

KNX M/WS05.1 Indoor Microwave Sensor User Manual

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Modification Record

This record accumulates instructions for each document update. The latest version of the document contains updates from all previous document versions.

| Num | Version | Modification Content | Date |
|-----|---------|------------------------|------------|
| 1 | V1.0.0 | First official release | 2020/11/25 |
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1 Overview

1.1 General Information

1.1.1 Description

KNX Ceiling Mount Indoor Microwave Sensor (M/WS05.1) contains four independent logic blocks and one combined logic block. The logic inputs include microwave sensor status, brightness value, temperature, dry contact input and external telegrams, which enables the control of lighting, curtains, thresholds, etc.

1.1.2 Device Description



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HDL

- 1. Programming button.
- 2. LED indicator.
- 3. Microwave sensor.
- 4. PCB fixing screw.
- 5. Lux sensor.
- 6. Screw hole.
- 7. Dry contact 1, dry contact 2.
- 8. Wiring channel, open it for wiring.
- 9. KNX/EIB bus connector.
- 10. Ventilation hole.

Detection Range:



Detection Range (30°C)

| Mounting height | Sitting/Slight movements/Walking towards | Small steps | Walking across |
|-----------------|--|-------------|----------------|
| 3m | 5m | 10m | 16m |



1.1.3 Installation Steps



- Step 1. Rotate and take the cover off.
- Step 2. Screw the plate on the wall box with screws.
- Step 3. Install the sensor onto the plate with screws.
- Step 4. Rotate and attach the cover to the sensor.

1.2 Functionalities

- With 2CH constant brightness control, 4 dimming values and forced operation can be set.
- The sensor has 5 logic blocks and each block contains 10 object outputs. Dry contact and telegram locking/unlocking and delay time can be set.
- Control types: Switch control, Absolute dimming control, Shutter control, Alarm control, Percentage control, Sequence control, Scene control, String (14 bytes) control, Threshold control, Logic combination control.
- Logic inputs: Microwave sensor status, brightness value, temperature, dry contact input and external telegrams.
- 2 logical relations: AND, OR.
- 2 working modes: Single mode and master / slave mode.
- 2CH dry contact can be set as dry contact and LED status display and the operation function can be set as switch control, dimming control, scene control and percentage control.



• The logic validity can be set by external telegram.

2 Software Configurations

2.1 Device Import

We need to add device/database before program it.

1: Create project in ETS5, if you have project, ignore it. Suggested use Three Level when

create project.



2: Select Catalog, and Import the database of device which you want.

| I ETS5™ - Sensor proj | ect | | | | - 🗆 X |
|-----------------------|------------------------|----------------------------------|---|----------|--------------------|
| ETS Edit Workpl | ace <u>C</u> ommission | ing <u>D</u> iagnostics <u>A</u> | pps Wi <u>n</u> dow | | ~ 🤇 |
| 👩 Close Project 🧹 | | | Workplace • Catalogs Diagnostics | | |
| Catalog | | | | | ∧ ⊡ × < |
| 🛓 Import. 🏦 Expo | rt 🖄 😱 | Download 📃 🕨 | Manufacturers | Search | P |
| The online catal | og has not been up | odated for your marke | et or a market is not selected. | | Update markets now |
| 🔺 Favorites 🔹 | See Manufac | turer Name | o 🗙 | Version | |
| Device Templ | HDL HDL | HS 24M | Import successful | 1.0 | ^ <i>*</i> |
| B Previously used | HDL | DALI Gat | Import successiui. | 1.2 | |
| | HDL | Line cou | | 1.0 | |
| | HDL | M/KNX I | File: D:\技术支持资料\HDL技术说明书HDL folder\技术支持\KNX | 1.0 | |
| Manufacturers | HDL | WS 5L S | \database 2017\HDL-KNX Database and Manual-EN-update17 \KNX-Motion Sensor\M-WS05 1\\/1 0\Database | 1.0 | |
| HDL | HDL | MPTLC4 | \WS 5L Sensor V1.0.vd5 | 1.0 | |
| | HDL | HS 5L Se | Product: WS 5L Sensor(V1.0) | 1.4 | |
| | HDL | MPT14 C | | 1.0 | |
| | HDL | M/S410. | |) 1.0 | |
| | HDL HDL | M/SIS05 | | 1.0 | |
| | HDL | Hotel 19 | | 1.0 | |
| | HDL | Panel Til | | 1.1 | |
| | HDL | Panel Til | | 1.1 | |
| | HDL | Switch 4 | | 1.2 | |
| | HDL | M/FCHC | OK | 1.0 | |
| | HDL | Dimmer 2fold Ac | tuator (V1.2) M/D 1010 D002 TP Dimmer 2fold Actu | ator 1.2 | |
| | HDI HDI | M/PTL4.1 | M/DTI /I 1912 D23 TD Danel Alloch Touch | ICD 11 | |



3: Select Topology, and click Add Device; It will show the Catalog again, and double click the device which in Catalog, the device will be added in Topology. add the device which

you want.

| III ETS5™ - Sensor project | | | | | | |
|------------------------------------|------------------------------------|------------------|-------------------------------|----------------------------------|--------|-------------------|
| ETS Edit Workplace Commissionin | ng <u>D</u> iagnostics <u>Apps</u> | Window | | | | |
| 👩 Close Project 🥜 Undo 🛝 Re | do 🚔 Reports 📕 | Workplace * | Catalogs Realized Diagnostics | | | |
| Topology 🔻 | | | | | | ∧ @ × |
| 🕂 Add Devices 💌 🗙 Delete ± Downlo | ad 🔹 🍈 Info 🔹 🛃 Res | set 🧳 Unload 🕶 i | 🚔 Print | | Search | Q |
| Topology Backbone • | Addres Room | Description | Application Program | Adr Prg Par Grp Cfg Manufacturer | | Order Nurr Produc |
| Dynamic Folders | | | | | | |
| ▲ 🔡 1 New area | | | | | | |
| 1.1 New line | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Before or after added the devices, we can modify the Area number for the devices.



After added the device, click the device, then can enter to the Setting page.

2.2 General

We can set some general setting in here, like heartbeat/sensitivity/temperature source and

so on.

Parameter: set the parameter for sensor.

Group Objects: the group objects for sensor.



| Close Project 🦨 Un | do 🛝 Redo 🚔 Report | s Workplace • E Catalogs Diac | nostics | | |
|---|--------------------------|--|---------------------------|--------|--------------------------------------|
| Topology - | | | | | ▲ 🖻 🔀 🚯 Properties |
| 🕂 Add Channels 🔹 🗙 Dele | te 붗 Download 🔹 🕜 Help | 🥒 Highlight Changes Default Parameters Grant Cu | ustomer Access | | |
| Topology Backbone | 11.1.3 M/WS05.1 > Genera | I | | | Settings Comm Infor Name |
| Il New area | General | System delay(2255s) after bus voltage recovery | 10 | A V | ► M/WS05.1 |
| I1.1 New line I1.1.1 M/D02.1 | Function status | Heartbeat telegram | Disable | v | 11.1 3 ÷ Park |
| 11.1.2 M/R4.10.1 | Logic function A | LED indicator | ON when movement detected | • | Description |
| | Logic function B | Sensor setting: (1)Microwave sensor sensitivity | 80% | | |
| | Logic function C | (1%-100%) -> Microwave sensor sensitivity via bus | Disable Enable | | Last Modified 2020/11/22 9 |
| | Logic function D | (2)Brightness quiver (530%) | 5% | • | Last Downloaded - Serial Number - |
| | Logic function E | ->Lux compensation (-500Lux+500Lux) | 0 | \$ | Status |
| | | (3)Temperature hysteresis (0.1'C) | 10 | \$ | Unknown 👻 |
| | | ->Temperature compensation (0.1'C) | 0 | \$ | |
| | | (4)Humidity hysteresis (110%) | 1 | \$ | |
| | | ->Humidity compensation (-10 %+10 %) | 0 | Å T | |
| | | (5)Dry contact 1 for logic | Mechanical switch | - | |
| | | ->Status when closing the contact | Constant to True('1') | - | |
| | | ->Status when opening the contact | Constant to False('0') | - | ₽ Find and Replace |
| | | (6)Dry contact 2 for logic | Disable | - | Workspaces |
| | | Extend dry contact function | O Disable C Enable | | ⑦ Todo Items |
| | | Constant brightness: | | | Pending Operations |
| | Parameter Group Object | cts | | | 🖍 Undo History |

• System delay (2..255s) after bus voltage recovery:

When the bus voltage recovery and timer start, and when the time out. The presence detector can be allowed operating. This function is selected by user. The default value is 10 seconds.

• Heartbeat telegram:

Used to check device is online or not in 3rd party software. If enable, device will send heartbeat telegram cyclically on the Bus when online.

Disable: Disable heartbeat telegram.

Send value '0' cyclically: Send heartbeat telegram '0' cyclically.

Send value '1' cyclically: Send heartbeat telegram '1' cyclically.

Send value '1/0' inverted cyclically: Send heartbeat telegram '1/0' inverted cyclically.

Telegram is sent time interval (1..65535): The interval time for send out telegram.

| Topology 🔻 | | | | | | | | × |
|--------------------------|-----------------------------|----------------------------|-------------------|-------------------|--------------|------------|--------------|---|
| 🕂 Add Channels 🔹 🗙 Del | ete 🛨 Download 💌 🌖 Info 🕶 🔮 | 🕽 Reset 🧳 Unload 🔹 🚔 Print | | | | Search | | P |
| Topology Backbone | Numb Name | Object Function | Description | Group Address | Length C R W | T U Data T | ype Priority | |
| Dynamic Folders | 🚅 0 General | Heartbeat telegram | hearbeat telegram | 0/0/1 | 1 bit C | T - enable | Low | |
| 🔺 🔢 11 New area | | | | 1 | | | | |
| 🔺 📙 11.1 New line | | | / | | | | | |
| 11.1.1 M/D02.1 | | | right | click to link ar | addrocc | | | |
| ▶ ┨ 11.1.2 M/R4.10.1 | | | ngn | CIICK LO III K ai | laudiess | | | |
| 🗈 🔳 11.1.3 M/WS05.1 | | | | | | | | |



• Status LED indicator:

Set the LED indicator's status, for normal use ON when movement detected.

| General | System delay(2255s) after bus voltage recovery | 10 | |
|------------------|---|-------------------------------------|---|
| Function status | Heartbeat telegram | Disable | |
| ogic function A | LED indicator | ON when movement detected | 1 |
| | Sensor setting: | Alway is OFF | |
| Logic function B | (1) Microwaye sensor sensitivity | ON when movement detected | , |
| | (1%-100%) | ON when received '1',else OFF | |
| Logic function C | | ON when received '0',else OFF | |
| | ->Microwave sensor sensitivity via bus | ON when logic A is disable,else OFF | |
| Logic function D | (2) Prightness guiver (5, 20%) | ON when logic A is enable,else OFF | |
| | (z)Brightness quiver (550%) | ON when logic B is disable,else OFF | |
| Logic function E | ->Lux compensation (-500Lux+500Lux) | ON when logic B is enable,else OFF | |
| | A statistic constraint (a) and a statistic constraint (b) and (b) a | ON when logic C is disable,else OFF | |
| | (3)Temperature hysteresis (0.1'C) | ON when logic C is enable,else OFF | |
| | Temperature compensation (0.1/C) | ON when logic D is disable,else OFF | |
| | -> remperature compensation (0.1 C) | ON when logic D is enable,else OFF | |
| | (4)Humidity hysteresis (110%) | ON when logic E is disable,else OFF | |
| | ->Humidity compensation (-10 %+10 | ON when logic E is enable,else OFF | |

If select 'ON when received'1', else OFF' or 'ON when received '0', else OFF', there has

'Led indicator status' function.

We can use this Group Address to enable or disable the Led indicator.

| Topology 👻 | | | | | | | | | | | |
|---------------------------|-------------------------------|----------------------------|--------------------|---------------|---------|---|-----|-----|-----------|----------|---|
| 🕂 Add Channels 🔹 🗙 Dele | ete 🛨 Download 🔹 🊯 Info 💌 🛉 | 🕽 Reset 🧳 Unload 🔹 🚔 Print | | | | | | Sea | arch | | P |
| Topology Backbone | Numb Name | Object Function | Description | Group Address | Length | R | w | τυ | Data Type | Priority | |
| Dynamic Folders | Ceneral General | Heartbeat telegram | hearbeat telegram | 0/0/1 | 1 bit C | - | - 1 | - | enable | Low | |
| 4 🔡 11 New area | 🚅 2 General | Led indicator status | LED enable/disable | 0/0/2 | 1 bit C | R | W 1 | 4 | switch | Low | |
| 🔺 📙 11.1 New line | | | | | | | | | | | |
| ▶ 🕕 11.1.1 M/D02.1 | | | | | | | | | | | |
| ▶ ┨ 11.1.2 M/R4.10.1 | | | | | | | | | | | |
| ▷ 🚹 11.1.3 M/WS05.1 | | | | | | | | | | | |
| | - | | | | | | | | | | |

• Microwave sensor sensitivity (1%-100%):

The default value is 80%. If set too high possible interference (e.g 100%), and set too low

may can't detect movement (e.g 1%).

->Microwave sensor sensitivity via object: If enable, we can modify sensor sensitivity via

Group Address.

| Topology 👻 | | | | | | | | ^ | ∃ × |
|-------------------------|-----------------------------|------------------------------|--------------------|---------------|------------|-----|-------------|----------|-----|
| 🕂 Add Channels 🖙 🗙 Dele | ete 붗 Download 🕞 🚯 Info 🔹 🍕 | Reset 🖧 Unload 🔹 🚔 Print | | | | | Search | | P |
| Topology Backbone | Numb Name | Object Function | Description | Group Address | Length C R | W T | U Data Type | Priority | |
| Dynamic Folders | ■‡0 General | Heartbeat telegram | hearbeat telegram | 0/0/1 | 1 bit C - | - T | - enable | Low | 2 |
| III New area | 🚅 1 General | Microwave sensor sensitivity | | | 1 byte C R | WТ | - percentag | Low | |
| ▲ 🗄 11.1 New line | 2 General | Led indicator status | LED enable/disable | 0/0/2 | 1 bit C R | WT | - switch | Low | |
| 11.1.1 M/D02.1 | | | | | | | | | |
| 11.1.2 M/R4.10.1 | | | | | | | | | |
| 11.1.3 M/WS05.1 | | | | | | | | | |



• Brightness quiver (5..30%):

The quiver value is used for brightness in logic.

-> Lux compensation: If Lux value is not correct, you can use this to adjust the Lux value.

If Quiver is 5% and Threshold_1 <= Threshold_2. Threshold_1 = 100 Lux and Threshold_2

= 300 Lux. Then effective value is 95~315 Lux.

Threshold_1 * (1 - 5%) = 100 * (1 - 5%) = 95 Lux

Threshold_2 * (1 + 5%) = 300 * (1 + 5%) = 315 Lux



If Quiver is 5% and Threshold_1 > Threshold_2. Threshold_1 = 300 Lux and Threshold_2

= 100 Lux. Then effective value is >285 or <105 Lux.

Quiver_1 = Threshold_1 * (1 - 5%) = 300 * (1 - 5%) = 285 Lux

Quiver_2 = Threshold_2 * (1 + 5%) = 100 * (1 + 5%) = 105 Lux



Threshold_1 > Threshold_2

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• **Temperature hysteresis:** The hysteresis for Logic Temperature input.

If hysteresis is 10 and Threshold_1 <= Threshold_2. Threshold_1 = 20C and Threshold_2

= 30 C. Then effective value is 19~31C.

Threshold_1 - 1C= 19C

Threshold_2 + 1C= 31C



Threshold_1 <= Threshold_2

If hysteresis is 10 and Threshold_1 > Threshold_2. Threshold_1 = 30C and Threshold_2 = 20 C. Then effective value is <21C or >29C.

Threshold_1 - 1C= 29C

Threshold_2 + 1C= 21C





-> Temperature compensation (0.1'C): If temperature value is not correct, you can use this to adjust the temperature value.



• Humidity hysteresis: The hysteresis for Logic Humidity input.

If hysteresis is 1% and Threshold_1 <= Threshold_2. Threshold_1 = 20% and Threshold_2

= 60%. Then effective value is $19\sim61\%$.

Threshold_1 - 1C= 19%

Threshold_2 + 1C= 61%



If hysteresis is 1% and Threshold_1 > Threshold_2. Threshold_1 = 60% and Threshold_2 = 20 %. Then effective value is <21% or >59%.

Threshold_1 - 1C= 59%

Threshold_2 + 1C= 21%



 $Threshold_1 > Threshold_2$

-> Humidity compensation (0.1'C): If humidity value is not correct, you can use this to adjust the humidity value.

HDL

• Dry contact 1 for logic:

• Dry contact 2 for logic:

Before use the dry contact as Logic input condition, pls set the dry contact status value for logic. There has Invalid, Mechanical switch, Electronic switch type.

Mechanical switch: Set the Closing/Opening status. Like door dry contact.

Electronic switch: Set short/long operation status and voltage recovery status. Like self-reset key.

2.2.1 Extend dry contact function

The dry contact triggers the output directly. You can enable it in General page.

For examples connect Mechanical switch to this dry contact1. When dry contact close, turn on the light. When dry contact open, turn off the light.

| Topology 🔻 | | | | |
|---|---|--|------------------------------|---|
| 🕂 Add Channels 🔹 🗙 Del | ete 🛨 Download 🕞 🕜 He | lp 🥒 Highlight Changes 🛛 Default Param | neters Grant Customer Access | |
| Topology Backbone | 11.1.3 M/WS05.1 > Dry | contact function | | |
| Dynamic Folders | | | | |
| Il New area | General | <1>Dry contact 1 type | Mechanical | switch 👻 |
| 11.1 New line 11.1.1 M/D02.1 | Function status | Dry contact operation fu | nction Switch contr | oller |
| 11.1.2 M/R4.10.1 | Dry contact function | Reaction on dry contact of | closing ON | • |
| 11.1.3 M/WS05.1 | | ->Delay for switch ON of | f closing 0 | ÷ |
| | Logic function A | Reaction on dry contact of | opening OFF | • |
| | Logic function B | ->Delay for switch OFF o | f opening 0 | * * |
| | Logic function C | <2>Dry contact 2 type | Invalid | · • |
| + Add Channels • X Delete 🛃 I III Topology Backbone • Nu | Download 💌 🚯 Info 💌 🛃 Reset 🦂 umb Name | Unload • A Print Object Function De | escription Group Address | Length C R W T U Data Type Priority |
| Dynamic Folders | General | Heartbeat telegram | | 1 bit C T - enable Low |
| ▲ 🔢 11 New area | Extend dry contact 1 | Switching rela | ay1 1/0/1 | 1bit C R W T - switch Low |
| II.1 New line II.1 New line II.1 N/D02.1 II.1.2 M/R4.10.1 II.1.3 M/WS05.1 | | link an ad | dress to control the l | ight |
| Topology - | | | | ∧ ∂ |
| 🕂 Add Channels 🔹 🗙 Delete 붗 🛙 | Download 💌 🚯 Info 💌 🛃 Reset 🦂 | Unload 👻 🚔 Print | | Search |
| Topology Backbone • Nu | umb Name | Object Function De | escription Group Address | Length C R W T U Data Type Priority |
| Dynamic Folders | Output A | Channel output rela | ay1 1/0/1 | 1 bit C - W - U switch Low |
| ▲ 11 New area | Output A | Scene(8bit) sce | ne 2/1/1 | 1 byte C - W - U Low |
| ▲ 🗄 11.1 New line | Output B | Channel output rela | ay 2 1/0/2 | 1 bit C - W - U switch Low |
| 11111M/D021 | Charlenge at 12 | Scopo(Qhit) | | |
| | Output 6 | Channel output | | 1 bit C W U switch |
| ► 11.1.2 M/R4.10.1 | Output D | Channel output Channel output | | 1 bit C - W - U switch Low 1 bit C - W - U switch Low |



2.2.2 Constant Brightness

It can make the brightness in constant value.

When brightness lower than the preset value, then turn on the light (100%), and then the

light will be dimming to preset value by auto.

You can enable the Constant Brightness function in General page.

| Topology Backbone | * 11.1.3 M/WS05.1 > Consta | nt brightness A | | |
|--------------------------------|----------------------------|--|---|--------|
| Dynamic Folders 11 New area | General | Lux value from | Local lux sensor External lux telegram | n |
| 11.1 New line | Function status | ->Constant brightness value(0~15K lux) | 100 | Å T |
| 11.1.2 M/R4.10.1 | Constant brightness A | Change constant brightness value via bu | s 🔘 Disable 🔵 Enable | |
| 11.1.3 M/WS05.1 | Logic function A | Lux quiver(n%): constant brightness lux* ((1-n%) and (1+n%)) | 10% | • |
| | Logic function B | Output setting: Minimum dimming time interval limit | 10 c | |
| | Logic function C | (0.1~5.0 s) Minimum dimming step value limit | 1% | • |
| | Logic function D | Maximum dimming step value limit | 5% | T |
| | Logic function E | Minimum dimming value limit | 0% | * |
| | | Maximum dimming value limit | 100% | • |
| | | First dimming value of constant brightness after power on | 80% | • |
| | | Operational setting: | | |
| | | Constant brightness control after power on | Stop | * |
| | | Constant brightness control start/stop vi bus | a Disable | • |
| | | Output dimming value after constant brightness control stoped | Unchanged | Ŧ |
| | | Forced operation | O Disable C Enable | |

• Lux value from:

Local lux sensor: Use the lux sensor which built inside sensor.

External lux telegram: Use external lux telegram from bus.

Constant brightness value: The value for constant brightness.

-- Change constant brightness value via bus: If Yes, then can use Group address to change the constant brightness value from BUS.

-- Lux quiver (n%): constant brightness lux*((1-n%) and (1+n%)): The lux quiver for constant brightness value.

• Output Setting:

-- Minimum dimming time interval limit (0.1~5.0):

- -- Minimum dimming step value limit (1~10%):
- -- Maximum dimming step value limit (1~10%):
- -- Minimum dimming value limit:
- -- Maximum dimming value limit:

-- First diming value of constant brightness after power on: Set the first dimming value after power on.

• Operational setting:

-- Constant brightness control after power on: Set the constant brightness after power on.

-- Output dimming value control start/stop via bus: If enable, can use 1bit group address to start/stop the constant brightness function.

-- Output dimming value after constant brightness control stop: Set the output dimming value after constant brightness stop.

• Forced operation:

This used to forced control the dimming value during the constant brightness function. It is up to 4 forced operations. If enable, can use 1bit group address to forced control the dimming value.

| Topology Backbone | 11.1.3 M/WS05.1 > A: Forced o | operation | | | |
|--|-------------------------------|---|------------------------|---|--|
| Uynamic Folders I1 New area | General | The forced operation status after power | To forced operation A1 | • | |
| ▲ 📙 11.1 New line | Function status | Forced operation A1 | Disable Disable | | |
| ▶ ■ 11.1.2 M/R4.10.1 | Constant brightness A | ->Forced operation start/stop(stop:back to constant brightness output) | '1'-Start,'0'-Stop | * | |
| 11.1.3 M/WS05.1 | A: Forced operation | ->Forced operation dimming value | 10% | • | |
| | Logic function A | ->Change forced dimming value via bus | O Disable C Enable | | |
| | Logic function B | Forced operation A2 | O Disable C Enable | | |

-- The force operation status after power on: No operation; Last forced operation; To forced operation A1; To forced operation A2; To forced operation A3; To forced operation A4;

-- Forced operation A1: If enable, you can use 1bit group address to start/stop the forced operation, and trigger the preset dimming value. The forced dimming value can be changed via bus.



• Trigger:

If you want to use 1bit group address to change the constant brightness value, you can use Trigger function. When receive '1' or '0', the constant brightness value can be changed to preset value.

It is up to 3 trigger functions.

| Topology Backbone | 11.1.3 M/WS05.1 > A: Trigger | · | |
|------------------------------|------------------------------|--------------------------------------|--|
| Dynamic Folders | General | Constant brightness object trigger 1 | O Disable Enable |
| 11.1 New line 11.1.1 M/D02.1 | Function status | Object value '0' trigger | O Disable O Enable |
| 11.1.2 M/R4.10.1 | Constant brightness A | ->Constant brightness value | ● To new lux ○ To the lux before triggered |
| 11.1.3 M/WS05.1 | A: Trigger | ->>New lux(0~15K lux) | 200 |
| | | Object value '1' trigger | Disable Enable |
| | Logic function A | ->Constant brightness value | To new lux To the lux before triggered |
| | Logic function B | ->>New lux(0~15K lux) | 40 |
| | Logic function C | Constant brightness object trigger 2 | O Disable C Enable |
| | Logic function D | Constant brightness object trigger 3 | O Disable C Enable |

• PI:u(k)=Kp(Proportional coefficient)[e(k)-e(k-1)]+Ki(integration time)e(k):

--Dimming speed (for PI): You can select the dimming speed for constant brightness function.

2.3 Function Status

| General | (1)Slave microwave sensor status report | No Ves |
|------------------|---|-------------------|
| Function status | ->Transmit telegram value when microwave sensor detected | ◯ Slave value-'0' |
| Logic function A | (2)Brightness report | ◎ No ◯ Yes |
| Logic function B | (3)Temperature report | ◎ No ○ Yes |
| Logic function C | (4)Humidity report | No Yes |
| | (5)Dry contact 1 report | ◎ No ○ Yes |
| Logic function D | (6)Dry contact 2 report | No Yes |
| | | |

Report the status to Bus.

(1): Slave Movement sensor status report: If current sensor works as Slave microwave

sensor, then can use this function to report current status to the Bus.

| Topology Backbone | Numb Name | Object Function | Description | Group Address | Lengt | hC | RW | Т | U Data Type | Priority |
|-------------------|-------------------------------|-------------------------|-------------|---------------|-------|-----|----|---|-------------|----------|
| Dynamic Folders | ■‡ 0 General | Heartbeat telegram | | | 1 bit | с - | - | Т | - enable | Low |
| 11 New area | ■ | Microwave status to bus | | | 1 bit | с - | W | T | - switch | Low |
| 11.1 New line | | | | | | | | | | |
| 11.1.1 M/D02.1 | | | | | | | | | | |
| 11.1.2 M/R4.10.1 | | | | | | | | | | |
| 1112 MANSOS 1 | | | | | | | | | | |

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(2): Brightness report:

You can select report when changed or cyclic. If select report when changed, it will report when the brightness changed in preset value.

| General | | (1)Slave microwave | e sensor status report | O No Ves | | | | | | | |
|--|-----------------|-------------------------|------------------------|-----------------|----------------|------------|-----|-----|------------|------------|---|
| Function status | | (2)Brightness repo | rt | 🔿 No 🔘 Yes | | | | | | | |
| Logic function A | | ->Lux report mode | e | O Report when o | changed 🔵 Repo | ort cyclic | | | | | |
| Logic function B | | ->Differential valu | e for report (1200lux) | 20 | | | + | | | | |
| Logic function C | | (3)Temperature rep | port | No Yes | | | Ŧ | | | | |
| Logic function D | | (4)Humidity report | el | O No Ves | | | | | | | |
| ology - | | | | | | | | | | ^ | 0 |
| dd Channels 🔹 🗙 Delete 🛨 | Download 💌 🚺 | Info 🔹 👩 Reset 🧳 Unioad | d 🔹 🛤 Print | | | | | Se | earch | | , |
| opology Backbone • N | umb Name | c | Object Function | Description | Group Address | Length | CR | νт | U Data Typ | e Priority | (|
| Dynamic Folders | General | н | eartbeat telegram | | | 1 bit | с | т - | enable | Low | |
| | Function status | B | rightness(Lux) value | | | 2 bytes | CR- | Τ- | pulses | Low | |
| 11 New area | | | | | | | | | | | |
| 11 New area ■25 11.1 New line 11.1.1 M/D02.1 | | | | | | | | | | | |

(3): Temperature report: The local source temperature.

It will report the temperature value when change in preset value, or report in cyclic.

| General | | (1)Slave microwave sensor status report | O No O Yes | \$ | | | |
|---------------------|--------------|---|-------------|-----------------|---------------|-------------|-------------|
| Function statu | s | (2)Brightness report | No Yes | 5 | | | |
| Logic function / | Ą | (3)Temperature report | No O Yes | 5 | | | |
| Logic function [| В | ->Temperature report mode | Report whe | n changed 🔵 Rep | oort cyclic | | |
| Logic function (| c | (4)Humidity report | No Yes | 5 | Ŧ | | |
| pology 🗸 | | | | | | | ^ 0 |
| Add Channels 🔹 🗶 De | Numb Name | Object Function | Description | Group Address | Length C R V | Search | pe Priority |
| Dynamic Folders | ■2 0 General | Heartbeat telegram | | | 1 bit C | T - enable | Low |
| 11 New area | ■ | is Temperature value | | | 2 bytes C R - | T - tempera | tu Low |
| 11.1 New line | | | | | | | |
| 11.1.1 M/D02.1 | | | | | | | |
| 11.1.2 M/R4.10.1 | | | | | | | |
| | | | | | | | |

(4): Humidity report:

It will report the humidity value when change in preset value, or report in cyclic.



| 11.1.3 M/WS05.1 > Function stat | us | | |
|---------------------------------|---|-----------------------------------|---|
| General | (1)Slave microwave sensor status report | No Yes | |
| Function status | (2)Brightness report | No Yes | |
| Logic function A | (3)Temperature report | No Yes | |
| Logic function B | (4)Humidity report | No O Yes | |
| Logic function C | ->Humidity report mode | Report when changed Report cyclic | |
| | ->Differential value for report (110 %) | 3 % | • |
| Logic function D | (5)Dry contact 1 report | No Yes | |

| Topology 👻 | | | | | | | ^ | e × |
|-----------------------|----------------------------------|------------------------|-------------|---------------|---------------|------------|---------------|-----|
| 🕂 Add Channels 💌 🗙 De | elete 🛨 Download 💌 🌖 Info 👻 👩 Re | set 🧳 Unload 🔹 🚔 Print | | | | Search | | ρ |
| Topology Backbone | Numb Name | Object Function | Description | Group Address | Length C R W | T U Data | Type Priority | |
| Dynamic Folders | ■‡ 0 General | Heartbeat telegram | | | 1 bit C | T - enable | Low | |
| 🔺 🔡 11 New area | ■ ² 7 Function status | Humidity value | | | 2 bytes C R - | т - | Low | |
| ▲ 📙 11.1 New line | | | | | | | | • |
| 11.1.1 M/D02.1 | | | | | | | | |
| 11.1.2 M/R4.10.1 | | | | | | | | |
| D 🚹 11.1.3 M/WS05.1 | | | | | | | | |

- (5): Dry contact 1 report:
- (6): Dry contact 2 report:

Set the dry contact report mode. For more settings of dry contact, pls go to General – Dry contact 1 or 2 for logic.

| 11.1.3 M/WS05.1 > Fun | ction status | | | | | | |
|-------------------------|--|---|---|---------------|---------------|---------------|----------|
| General | (1)Slave microwave sensor status rep | ort 🔘 No 🔿 Y | es | | | | |
| Function status | (2)Brightness report | ○ No ○ Y | es | | | | |
| Logic function A | (3)Temperature report | | es | | | | |
| Logic function B | (4)Humidity report | No Y | es | | | | |
| Logic function C | (5)Dry contact 1 report | No O Y | es alue changed | • | | | |
| Logic function D | (6)Dry contact 2 report | Contact acti | on | | | | |
| Logic function E | | True False Contact acti When status True and pe False and pe | on and periodically s value changed and peri riodically riodically | odically | | | |
| Topology 👻 | | | | | | | ^ ₫ X |
| 🕂 Add Channels 💌 🗙 Dele | ete 붗 Download 🔹 🌓 Info 🔹 👩 Reset 🤌 Unload 🔹 i | 🚔 Print | | | | Search | ٩ |
| Topology Backbone | Numb Name Object | t Function | Description | Group Address | Length C R W | T U Data Type | Priority |
| Dynamic Folders | Control Hearth | eat telegram | | | 1 bit C 1 | - enable | Low |
| 🔺 🔡 11 New area | ■2 8 Function status Dry con | ntact 1 status | | | 1 bit C R - 1 | - switch | Low |
| 🔺 📙 11.1 New line | | | | | | | |
| 11.1.1 M/D02.1 | | | | | | | |
| 11.1.2 M/R4.10.1 | | | | | | | |
| 11.1.3 M/WS05.1 | | | | | | | |



2.4 Logic Function A/B/C/D

There are four independent logic, you can select microwave /brightness /temperature

/humidity /external telegram as logic input conditions, and you can use 1bit group address

to enable/disable the logic function.

Take Logic Function A as example:

| 11.1.3 M/WS05.1 > Logic fu | nction A | | |
|----------------------------|--|---|---|
| General | Use logical block A | No Ves | |
| Function status | | | |
| Logic function A | (1)Enable microwave sensor | Single mode(independent sensor) | • |
| Block A | ->Microwave sensor status | Microwave sensor detected is False,else is Microwave sensor detected is True,else is F | |
| A1: Switching | (2)Enable brightness(Lux) sensor | O Disable C Enable | |
| , | (3)Enable temperature sensor | O Disable C Enable | |
| Logic function B | (4)Enable humidity sensor | O Disable O Enable | |
| Logic function C | (5)Enable external telegram 1 | Disable | • |
| Logic function D | (6)Enable external telegram 2 | Disable | • |
| Logic function E | (7)Enable dry contact 1 input | O Disable C Enable | |
| | (8)Enable dry contact 2 input | O Disable C Enable | |
| | Logical relation of block A | | |
| | Result of logic A inverted | No Ves | |
| | Status(True/False) of logic A to bus | O Disable C Enable | |
| | <1>Logical A function 'Enable/disable' status control | ◎ No ○ Yes | |
| | | | |

(1): Enable microwave sensor: If enable, the microwave sensor as logic input condition.

-- Disable: The microwave sensor not use in this logic.

-- Single mode (independent sensor): This microwave sensor work as logic input condition, and you can select the sensor status. Suggest select detected is True.

-- Master/Slave mode (Master sensor): More sensors work as logic input conditions, but this sensor as master. The slave sensor can use 1bit group address to link to this master sensor; when receive salve value, then the master set to Ture.

| Function status | | |
|------------------|---------------------------------------|---|
| | (1)Enable microwave sensor | Master/Slave mode(Master sensor) |
| Logic function A | ->Local microwave sensor status | Microwave sensor detected is False,else is Microwave sensor detected is True,else is F |
| A1: Switching | ->Master is set to TRUE when received | Slave value-'0' Slave value-'1' |
| A1. Switching | (2)Enable brightness(Lux) sensor | O Disable O Enable |



| Num | nb Name | Object Function | Description | Group Address | Length | С | R | W | т | U | Data Type | Priority |
|-----|------------------|---------------------------|---------------------------|---------------|--------|---|---|------|---|-----|-----------|----------|
| 20 | General | Heartbeat telegram | | | 1 bit | С | - | - | Т | - 1 | enable | Low |
| 10 | Object input A | Microwave status from bus | Microwave status from bus | | 1 bit | С | R | W | Т | U | switch | Low |
| 30 | Object output A1 | Switching | | | 1 bit | С | R | 20.1 | Т | - | switch | Low |

(2): Enable brightness (Lux) Sensor: It supports up to 3 brightness thresholds. You can select the brightness value as logic input condition.

-- Lux >= Threshold lower; Lux <= Threshold upper: The range of lux.

-- Change Lux threshold value via bus: If enable, can modify the value via group address.

-- Brightness (Lux) status: Select the Ture/False status for logic.

-- Independent control < object output 8>: It can independently control the object output8 when brightness in the range. This is separated from Logic A.

If enable independent control object output8, the A8 output in Block A is for object output8. If enable independent control object output9, the A9 output in Block A is for object output9. If enable independent control object output10, the A10 output in Block A is for object

output10.

| General | (2)Enable brightness(Lux) sensor | O Disable O Enable | | | | |
|---|---|---|----|--|--|--|
| Function status | Enable brightness(Lux) threshold A | O Disable O Enable | | | | |
| Logic function A | ->Lux >= Threshold lower(0 ~ 15K lux) | 300 | \$ | | | |
| Logic function / | ->Lux <= Threshold upper(0 ~ 15K lux) | 100 | \$ | | | |
| Block A | ->Changed Lux threshold value via bus | O No Ves | | | | |
| A1: Switching | ->Brightness(Lux) status | In range is True,else False | - | | | |
| Logic function B | ->Independent control <object output<br="">8></object> | No Ves(Separated from logic and output) | | | | |
| Logic function C | Enable brightness(Lux) threshold B | O Disable C Enable | | | | |
| Logic function D | (3)Enable temperature sensor | Disable Enable | | | | |
| Independent contro | l <object ono<="" output="" td=""><td></td><td></td></object> | | | | | |
| > | Yes(Separated fr | om logic and output) | | | | |
| >>Enable/disable in a bus | dependent control 🔵 No 🔘 Yes | | | | | |
| >>Operation mode | '1'-Enable,'0'-Disable | • | | | | |
| >> <object 8<="" output="" td=""><td>> status when False and immediately</td><td>v output</td><td></td></object> | > status when False and immediately | v output | | | | |

(3): Enable temperature sensor: If enable, the local temperature works as logic input condition, you can select the temperature range and the temperature status.



And it supports modify the temperature threshold value from Bus.

| (3)Enable temperature sensor | O Disable O Enable | |
|---|-----------------------------|--------|
| ->Temperature >= Threshold lower (0.1'C) | 300 | * * |
| ->Temperature <= Threshold upper (0.1'C) | 200 | * * |
| ->Changed temperature threshold value via bus | No Yes | |
| ->Temperature status | In range is True,else False | • |

(4): Enable humidity sensor: If enable, the humidity works as logic input condition, you can

select the humidity range and the humidity status.

And it supports modify the humidity threshold value from Bus.

| (4)Enable humidity sensor | O Disable O Enable | |
|--|-----------------------------|--------|
| ->Humidity >= Threshold lower (20%95%) | 60 | ÷ |
| ->Humidity <= Threshold upper (20%95%) | 20 | * * |
| ->Changed humidity threshold value via bus | No Yes | |
| ->Humidity status | In range is True,else False | • |

- (5) Enable external telegram 1
- (6) Enable external telegram 2
- -- There are two external telegram which from Bus can work as logic input condition.

• Logic relation of block A:

AND: All input conditions which enable are true, means the Logic is true.

OR: One of input conditions which enable is true, means the Logic is true.

- Result of logic A inverted: Inverted the logic A result or not.
- Status (True/False) of logic A to bus: If enable, it will send out the logic A status to Bus via group address.



HDL

• Logical A function 'Enable/disable' status control

It can use telegram via bus or dry contact to enable/disable the logical A Function.

- -- Telegram via bus: It can be used 1bit group address to enable/disable the Logical A.
- -- Dry contact: It can use itself dry contact to enable/disable the Logical A.

If dry contact1 used for enable/disable, then dry contact1 can not use as logic input condition.

You can set the dry contact status in General page.

-- Logic A output status when logic function disabled: Set the output status when logic disable.

-- Logic A automatic enable after logic function disabled: It will auto enable after delay time.

• Logic A output status when logic function enabled:

Set the output status when logic was enabled.

• Feedback logic A function 'enable/disable' status: If enable, it can use 1bit group address to feedback the enable/disable status to Bus.

2.4.1 Block A

Enable the output object for logic, take Logic function A as example. Logic function B/C/D are same.

For example: Logic function A has two outputs, one is control single light, second is control curtain.

| HDL | | | KNX M/WS05 | 5.1 Indooi | ⁻ Microwave | Sensor |
|---|----------------------------|--|--------------------|------------|------------------------|--------|
| Topology - | | | | | | ▲ □ × |
| 🕂 Add Channels 🔹 🗙 Dele | te 붗 Download 🔹 🕜 Help 🤞 | Highlight Changes Default Parameters Gran | t Customer Access | | | |
| Topology Backbone | 11.1.3 M/WS05.1 > Block A | | | | | |
| ▲ 🗄 11 New area | General | Object output 1 (to bus) | Switch controller | - | | |
| ▲ E 11.1 New line | Function status | Object output 2 (to bus) | Shutter controller | ~ | | |
| 11.1.1 M/D02.1 11.1.2 M/R4.10.1 11.1.3 M/WS05.1 | Logic function A | Object output 3 (to bus) | Invalid | • | | |
| | Block A | Object output 4 (to bus) Object output 5 (to bus) | Invalid | • | | |
| | A1: Switching | Object output 6 (to bus) | Invalid | • | | |
| | A2: Shutter | Object output 7 (to bus) | Invalid | • | | |
| | Logic function B | Object output 8 (to bus) | Invalid | • | | |
| | Logic function C | Object output 9 (to bus) | Invalid | • | | |
| | Logic function D | | | | | |
| | Logic function E | Output repeat telegram on true | Oisable Carable | | | |

Output repeat telegram on true: Enable/disable the repeat telegram on true.

2.4.2 Output for True/False

After enable the output objects in Block A, then it will show the output setting for logic true/false. For examples below has two output objects (A1 and A2)

| Topology Backbone • Dynamic Folders It New area | 11.1.3 M/WS05.1 > A1: Switching | | | | | | | |
|---|---------------------------------|--|------------|--------|-----------------------------------|--|--|--|
| | General | The status after bus voltage recovery | Invalid | • | | | | |
| ▲ 🗄 11.1 New line | Function status | Logical block output when TRUE | ON | • | when logic true, send out '1' | | | |
| 11.1.2 M/R4.10.1 | Logic function A | -> Delay time (017 Hours) | 0 | * * | | | | |
| E 4 11.1.3 M/WS05.1 | Block A | -> Delay time (059 Minutes) | 0 | | | | | |
| | | -> Delay time (059 Seconds) | 0 | ÷ | | | | |
| | | -> Change delay time via bus (0 s17 h) | No Ves | | | | | |
| | A2: Shutter | Logical block output when FALSE | OFF | * | when logic false, delay 10s, send | | | |
| | Logic function B | -> Delay time (017 Hours) | 0 | * * | out o | | | |
| | Logic function C | -> Delay time (059 Minutes) | 0 | * * | | | | |
| | Edgic function e | -> Delay time (059 Seconds) | 10 | ÷ | | | | |
| | Logic function D | -> Change delay time via bus (0 s17 h) | ◎ No ○ Yes | | | | | |

- The status after bus voltage recovery: Set the status after bus voltage recovery.
- Logical block output when True: Set the detail function when logic true.

Delay time: After delay time, will trigger the output.

Change delay time via bus (0s..17h): The delay time can be changed by bus.

• Logical block output when False: Set the detail function when logic false.

Delay time: After delay time, will trigger the output.

Change delay time via bus (0s..17h): The delay time can be changed by bus.

2.5 Logic Function E

Logic function E has combination function, it can combine logic A/B/C/D. For example,

when logic A and logic B are both true, then turn on the light.

| Topology Backbone | 11.1.3 M/WS05.1 > Logic fu | 11.1.3 M/WS05.1 > Logic function E | | | | | | | |
|---|----------------------------|--|-----------------------------------|---|--|--|--|--|--|
| Dynamic Folders Ill New area | General | Use logical block E | No O Yes | ^ | | | | | |
| ▲ 📙 11.1 New line ▶ 🕕 11.1.1 M/D02.1 | Function status | | | | | | | | |
| 11.1.2 M/R4.10.1 | Logic function A | Enable logic A | Disable Enable No Ves | | | | | | |
| | Block A | ->Logical relation | ◎ AND ○ OR | | | | | | |
| | A1: Switching | Enable logic B | Disable O Enable | | | | | | |
| | A2: Shutter | ->Result of logic B inverted | ◎ No ◯ Yes | | | | | | |
| | Logic function B | ->Logical relation | ● AND ○ OR | | | | | | |
| | Block B | Enable logic C | Disable Enable | | | | | | |
| | B1: Switching | Enable logic D | Disable Enable | | | | | | |
| | | NOTE: Logic E = A o B o C o D (o = AND/C | (R) | | | | | | |
| | Logic function C | Result of logic E inverted | No Yes | | | | | | |
| | Logic function D | | | | | | | | |
| | Logic function E | Status(True/False) of logic E to bus | O Disable Enable | | | | | | |
| | Block E | <1>Logical E function 'Enable/disable' status control | No Yes | | | | | | |
| | E1: Switching | <2>Logical E function 'Enable/disable' status control | ◎ No ○ Yes | | | | | | |
| | | Logic E output status when logic function enabled | True 🔻 | | | | | | |
| | Parameter Group Obie | Faaldack logis F function lonable / | | • | | | | | |

- Enable logic A/B/C/D: Enable logic A/B/C/D as logic E input condition or not.
 Result of logic A/B/C/D inverted: Inverted the result of logic A/B/C/D or not.
- **Result of logic E inverted:** Inverted the result of logic E or not.
- Status (True/False) of logic E to bus: If send out the logic E status to bus or not.

• Logical E function 'Enable/disable' status control

It can use telegram via bus or dry contact to enable/disable the logical E Function.

-- Telegram via bus: It can be used 1bit group address to enable/disable the Logical E.

-- Dry contact: It can use itself dry contact to enable/disable the Logical E. You can set the dry contact status in General page.

-- Logic E output status when logic function disabled: Set the output status when logic disable.

-- Logic E automatic enable after logic function disabled: It will auto enable after delay time.



• Logic E output status when logic function enabled:

Set the output status when logic was enabled.

• Feedback logic E function 'enable/disable' status: If enable, it can use 1bit group address to feedback the enable/disable status to Bus.

2.5.1 Block E

Enable the output object for logic E.

For example: Logic function E has one output (Switch controller to control single light).

| 🕂 Add Channels 🔹 🗙 Dele | ete 붗 Download 🔹 🕜 Help | 🤌 Highlight Changes Default Parameters Gran | t Customer Access | |
|---|---------------------------|---|-------------------|---|
| Topology Backbone | 11.1.3 M/WS05.1 > Block E | | | |
| Dynamic Folders I1 New area | General | Object output 1 (to bus) | Switch controller | • |
| ▲ 11.1 New line | Function status | Object output 2 (to bus) | Invalid | • |
| 11.1.2 M/R4.10.1 11.1.3 M/WS05.1 | Logic function A | Object output 3 (to bus) | Invalid | • |
| | | Object output 4 (to bus) | Invalid | • |
| | Block A | Object output 5 (to bus) | Invalid | • |
| | A1: Switching | Object output 6 (to bus) | Invalid | • |
| | A2: Shutter | Object output 7 (to bus) | Invalid | • |
| | Logic function B | Object output 8 (to bus) | Invalid | • |
| | Block B | Object output 9 (to bus) | Invalid | • |
| | Di Cuitakina | Object output 10 (to bus) | Invalid | • |
| | BI: Switching | | | |
| | Logic function C | Output repeat telegram on true | Disable Enable | |
| | Logic function D | | | |
| | Logic function E | | | |
| | Block E | | | |
| | E1: Switching | | | |

Output repeat telegram on true: Enable/disable the repeat telegram on true.

2.5.2 Output for True/False

After enable the output objects in Block E, then it will show the output setting for logic true/false.



| Topology Backhone | | | | | | |
|---------------------|----------------------------|--|---------|--------|-----------------------------------|--|
| Dynamic Folders | 11.1.3 M/WS05.1 > E1: Swit | tching | | | | |
| 4 🔢 11 New area | General | The status after bus voltage recovery | Invalid | • | | |
| 11.1 New line | Function status | Logical block output when TRUE | ON | • | when logic true, send out '1' | |
| 11.1.2 M/R4.10.1 | Logic function A | -> Delay time (017 Hours) | 0 | * * | | |
| ି 🚛 11.1.3 M/WS05.1 | Block A A1: Switching | -> Delay time (059 Minutes) | 0 | | | |
| | | -> Delay time (059 Seconds) | 0 | * * | | |
| | | -> Change delay time via bus (0 s17 h) | No Ves | | | |
| | A2: Shutter | Logical block output when FALSE | OFF | • | when logic false, delay 10s, send | |
| | Logic function B | -> Delay time (017 Hours) | 0 | * * | out '0' | |
| | Block B | -> Delay time (059 Minutes) | 0 | ÷ | | |
| | | -> Delay time (059 Seconds) | 10 | \$ | | |
| | B1: Switching | -> Change delay time via bus (0 s17 h) | No Yes | | | |
| | Logic function C | | | | | |
| | Logic function D | | | | | |
| | Logic function E | | | | | |
| | Block E | | | | | |
| | E1: Switching | | | | | |

- The status after bus voltage recovery: Set the status after bus voltage recovery.
- Logical block output when True: Set the detail function when logic true. Delay time: After delay time, will trigger the output.

Change delay time via bus (0s..17h): The delay time can be changed by bus.

Logical block output when False: Set the detail function when logic false.
 Delay time: After delay time, will trigger the output.
 Change delay time via bus (0s..17h): The delay time can be changed by bus.

3 Download Database

After finished program, need to download the database to module.

1: Check the KNX connection first. In ETS5--Bus--Connections.



| II ETS5™ ETS | | | - 0 × |
|---------------------------------|--|------------|-------------------------|
| Overview Bus Catalogs | Settings | | KNX |
| - Connections | Current Interface current interface | | 🕹 IP Tunneling |
| Interfaces | 1.1.0 KNX IP Router Individual Address: 15.15.242 | | Name |
| Options | Configured Interfaces - Add - I must - * Sugar | | KNX IP Router |
| · · · < 5/ · · · | Configured interfaces | | Host Individual Address |
| - Monitor | Discovered Interfaces | | 1.1.0 |
| Group Monitor | Realtek 8822CE Wireless AN 802 11ac PCI-E NIC 224 0.2312 40.58-C 40.58-C | 8:56:87:3D | Individual Address |
| Bus Monitor | 110 KNV ID Douter 10216010122-2671 D076-5 | 0.00-57-66 | 15.15.242 Address free? |
| | 1.10 Kivk in houter 192.106.10.163.30/1 20.70. | 3.00.37.AC | IP Address |
| Diagnostics | | | 192.168.10.183 |
| Unload Device | | | Port |
| | | | 3671 |

2: Go to project, right click the device which you want to download the database.

| 👩 Close Project 🎻 U | Indo 🛝 Redo 🔚 Reports 📲 | Workplace * | Catalogs Diagnostics | | | | | | | | | | | | | |
|-------------------------|--------------------------------|------------------|------------------------------|------------------------|----------------------|------------------------|-----|---|------|-----|-----------|----------|--------------|------------|-----------|-----------|
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| Topology Backbone | Numb Name | | Object Function | Description | Group Address | Lengt | h C | R | w | r u | Data Type | Priority | Settings | Comm | Infor | |
| Dynamic Folders | ■‡ 0 General | | Heartbeat telegram | | | 1 bit | С | - | - T | - | enable | Low | Name | | | |
| 4 🔢 11 New area | ■2 10 Object input A | | Microwave status from bus | sensor2 status | 0/0/12 | 1 bit | С | R | WT | U | switch | Low | M/WS05.1 | | | |
| ▲ E 11.1 New line | 13 Object input A | | Lux threshold A Independent | | | 1 bit | C | R | WT | U | enable | Low | Individual A | Address | | |
| ▶ 11.1.1 M/D02.1 | 15 Object input A | | Lux threshold C Independent | and and | 1/0/1 | 1 bit | C | R | WT | U | enable | Low | 11.1 | 3 ‡ | Park | |
| 11.1.2 M/R4.10.1 | Download | | Full download | Ctrl + Shift + I | 1/0/1 | TDIL | C | R | 5 I | - | Switch | LOW | Description | | | |
| 11.1.3 M/WS05.1 | | | | cur + shint + c | | | | | | | | | | | | |
| 1. J. a. 19. J. | Vnload | | Partial download | Ctrl + D | | | | | | | | | | | | |
| right click | 1 Info | | Download Individual Address | Ctrl + Shift + I | | | | | | | | | | | | |
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| | 🚔 Print Labels | | - | | | | | | | | | | Status | | | |
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| | Ctrl + Shift + A | | | | | | | | | | | | | | | |
| | Suggest Channels | | | | | | | | | | | | | | | |
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| × | × Delete | Del | | | | | | | | | | | | | | |

- Full download: Download all data (individual address and application), need to make the module enter to program mode. For sensor module, press PRO button one time, will make the sensor module enter to program mode.
- Partial download: Just download the data which modified.
- Download Individual Address: Just download individual address. Need to make module enter to program mode.
- Overwrite Individual Address: Overwrite individual address.
- Download Application: Just download application.

Suggestion:

- 1: When first time to program the new module, suggested use full download.
- 2: If modified the data later, you can use partial download or download application.



4 Examples

4.1 Single movement control one light

1) Enable Logic function A and select Single mode.

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| Topology Backbone 🔹 | 11.1.3 M/WS05.1 > Logic fu | Inction A | |
| Dynamic Folders | | | |
| 🔺 🔡 11 New area | General | Use logical block A | No Yes |
| 🔺 📘 11.1 New line | | | and the second s |
| 11.1.1 M/D02.1 | Function status | and the second second second second | |
| 11.1.2 M/R4.10.1 | Logic function A | (1)Enable microwave sensor | Single mode(independent sensor) |
| 11.1.3 M/WS05.1 | Logic function A | | Microwave sensor detected is False,else is |
| | Block A | -> Microwave sensor status | Microwave sensor detected is True,else is F |
| | | (2)Enable brightness(Lux) sensor | O Disable C Enable |
| | A1: Switching | | |
| | | (3)Enable temperature sensor | O Disable Enable |
| | Logic function B | (4)Enable humidity sensor | O Disable Enable |
| | | | |

2) Enable one output object, because control one light turns on/off, so we can use

Switch controller type.

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| Dynamic Folders | | | | | | |
| 🔺 🔢 11 New area | General | Object output 1 (to bus) | Switch controller | • | enable one output | |
| 11.1 New line 11.1.1 M/D02.1 | Function status | Object output 2 (to bus) | Invalid | • | | |
| 11.1.2 M/R4.10.1 | Logic function A | Object output 3 (to bus) | Invalid | • | | |
| 11.1.3 M/WS05.1 | | Object output 4 (to bus) | Invalid | • | | |
| | Block A | Object output 5 (to bus) | Invalid | • | | |
| | A1: Switching | Object output 6 (to bus) | Invalid | • | | |

3) Set the detail function for output.

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| Topology Backbone | 11.1.3 M/WS05.1 > A1: Swi | tching | | |
| ▲ 🔛 11 New area | General | The status after bus voltage recovery | Invalid | • |
| 11.1 New line | Function status | Logical block output when TRUE | ON | when true, send '1' |
| 11.1.2 M/R4.10.1 | Logic function A | -> Delay time (017 Hours) | 0 | <u>к</u> т |
| 11.1.3 M/WS05.1 | Logic Intellor A | -> Delay time (059 Minutes) | 0 | * * |
| | Block A | -> Delay time (059 Seconds) | 0 | × v |
| | A1: Switching | -> Change delay time via bus (0 s17 h) | ◎ No ○ Yes | |
| | Logic function B | Logical block output when FALSE | OFF | • when false, delay 10s, send '0' |
| | Logic function C | -> Delay time (017 Hours) | 0 | A v |
| | Logic function D | -> Delay time (059 Minutes) | 0 | × v |
| | Ebgic function D | -> Delay time (059 Seconds) | 10 | \$ |
| | Logic function E | -> Change delay time via bus (0 s17 h) | O No Ves | |

4) Link the address to light. That means if has detection, will turn on relay1; when no detection for 10s, will turn off relay1.



| | | R. Halander Dieser | | | | | | | 0.000 | |
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| Topology Backbone | Numb Name | Object Function | Description | Group Address | Length | C | R W | Т | U Data Type | Priori |
| Dynamic Folders | Ceneral General | Heartbeat telegram | | | 1 bit | C - | | T · | - enable | Low |
| 11 New area | 🚅 30 Object output A1 | Switching | relay1 | 1/0/1 | 1 bit | C R | | T | - switch | Low |
| 🔺 📙 11.1 New line | | | nindet alials | link to volou ob | annal | | | | | |
| ▶ 🔲 11.1.1 M/D02.1 | | | right click | , link to relay ch | annei | | | | | |
| 11.1.2 M/R4.10.1 | | | | | | | | | | |
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4.2 Master/Slave movement control one light

Some projects will use two sensors to control same light. One of sensors has detection, will turn on the light; If master sensor no detection for 10s and slave sensor not sent '1' in 10s, will turn off relay1.

1) Master sensor enable Logic function A and select Master/Slave mode (Master

sensor).

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| 11.1.3 M/WS05.1 > Logic function | n A | | |
| | | | |
| General | Use logical block A | No Ves | |
| Euroction status | | | |
| Function status | and the state of t | | |
| Logic function A | (1)Enable microwave sensor | Master/Slave mode(Master sensor) | |
| Logic function A | | Microwave sensor detected is False, else is | |
| Block A | ->Local microwave sensor status | Microwave sensor detected is True,else is F | |
| A1: Switching | ->Master is set to TRUE when received | Slave value-'0' Slave value-'1' status from slave sensor | |
| Al. Switching | (2)Enable brightness(Lux) sensor | Disable Enable | |
| | | Download Pighlight Changes Default Parameters Grant Cl | I1.1.3 M/WS05.1 > Logic function A General Use logical block A No Interview of the sensor Master/Slave mode(Master sensor) ->Logic function A Block A Block A At: Switching Image: Sensor Substrained Sensor Status Status from slave sensor (2)Enable briohtness(Lux) sensor Image: Sensor Status Sensor Image: Sensor Status Sensor Status Sensor detected is Frage.else is Frage. |

 Master sensor enable one output object, because control one light turns on/off, so we can use Switch controller type.

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| Topology Backbone | 11.1.3 M/WS05.1 > Block A | , | | | |
| Dynamic Folders | | | | | |
| 4 🔡 11 New area | General | Object output 1 (to bus) | Switch controller | • | enable one output object |
| 11.1 New line | Function status | Object output 2 (to bus) | Invalid | - | |
| 11.1.2 M/R4.10.1 | Logic function A | Object output 3 (to bus) | Invalid | • | |
| 11.1.3 M/WS05.1 | | Object output 4 (to bus) | Invalid | • | |
| | Block A | Object output 5 (to bus) | Invalid | • | |
| | A1: Switching | Object output 6 (to bus) | Invalid | • | |



3) Set the detail function for master sensor output.

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| Topology Backbone | 11.1.3 M/WS05.1 > A1: Switching | | | |
| A 🔢 11 New area | General | The status after bus voltage recovery | Invalid | |
| ▲ 11.1 New line | Function status | Logical block output when TRUE | ON · | when true, send out '1' |
| 11.1.2 M/R4.10.1 | Logic function A | -> Delay time (017 Hours) | 0 | |
| 🗈 🔳 11.1.3 M/WS05.1 | | -> Delay time (059 Minutes) | 0 | h r |
| | Block A | -> Delay time (059 Seconds) | 0 | |
| | A1: Switching | -> Change delay time via bus (0 s17 h) | No Yes | |
| | Logic function B | Logical block output when FALSE | OFF | when false, delay 10s, send out '0' |
| | Logic function C | -> Delay time (017 Hours) | 0 | |
| | Logic function D | -> Delay time (059 Minutes) | 0 | |
| | | -> Delay time (059 Seconds) | 10 | |
| | Logic function E | | | |

4) Link the Movement status from bus (other sensor's status), and link the address to light. That means current sensor or other sensor has detection, will turn on relay1; when master sensor no detection for 10s and slave sensor not sent '1' in 10s, will turn off relay1.

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| ology Backbone | Numb Name | Object Function | Description | Group Address | Length | CR | w | τU | Data Type | Priority | |
| ynamic Folders | ■#10 General | Heartbeat telegram | | | 1 bit | с - | - 1 | | enable | Low | 2 |
| 1 New area | 1 0 Object input A | Microwave status from bus | sensor2 status | 0/0/12 | 1 bit | C R | W 1 | U | switch | Low | |
| 11.1 New line | 30 Object output A1 | Switching | relay1 | 1/0/1 | 1 bit | C R | - 1 | 1 | switch | Low | |
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| gy Channels Ch | Delete ≵ Download ▼ ① Info ▼ ♀ ▼ Numb Name ■ 20 Output A ■ 20 Output A ■ 20 Output B ■ 24 0 Output B | Reset 🖗 Unload • 🖮 Print Object Function Channel output Scene(Bbit) Channel output Scene(Bbit) | Description relay1 | Group Address 1/0/1 | Length 1 bit 1 byte 1 bit 1 byte | C - C - C - | x w w w w | Sea T U - U - U - U - U | arch Data Type switch switch | Priority Low Low Low Low | |
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5) Slave sensor report status to bus. And send out status via group address.

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| Topology Backbone | * 11.1.4 M/WS05.1 > Function | n status | | | | | | |
| Dynamic Folders | | | | | | | | |
| 11 New area | General | (1)Slave microwave sensor status report | t 🗌 No 🔕 Yes | | | | | |
| 11.1 New line 11.1 N/D02.1 | Function status | ->Transmit telegram value when microwave sensor detected | Slave value-'0' O Slave v | alue-'1' slave s | sensor, repo | ort the | status | to Bus |
| 11.1.2 M/R4.10.1 | Logic function A | (2)Brightness report | 🔘 No 🔵 Yes | | | | | |
| 11.1.3 M/WS05.1 | | (3)Temperature report | No Ves | | | | | |
| 11.1.4 M/WS05.1 | Logic function B | (b)remperature report | 0.100 | | | | | |
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