NOVEMBER 2017

Webinar New KNX Devices Nov. 2017

JRA/S 6.230.3.1, LGS/A 1.2, TR/A 1.1

Webinar – Competence Center Europe – Building Automation
Agenda

Blind/ Roller Shutter Actuator with Binary Inputs - JRA/S 6.230.3.1

Air Quality Sensor with Room Temperature Controller – LGS/A 1.2

Time Receiver GPS - TR/A 1.1
Blind/ Roller Shutter Actuator with Binary Inputs

Introduction

- Extension of the existing range of ABB’s shutter actuators with one 6-fold device for 230 V AC motors

- Existing range:
  - 2-fold, 4-fold and 8-fold for 230 V AC
  - with/without manual operation and LED for indication
  - with/without travel time detection
  - 4-fold for 24 V DC motors and SMI-Motors

- New:
  - 6-fold device for 230 V AC motors, including binary inputs
  - Control of Shutters and Blinds but also loads with standard relay function
  - Inputs and Outputs in one device for an easy and fast implementation but also cost efficient solution
Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

Motivation

- Manufacturer of shading systems offer more and more KNX shutter and blind actuator similar to our new 6-fold actuator
- Request for integrated binary inputs to operate the motor directly
- Different from these manufacturer of shading systems available for everybody, not only selected partners
Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

Benefits

- Electro-mechanically interlocked outputs (changeover contact) prevent possible destruction of the drives
  - no damage of the motor in case malfunction of the contacts
Blind/ Roller Shutter Actuator with Binary Inputs
JRA/S 6.230.3.1

Benefits

- 12 Integrated binary inputs to connect conventional switches and push buttons or contacts
  - For connection of potential free contacts
  - Switches, pushbuttons or any contacts
  - to control directly the connected motors/loads or any other motor/load connected to another KNX device via telegram
  - Direct control of motors after installation via binary inputs (preprogrammed from factory)
  - Internal connection between in- and output for easy and fast linkage
  - Connection via group addresses (also additionally) always possible
DIN rail device, 12 modules width, based on Room Master RM/S

Outputs
- 6 mechanically locked Blind/Roller Shutter outputs
  - 230 V AC, 6 A
  - Changeover contacts
  - Each output can be programmed also as relay output, e.g. for lighting control (only contact up valid)

Inputs
- 12 binary inputs for potential free contacts
  - 6 groups, 2 inputs per group
  - Internal connection between inputs and outputs without group addresses (like Room Master)
  - Inputs can also be used as standard binary inputs for other functions
Blind/ Roller Shutter Actuator with Binary Inputs
JRA/S 6.230.3.1

Software

Software based on Room Master RM/S

Shutter outputs
- Blinds (stop and slat adjustment)
- Shutters (stop)
- Position via 8 bit value
- Scene (8 bit)
- Security functionality (2 safety objects per channel)
  - Rain, Frost, Wind or priority function
  - Up, down, stop or unchanged
  - Option cyclical monitoring
- Automatic sun protection
**Blind/ Roller Shutter Actuator with Binary Inputs**

**JRA/S 6.230.3.1**

**Software**

Automatic sun protection
- Automatic sun protection depending on sun position together with shutter control unit JSB/S 1.1 and brightness sensor
- Powerful application for sophisticated shading solution
Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

**Software**

**Outputs**
- NC or NO contact
- Staircase, on/off delay, Blinking
- Scenes (8 bit)
- Logic
- Forced control (1 or 2 bit)

**Inputs**
- Internal connection to outputs
- Switching, dimming, shutter control
- Value/forced control
Blind/ Roller Shutter Actuator with Binary Inputs

JRA/S 6.230.3.1

1. Label carrier
2. Key **Program**
3. LED **Program** (red)
4. Bus connection terminal
5. Shutter 1 (A, B)
6. Shutter 2 (C, D)
7. Shutter 3 (E, F)
8. Shutter 4 (G, H)
9. Shutter 5 (I, J)
10. Shutter 6 (K, L)
11. Binary inputs (g, h, i, j, k, l)
12. Binary inputs (a, b, c, d, e, f)
Blind/ Roller Shutter Actuator with Binary Inputs
JRA/S 6.230.3.1

Product Information

Product name:
EN: Blind/Roller Shutter Actuator with Binary Inputs, MDRC
DE: Jalousie-/ Rollladenaktor mit Binäreingängen, REG

Product type: JRA/S 6.230.3.1

Order number: 2CDG 110 208 R0011

Availability: available
Influence of the CO₂ concentration on well-being of people

Room air quality is an important planning parameter for energy-efficient buildings.

The European building directive (EPBD – Energy Performance of Buildings Directive) requires that when verifying energy performance, in addition to the systems for compensating outdoor ambient conditions (i.e. heating, cooling), the indoor climatic conditions must also be monitored.

The requirements for reduction of energy consumption often lead to poor ventilation in today’s highly insulated buildings.

The quality of the room air often does not meet the desired and stipulated levels.

A suitable indicator for determination of the room air quality is the CO₂ concentration.
People increase the CO₂ concentration in the air naturally during respiration.

A high CO₂ concentration in the air influences the well-being as well as the performance and learning ability of people.

This means that rooms in which many persons are present (schools, conference rooms, open-plan offices) will require the provision of a sufficient supply of fresh air.

**Influence of the CO₂ concentration on well-being of people**

![Graph showing the influence of CO₂ concentration on well-being](image)

*Source: VFW e.V.*
The respiratory volume of an adult at rest is between 450 and 500 ml and the respiratory rate is about 18 times a minute. If a seminar room (8 m x 7 m x 2.5 m = 140 m³), without a supply of fresh air, is occupied by 30 persons for 1 hour, the oxygen concentration in the room air is reduced from 21% to about 20.5%. However, the CO₂ concentration increases sharply to about 4,500 ppm. The concentration at which physical limitations e.g. reduced concentration, tiredness, headaches, are to be expected, starts as early as 2,000 ppm.
Starting from a concentration of 800 ppm (0.08 Vol %) makes carbon dioxide, humans tired!
The German Standard DIN 1946-6 prescribes due to its an outside air flow rate of 30 m³/h per person
With the current build standard this value is not reached
Reason for it is e.g. the high tightness of the building cover and the occasional air with tilted windows
A control ventilation of areas in buildings is therefore urgently necessary

Recording the CO₂-concentration in a bedroom
2 adults, window and door were closed
Introduction

- Extension/Replacement of ABB’s range of air quality (CO₂) sensors with a new surface mounted device

- Existing range:
  - 6109/28 with display
  - LGS/A 1.1 with colored LED

- New:
  - Air quality sensor LGS/A 1.2
  - CO₂ Measurement and control
  - Measurement of relative humidity and control
  - Temperature measurement and control
  - Air pressure measurement
  - Dew point calculation
  - 2 LEDs to display exceeding CO₂/ Humidity level
  - Replacement of LGS/A 1.1
Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

Motivation

- Replacement/Update of existing surface mounted air quality sensor LGS/A 1.1
- Integration of controller functionality (Temperature, CO₂, humidity)
- Implementation of unified RTC concept like all other room temperature controller from ABB
- Design update, less depth of housing
Air Quality Sensor with Room Temperature Controller
LGS/A 1.2

Benefits

- Surface mounted air quality sensor
  - Easy installation, supply via KNX
- Integrated temperature controller with unified RTC concept different from LGS/A 1.1
- LEDs for simple information about CO₂ and humidity level for the end user
- Maintenance free and precise CO₂ measurement with automatic calibration
- Comprehensive ETS application with more functions (e.g. integrated controller) compared with former LGS/A 1.1
## Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

### Hard- and Software

**Hardware**
- Surface mounted device
- CO₂ measurement: 390 ... 10,000 ppm
- Temperature measurement: 0 ... 50°C
- Relative humidity measurement: 0 ... 100%
- Air pressure
- Automatic calibration of CO₂ measurement

**Software**
- Sending of measured values
- PI control for CO₂ and humidity
- 1/2/3 step control for CO₂ and humidity (3 thresholds)
- Dew point calculation and alarm
- Software application like RTC 6109/28 (unified RTC)

<table>
<thead>
<tr>
<th>Functionality</th>
<th>CO₂</th>
<th>Humidity</th>
<th>Temperature</th>
<th>Dew point</th>
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</thead>
<tbody>
<tr>
<td>Send value</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td>PI Control</td>
<td>X</td>
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<td>X (unified RTC)</td>
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<tr>
<td>Thresholds</td>
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<tr>
<td>Alarm</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

Hardware

- Optical indication of CO₂ limits via LED
  - Threshold 1 (orange): 400...1500 ppm
  - Threshold 2 (red): threshold 1 + (50...1000ppm)
- Optical indication of humidity via LED
  - Threshold 1 (orange): 20...50 %
  - Threshold 2 (red): threshold 1 + (1...30%)
- Green LED when below threshold 1
- LEDs can be switched off via telegram
Air Quality Sensor with Room Temperature Controller
LGS/A 1.2

Hardware

- Bus connection including power supply
  - Insertion of wire without tool, by pressing the cover wire can be removed
- Calibration of CO₂ measurement, automatically with switch on of KNX voltage/Reset
- Activation of programming button by pressing on the circuit board marked with PHYS. ADDRESS
Air Quality Sensor with Room Temperature Controller
LGS/A 1.2

ETS Application

- Application based on ABB’s unified RTC concept
- It is the same software concept, providing the user with the same function for all devices → easier to commission and operate
- Uniform Master Slave concept → easy implementation of more than one RTC’s in a room
- One set point mode → easier to program, easier to operate for the user (Alternatively two set point mode with dead zone parametrizable)
- Additional stage for heating and cooling with individual parameters as an independent second control circuit (e.g. basic floor heating) → more flexibility
Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

Two Setpoint Mode

- **Setpoint cooling 22°C**
- **Setpoint heating 20°C**
- **Deadzone no cooling/heating**

**Heating mode**
- Start heating
- Stop heating

**Cooling mode**
- Start cooling
- Stop cooling

**Room Temperature**
- Time →

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Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

One Setpoint Mode

- **Setpoint**: 21°C
- **Switching point heating**: 20°C
- **Switching point cooling**: 22°C
- **Heating mode**: Starts at 20°C, stops at 21°C
- **Cooling mode**: Starts at 22°C, stops at 21°C

Graph showing the time and room temperature relationship with heating and cooling modes.
Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

Master-Slave
Air Quality Sensor with Room Temperature Controller

LGS/A 1.2

Applications

- Air quality control
  - Dependent on CO₂ level
  - Dependent on humidity level
  - e.g. in combination with Blower Actuator FCL/S x.6.1.1
- CO₂/ Humidity/ Temperature/ Air pressure measurement
- Dew point calculation and alarm
- Room temperature control
  - e.g. in combination with Fan Coil Actuator FCA/S 1.x.y.1
  - RTC master functionality
- Optical indication of CO₂ and humidity limits for the user
Air Quality Sensor with Room Temperature Controller
LGS/A 1.2

- Air Quality Sensor
  LGS/A with measurement and monitoring of CO₂ concentration, temperature, air pressure and humidity

- Optional: manual setting of fan speed, e.g. US/U

- Occupancy control, e.g. 6131

- Timer control, logic control, e.g. ABZ/S, ABA/S, FW/S

- CO₂ concentration
  Temperature
  Air humidity

- Control of fans and blowers, e.g. by FCL/S, FCA/S, RM/S, RC/A

- Control of motor operated windows, window slats or roof hatches, e.g. by JRA/S

- Control of valves for temperature control, e.g. by ES/S, VAA/S, FCA/S

- (Multi-speed) Fan
- Motor drive
- Valve drive
Air Quality Sensor with Room Temperature Controller
LGS/A 1.2

Product Information

Product name:
EN: Air quality sensor with RTC, SM
DE: Luftgütesensor mit RTR, AP

Product type: LGS/A 1.2

Order number: 2CDG 120 059 R0011

Availability: week 46/2017

Successor of the LGS/A 1.1, which will be discontinued
Time Receiver GPS

TR/A 1.1

Introduction

– Extension of ABB's range of KNX devices to receive time and date via GPS and send it on KNX
  • Functions of a time switch
  • Temperature and brightness measurement and resulting functions

– Existing product:
  • Radio Time switch FW/S 8.2.1
  • GPS antenna FAG/A 1.1

– New:
  • Time Receiver GPS TR/A 1.1
Time Receiver GPS
TR/A 1.1

**Motivation, Features and Benefits**

- Extension of ABB’s product portfolio for
  - Receiving date and time via GPS
  - Sending date and precise time on KNX
  - Measurement of outside temperature
  - Measurement of outside brightness
- Three functions in one device
  - Cost efficient solution, especially for smaller buildings/projects
- Time emitter for logic controller ABA/S 1.2.1, shutter control unit JSB/S 1.1 or application unit time ABZ/S 1.1 and others
- Worldwide use due to existing GPS Signal for date and time
Time Receiver GPS

TR/A 1.1

Hardware

- To be mounted outside e.g. on a façade
- Component can be easily put on the holder
- Direct connection to the KNX Bus, no additional supply voltage
- Cable bushing for safe wiring
- One brightness sensor behind the cover on top
- Integrated temperature sensor
- Integrated GPS receiver (Date, Time, Latitude, Longitude)
- LED GPS
  - slow flashing: Signal ok
  - Fast flashing: Signal faulty
- Protection class IP 56
Time Receiver GPS
TR/A 1.1

- Cable bushing
- Holder
- Programming LED
- Programming button
- GPS LED
- KNX Bus connection terminal (red/black)
**Time Receiver GPS**

**TR/A 1.1**

**Software**

- GPS signal for date and time
  - 2 x time switch options
  - 2 x astro (sunrise/sunset) switch options
  - 2 x astro plus (offset and switch on/off period)
  - Sending of sun position (azimuth/elevation)
  - Sending of sunrise/sunset time
  - Switching between summer and winter time
- Outdoor temperature measurement
  - Temperature logic
    - \( T < \text{setpoint} \rightarrow \text{Heating} / T > \text{setpoint} \rightarrow \text{Cooling} \)
- Brightness measurement (One sensor)
  - 2 x Brightness threshold
  - On/off delay
  - Switch on/off period
- Switching object or scene (8 bit)

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Time Receiver GPS
TR/A 1.1

Applications

- Delivery of date and time into the KNX system to synchronize other KNX devices
Applications

- Synchronisation of time and date on KNX
- Switching or recall of scene depending on time, sunrise or sunset for lighting and shading
- Send of date, time, brightness, temperature, latitude, longitude, sun position ...
- Temperature control, e.g. green house or information heating/cooling mode for HVAC solutions

Temperature
Brightness
Time

Temperature Receiver GPS
TR/A 1.1
# Time Receiver GPS

TR/A 1.1

## Product Information

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<thead>
<tr>
<th>Product name:</th>
<th>EN: Time Receiver GPS, SM</th>
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<td>DE: Zeitempfänger GPS, AP</td>
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<th>Product type:</th>
<th>TR/A 1.1</th>
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<th>Order number:</th>
<th>2CDG 120 060 R0011</th>
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| Availability:       | week 46/2017                       |
Webinar “New KNX devices”

Competence Center Europe – Asia – Middle East Africa – America

Training & Qualification Calendar 2018

In addition to the online modules and the traditional training programs offered by your local ABB sales team, we offer a variety of on-site trainings conducted by our specialists at different ABB training facilities.

In this Training & Qualification Calendar you can find the educational events that are taking place during 2018.

If you are interested in a training of the calendar please contact your local ABB:

www.abb.com/knx

→ Training and Qualification
→ Training Calendar
Webinar “New KNX devices”
Competence Center Europe – Asia – Middle East Africa – America

**KNX Certified Training**

Certified KNX Courses in Heidelberg 2018
- Basic Course 19th to 23rd February
- Advanced Course 16th to 20th July
- Tutor Course 09th to 13th October

And many more training courses in the calendar:
“International Training Dates 2018”

Certified KNX Basic Course April 2017 in Heidelberg
Webinar “New KNX devices”

Next Webinar

**ABB-free@home®**

Wednesday 13th December 2018

- Morning 09:00 am Europe Time
  (Berlin, UTC + 1h)
- Afternoon 03:00 pm Europe Time
  (Berlin, UTC + 1h)

ABB-free@home® - new functionalities and highlights about software update

- Integration of Sonos wireless home sound system
- Geofencing
- Integration of Amazon’s Alexa
  ...
  and more

"Alexa, set the temperature to 22 degrees"
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