
Details on BACnet functionality can be referenced from the PICS documentation.

Ethernet system bus

The ecos500 stations have two Ethernet connections. These have the function of a switch. Wiring must be compliant with the general regulations for Ethernet/IP networks.

Commissioning

This work must always be undertaken while the equipment is dead (no power applied). Protective ESD precautions must be in place for all manipulations.

Programming and parameterisation

The complete user program (Engine Plan) and the various parameterisations (BACnet objects, images for moduWEB, etc.) are produced using CASE Suite. Up to 256 BACnet data points, including hardware inputs and outputs, can be used.

Every ecos500 must be configured for communication in an Ethernet network. All settings such as IP address, subnet mask, gateway and instance number (DOI) are parameterised using CASE Sun. Automatic configuration via DHCP server is also possible.

The Run/Fault LED can be set to flash mode using the CASE Sun commissioning tool to identify the automation station visually within a network.

The user program can be loaded from any point in the IP network using CASE Suite. An active download is signalled by means of flashing red LEDs. Data is written to the Flash memory and remains intact even in the event of a power failure. This provides very high protection against data loss.

Inputs and outputs can be parameterised via the user program and are free for utilisation in control and regulation tasks.

Initialisation

The room automation station can be initialised with CASE Suite prior to executing the download.

Firmware update

The room automation station is supplied with a current version of the firmware. If a newer firmware version becomes available during the time prior to installation and commissioning, it is possible to update the ecos500 directly using CASE Sun via the network. An active update is signalled by means of flashing red LEDs.

It is essential to check the firmware version prior to commissioning a room automation station and to execute an update where indicated.

Internal clock

A battery-buffered real time clock (RTC) for the time programmes is integrated in the ecos500. Date, time and time zone are set when the user data is loaded into the ecos500.

It is possible to set the date, time and time zone via the BACnet browser, for example.

Thanks to BACnet services "DM-TS-B" and "DM-UTC-B", the time and date are synchronised automatically when provided with appropriate input from a BACnet time server (e.g. novaPro Open).

Switching between summer and winter time (daylight saving) is activated by default in the AS network properties (CASE Engine) and includes all the room automation stations integrated within the same network.

Time programs, calendar

BACnet functionality allows for up to 32 time programs (Schedule) and 8 calendar objects (Calendar) to be created in the ecos500.

Battery, data buffering

A plug-in lithium button-cell battery ensures that the real time clock for time programmes (Schedule/Calendar) and data, e.g. those from counters (such as adaptive control algorithms), are retained in the memory (SRAM) in case of a power failure.

The ecos500 does not monitor the battery voltage.

Technical data:

| | |
|-----------------|----------------------------|
| Type (standard) | CR2032 lithium button-cell |
| Nominal voltage | 3 V |
| Capacity | 210 mAh |
| Dimensions | 20 × 3.2 mm |

User data from CASE Engine and modified user data (e.g. modified via BACnet client) are stored permanently in the Flash memory and do not require battery buffering.

It is nevertheless advisable to safeguard the user data (CASE Engine) and changed user data with a backup (e.g. BACnet DM-BR).

Behaviour in the event of a power failure

Power failures are differentiated as follows:

- Micro-interruptions

Micro-interruptions are generally described in terms of micro-seconds (0...999 µs). These interruptions are bridged without any deactivations or other consequences. The plant maintains normal operation.

- Normal interruptions

These interruptions are generally described in terms of seconds and minutes. Normal interruptions for the ecos500 mean controlled deactivation and controlled reactivation according to priority when the power supply is resumed. The ecos500 implements controlled deactivation and reactivation automatically.

For BACnet objects this means:

- The "Notification Class Recipient List" remains intact and the clients continue to receive event and alarm information automatically without having to log in again.
- Proprietary COV notifications remain intact.
- The COV subscriptions to other stations are re-registered automatically.
- AS-AS connections (between room automation stations) are updated (re-subscription).
- When mains power is restored, the room automation station will check the data consistency and relaunch communication automatically.

Extension options

Various components can be added as extensions to the ecos500 via an SLC interface.

Channel and terminal assignment: ecos500 for one room/axis

| Description | Terminals Room/Axis 1 | | | Field devices (Application) |
|----------------------------------|--------------------------|----------------|------------|--------------------------------|
| | Channel | Signal | Common | Occupancy |
| Digital output (relay 0-I) | 00 | 02 | 01 | |
| | 01 | 04 | 03 | |
| | 02 | 06 | 05 | |
| | 03 | 07 | | |
| | 04 | 09 | 08 | |
| | 05 | 11 | 10 | |
| | 06 | 13 | 12 | |
| | 07 | 14 | | |
| | 08 | 16 | 15 | |
| | 09 | 18 | 17 | |
| | 10 | 20 | 19 | |
| | 11 | 21 | | |
| | 12 | 23 | 22 | |
| | 13 | 25 | 24 | |
| | 14 | 27 | 26 | |
| 15 | 28 | | | |
| RS-485 A | | 29, 30, 31, 32 | | |
| RS-485 B | | 33, 34, 35, 36 | | |
| | | | GND | |
| Analogue output (0..10 V) | 34 | 38 | 37 | |
| | 35 | 39 | | |
| | 36 | 40 | | |
| | 37 | 41 | | |
| Universal input (Ni/Pt1000/U/DI) | 26 | 43 | 42 | |
| | 27 | 44 | | |
| | 28 | 45 | | |
| | 29 | 46 | | |
| | 30 | 48 | 47 | |
| | 31 | 49 | | |
| | 32 | 50 | | |
| Digital input (DI) | 33 | 51 | | |
| | 38 | 52 | | |
| | 39 | 53 | | |
| | 40 | 54 | | |
| Voltage output LS (24 V~) | 41 | 55 | 56 | |
| | | 57 | | |
| Digital output (triac 0-I) | | 58 | | |
| | 18 | 59 | | |
| | 19 | 60 | | |
| | 20 | 61 | | |
| | 21 | 62 | | |
| | 22 | 63 | | |
| | 23 | 64 | | |
| | 24 | 65 | | |
| | 25 | 66 | | |

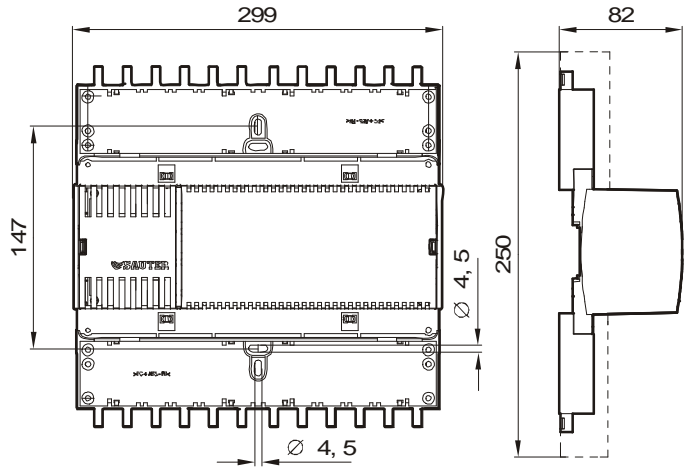
Channel and terminal assignment: ecos500 for two rooms/axes (1 device, with 2 functionally identical axes (2 virtual ecos))

| Description | Channel | Terminals | | | | Field devices (Application) | Room/Axis | |
|----------------------------------|---------|----------------|--------|-------------|--------|--------------------------------|-----------|---|
| | | Room/Axis 1 | | Room/Axis 2 | | | 1 | 2 |
| | | Signal | Common | Signal | Common | Occupancy | | |
| Digital output (relay 0-I) | 00 | 02 | 01 | 16 | 15 | | | |
| | 01 | 04 | 03 | 18 | 17 | | | |
| | 02 | 06 | 05 | 20 | 19 | | | |
| | 03 | 07 | | 21 | | | | |
| | 10 | 09 | 08 | 23 | 22 | | | |
| | 11 | 11 | 10 | 25 | 24 | | | |
| | 12 | 13 | 12 | 27 | 26 | | | |
| | 13 | 14 | | 28 | | | | |
| RS-485 A | --- | 29, 30, 31, 32 | | | | | | |
| RS-485 B | --- | 33, 34, 35, 36 | | | | | | |
| | | | GND | | GND | | | |
| Analogue output (0..10 V) | 06 | 38 | 37 | 40 | 37 | | | |
| | 16 | 39 | | 41 | | | | |
| Universal input (Ni/Pt1000/U/DI) | 07 | 43 | 42 | 48 | 42 | | | |
| | 08 | 44 | | 49 | | | | |
| | 17 | 45 | | 50 | | | | |
| | 18 | 46 | 47 | 51 | 47 | | | |
| Digital input (DI) | 09 | 52 | 56 | 54 | 56 | | | |
| | 19 | 53 | | 55 | | | | |
| Voltage output LS (24 V~) | --- | 57, 58 | | | | | | |
| Digital output (triac 0-I) | 04 | 59 | | 63 | | | | |
| | 05 | 60 | | 64 | | | | |
| | 14 | 61 | | 65 | | | | |
| | 15 | 62 | | 66 | | | | |

Channel and terminal assignment: ecos500 for four rooms/axes (1 device, with 4 functionally identical axes (4 virtual ecos))

| Description | Channel | Terminals | | | | | | | |
|----------------------------------|---------|----------------|--------|-------------|--------|-------------|--------|-------------|--------|
| | | Room/Axis 1 | | Room/Axis 2 | | Room/Axis 3 | | Room/Axis 4 | |
| | | Signal | Common | Signal | Common | Signal | Common | Signal | Common |
| Digital output (relay 0-I) | 00 | 02 | 01 | 09 | 08 | 16 | 15 | 23 | 22 |
| | 01 | 04 | 02 | 11 | 10 | 18 | 17 | 25 | 24 |
| | 02 | 06 | 05 | 13 | 12 | 20 | 19 | 27 | 26 |
| | 03 | 07 | | 14 | | 21 | | 28 | |
| RS-485 A | --- | 29, 30, 31, 32 | | | | | | | |
| RS-485 B | --- | 33, 34, 35, 36 | | | | | | | |
| | | | GND | | GND | | GND | | GND |
| Analogue output (0..10 V) | 06 | 38 | 37 | 39 | 37 | 40 | 37 | 41 | 37 |
| Universal input (Ni/Pt1000/U/DI) | 07 | 43 | 42 | 45 | 42 | 48 | 42 | 50 | 42 |
| | 08 | 44 | 47 | 46 | 47 | 49 | 47 | 51 | 47 |
| Digital input (DI) | 09 | 52 | 56 | 53 | 56 | 54 | 56 | 55 | 56 |
| Voltage output LS (24 V~) | --- | 57, 58 | | | | | | | |
| Digital output (triac 0-I) | 04 | 59 | | 61 | | 63 | | 65 | |
| | 05 | 60 | | 62 | | 64 | | 66 | |

Dimension drawing



Wiring diagram

