IMI TA
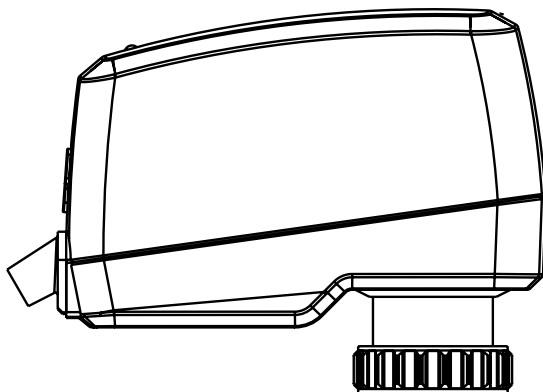
TA-Slider 160 KNX R24
Protocol Implementation
v1.2

Identification in KNX ETS software

Product family: HVAC
Product type: Valve
Manufacturer: IMI Hydronic Engineering
Name: TA-Slider 160 KNX R24
Order number: 3222240130X

Note: TA-Slider 160 KNX R24 is ETS5 ready. The minimum ETS version is ETS5.0

Commissioning

The proportional electro-motor, TA-Slider 160 KNX R24, actuator is connected directly to the KNX bus; a separate bus coupler is not required. The bus connection is carried out via the connecting cable which is fixed to the device with the help of a bus connecting terminal (not provided). An external auxiliary voltage is not necessary. It should be noted that a TA-Slider 160 KNX R24 draws as much energy from the bus as three bus devices.
The programming of the physical address can be carried out without contact by placing a magnet as shown in below picture.
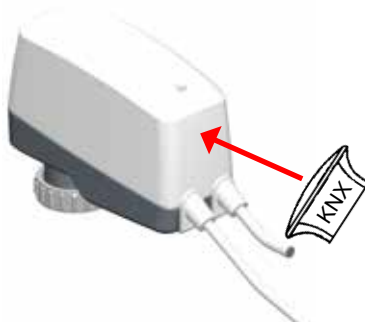
Wiring diagrams

TA-Slider 160 KNX R24
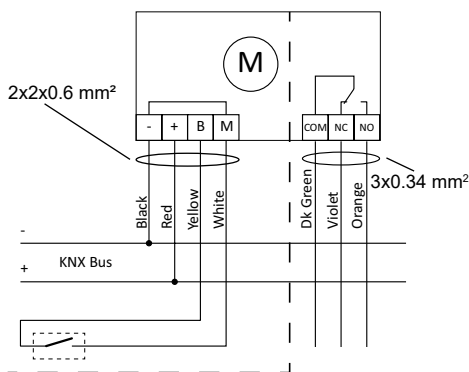
Terminal	Description
M	Neutral
B	Connection for potential free contact (e.g. open window detection), max. 100 Ω, max. 10 m cable or shielded
COM	Common contacts of relay, max. 250 VAC, max. 5A @ 250 VAC on resistive load, max. 5A @ 30 VDC on resistive load
NC	Normally closed contact for relay
NO	Normally open contact for relay

Note: M terminal is internally connected to KNX "-" Bus wire.

KNX product catalogue

The KNX product catalogue file can be downloaded from our website under the "Documentation" section of TA-Slider 160. Refer to below table to find out which product catalogue version for which actuator firmware version.

Firmware version	Required KNX product catalogue	Compatibility code on sticker	Production date
0.2.0	TA-Slider_160_KNX_R24_v1_2.knxprod	- or 259	From 2017-09-25 to 2019-11-14

The objects and parameters described in this document are those corresponding to firmware 0.2.X (KNX product catalogue 1.2).
For later version, refer yourself to a more recent document.

2

KNX protocol implementation

Available communication objects

Obj	Object name	Object function	Type	Flags
1a	Control value	Drive to position	1 Bit	CW
2a	Actual value	Indicate actual position	2 Bytes	CRT
1b	Control value	Drive to position	1 Byte	CW
2b	Actual value	Indicate actual position	1 Byte	CRT
1c	Control value	Drive to position	2 Bytes	CW
2c	Actual value	Indicate actual position	2 Bytes	CRT
3	Detected stroke	Valve stroke detected by calibration	2 Bytes	CRT
4*	Change-over	Change-over flag	1 Bit	CW
5*	Drive to forced position	Go to pre-defined forced position	1 Bit	CW
6*	Binary input	Binary input value	1 Bit	CRT
7	Error code	Error code	2 Bytes	CRT
8a	Relay	Relay control	1 Bit	CWT
8b	Relay	Relay state	1 Bit	CRT

For communication objects 1 and 2 (Control value and Actual value), versions a, b or c are mutually exclusive. For communication objects 8 (Relay), versions 8a and 8b are mutually exclusive.

Communication objects marked with a * are available depending on configuration.

Error code is a bit field formatted as follow

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
r	r	r	r	r	r	r	r	r	r	r	SOOR	CT	SDF	Clogging	PF

r: Reserved
SOOR: Signal out of range alarm
CT: Cyclic timeout alarm
SDF: Stroke detection failure
Clogging: Clogging alarm
PF: Power failure

Examples

"4" is "100" in binary representation. According to the table :

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
r	r	r	r	r	r	r	r	r	r	r	SOOR	CT	SDF	Clogging	PF
0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0

This "4" error means "SDF"

"6" is "110" in binary representation. According to the table :

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
r	r	r	r	r	r	r	r	r	r	r	SOOR	CT	SDF	Clogging	PF
0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0

This "6" error means "SDF" and "clogging"

Parameters – Main

Control type

Always available
Options:

a) Two points	b) Proportional - Rough positioning	c) Proportional - Fine positioning
(1 bit telegram)	(8 bit telegram)	(10000 values)

Default value: Proportional - Rough positioning (8 bit telegram)
Set the type of the control object.

Target position for control value 0

Available when Control type is a)
Parameter type: Integer
Range: Min: 0, Max: 10000
Default value: 0
Unit: per 10000
Setpoint when a 0 is sent (control value is binary).

Target position for control value 1

Available when Control type is a)
Parameter type: Integer
Range: Min: 0, Max: 10000
Default value: 10000
Unit: per 10000
Setpoint when a 1 is sent (control value is binary).

Characteristic

Available when Control type is b) or c)
Options:

Linear	Equal Percentage Modified (EQM)	Inverted EQM

Default value: Linear
Characteristic curve of the valve.

Hysteresis

Available when Control type is b) or c)
Options:

Accurate	1%	2%	3%	5%	7%	10%	15%

Default value: 2 %
Move the actuator only when the signal goes beyond this margin.

Control direction

Always available
Options:

Direct (0% = fully extended actuator; for push-to-close valves)	Reversed (0% = fully retracted actuator; for push-to-open valves)

Default value: Direct (0% = fully extended actuator; for push-to-close valves)
Valve direction of the input signal.

Cyclic timeout

Always available

Options:

No	1 min	2 min	5 min	10 min	15 min	20 min	30 min	45 min	60 min

Default value: No

Raise an error if the actuator didn't receive a control signal for the time being. This indicates the frequency of the input signal.

Maximum valve stroke

Always available

Parameter type: Integer
Range: Min: 250, Max: 8500
Default value: 6500
Unit: µm

Limit the detection range for the calibration to this upper value.

Activate LED?

Always available

Options:

Yes	No

Default value: Yes

Deactivate LED for a discreet device.

Enable stroke limitation?

Always available

Options:

Disabled	Enabled

Default value: Disabled

Enable the stroke limitation.

Limited stroke

Available when stroke limitation is enabled

Parameter type: Integer
Range: Min: 250, Max: 8500
Default value: 6500
Unit: µm

Indicate the Limited stroke value.

Enable change-over?

Available when stroke limitation is enabled

Options:

Disabled	Enabled

Default value: Disabled

According to the selected trigger (telegram or binary input), set the cooling or the heating mode.

Change-over trigger

Available when Change-over is enabled

Options:

KNX telegram	Binary input (Overrides binary input settings)

Default value: KNX telegram

Select the source for the change-over.

Limited stroke when change-over is triggered
> *Available when Change-over is enabled*
> Parameter type: Integer
> Range: Min: 250, Max: 8500
> Default value: 6500
> Unit: µm
> Override the limited stroke when the change-over is active.

Mode when change-over is triggered
> *Available when Change-over is enabled*
> Options:

Cooling	Heating

> Default value: Cooling
> Selected mode when the change-over is active.

Parameters – Maintenance

Calibration at power on
> *Always available*
> Options:

None	Full	Fast

> Default value: Full
> Type of calibration done at power on.

Automatic calibration refresh
> *Always available*
> Options:

Never	Weekly	Monthly

> Default value: Weekly
> Perform a calibration at this frequency.

Enable forced position?
> *Always available*
> Options:

Disabled	Enabled

> Default value: Disabled
> Enable the configuration of a forced position.

Forced position
> *Available when forced position is enabled*
> Parameter type: Integer
> Range: Min: 0, Max: 10000
> Default value: 0
> Unit: per 10000
> Value of the forced position 1.

Parameters – Binary input

Activate binary input?

Always available

Options:

Yes	No

Default value: No

Enable the binary input.

Binary input trigger

Available when binary input is enabled

Options:

Open	Closed

Default value: Open

Set the triggered state of the binary input.

Binary input action

Available when binary input is enabled

Options:

None	Go to position

Default value: None

Select the action to take when the binary input is triggered (can additionally activate the change-over through the corresponding option).

Binary input position

Available when binary input action is set to Go to position

Parameter type: Integer

Range: Min: 0, Max: 10000

Default value: 0

Unit: per 10000

Set the position to reach when the binary input is triggered (and the 'Go to position' option is selected).

Periodic transmission of input state

Available when binary input is enabled

Options:

None	Every 1 min	Every 2 min	Every 5 min	Every 10 min	Every 15 min	Every 20 min	Every 30 min	Every 45 min	Every 60 min

Default value: None

Transmit the binary input state at the selected frequency.

Transmission on change

Available when binary input is enabled

Options:

Yes	No

Default value: No

Transmit the new binary input state on status change.

Parameters – Relay

Activate relay?
Always available
Options:

Yes	No

Default value: Yes
Enable the control of the bi-stable relay.

Relay trigger
Available when relay is enabled
Options:

KNX telegram	Fully extended	Fully retracted	Position greater than	Position smaller than	Open binary input	Closed binary input	Calibrating	Error	Control value greater than	Control value smaller than

Default value: KNX telegram
Select the trigger which will switch the relay on.

Position Threshold
Available when relay trigger is set either to Position greater/smaller than or Control value greater/smaller than
Parameter type: Integer Range: Min: 0, Max: 10000
Default value: greater -> 9000; smaller -> 1000 Unit: $^0/_{000}$
Define the threshold value when the relay is triggered by a position.

Switch on relay on power failure
Available when relay trigger is set to error
Options:

Yes	No

Default value: No
Switch on the relay if a power failure occurs.

Switch on relay on clogging
Available when relay trigger is set to error
Options :

Yes	No

Default value: No
Switch on the relay if a clogging occurs.

Switch on relay on stroke detection failure
Available when relay trigger is set to error
Options:

Yes	No

Default value: No
Switch on the relay if a stroke detection failure occurs.

Switch on relay on cyclic instruction timeout
Available when relay trigger is set to error
Options:

Yes	No

Default value: No
Switch on the relay if a cyclic instruction timeout occurs.

Switch on relay on control value out of range
Available when relay trigger is set to error
Options:

Yes	No

Default value: No
Switch on the relay if last control value is out of range.

Periodic transmission of relay state
Available when relay is enabled
Options:

None	Every 1 min	Every 2 min	Every 5 min	Every 10 min	Every 15 min	Every 20 min	Every 30 min	Every 45 min	Every 60 min

Default value: Every 1 min
Transmit the relay state at the selected frequency.

Transmission on change
Available when relay trigger is not set to KNX telegram
Options:

Yes	No

Default value: No
Transmit the new relay state on status change.

Parameters – Error

Send status in case of error?
> *Always available*
> Options:

Yes	No

Default value: No
Transmit the error status on the KNX bus when one appears.

On valve clogging, perform unblocking attempts
> *Always available*
> Options:

Yes	No

Default value: No
If the valve is clogged, performs three attempts to unblock it.

On valve clogging, move to fully open valve position
> *Always available*
> Options:

Yes	No

Default value: No
If the valve is clogged, set the valve fully open.

Forced error position
> *Always available*
> Parameter type: Integer
> Range: Min: 0, Max: 10000
> Default value: 0
> Unit: per 10000
> Depending on the selected options, move to this position when an error is detected.

Move to error position on stroke detection failure
> *Always available*
> Options:

Yes	No

Default value: No
Move to the defined position when a stroke detection failure happens.

Move to error position on cyclic instruction timeout
> *Always available*
> Options:

Yes	No

Default value: No
Move to the defined position when a cyclic instruction timeout happens.

Move to error position on control value out of range
> *Always available*
> Options:

Yes	No

Default value: No
Move to the defined position when the control value is out of range (for control values 0-10000).

We reserve the right to introduce technical alterations without prior notice.

IMI
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