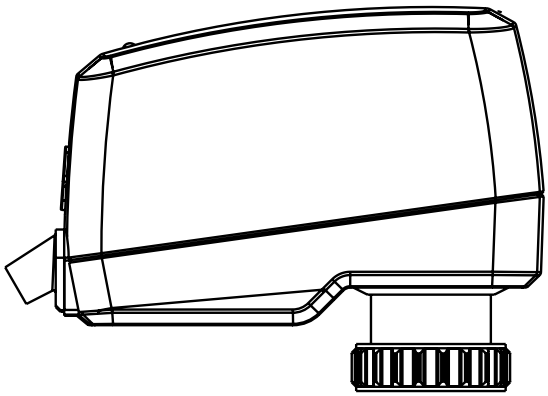
11.2020

IMI TA

TA-Slider 160 KNX R24

Protocol Implementation

v1.3



IMI Hydronic Engineering

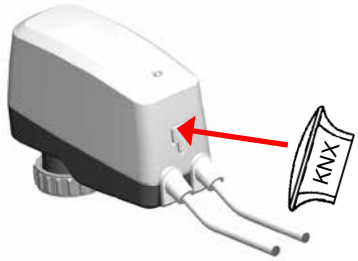
Identification in KNX ETS software

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

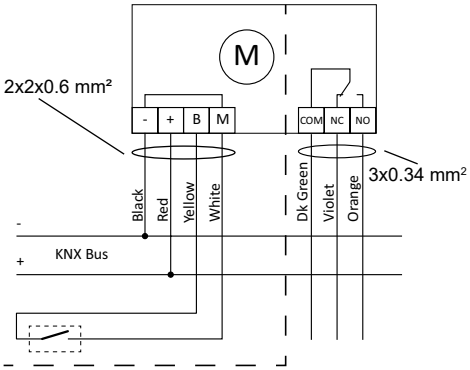
Commissioning

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 the 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
0.3.x	TA-Slider_160_KNX_R24_v1_3.knxprod	263	From 2019-11-15 to 2020-10-14
0.4.x			From 2020-10-15

The objects and parameters described in this document are those corresponding to firmware 0.3.x and 0.4.x (KNX product catalogue 1.3).
For previous versions, refer yourself to document "TA-Slider 160 KNX R24 Protocol Implementation 1.2".

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	Force calibration	Relaunch a calibration (0:full; 1:fast)	1 Bit	CW
5	Maximum valve stroke	Upper limit for detected stroke	2 Bytes	CRW
6	Minimum stroke position	Lower threshold for position	2 Bytes	CRW
7*	Limited stroke	Max stroke limitation	2 Bytes	CRW
8*	2nd limited stroke for change-over	2nd max stroke limitation for change-over	2 Bytes	CRW
9*	Change-over	Change-over flag	1 Bit	CW
10*	Drive to forced position 1	Go to pre-defined forced position 1	1 Bit	CW
11*	Drive to forced position 2	Go to pre-defined forced position 2	1 Bit	CW
12*	Binary input	Binary input value	1 Bit	CRT
13	Error code	Error code	2 Bytes	CRT
14a	Relay	Relay control	1 Bit	CWT
14b	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 14 (Relay), versions 14a and 14b are mutually exclusive.

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

Error code is a bit field formatted as follows

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

r: Reserved
D: Degraded mode
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	D	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	D	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 (1 bit telegram)	b) Proportional - Rough positioning (8 bit telegram)	c) Proportional - Fine positioning (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.

Initial control value

Always available

Parameter type: Integer
Range: Min: 0, Max: 10000
Default value: 10000
Unit: per 10000

Control value at power on before receiving first control value object.

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.

Periodic transmission of actual position

Always available

Options:

No	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: No

Define the frequency of the actual position transmission.

On-change transmission of actual position

Always available

Options:

No	1 %	2 %	3 %	5 %	7 %	10 %	15 %

Default value: No

Define the delta of the actual position that trigger a transmission.

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.

One side approach? (motor usage will increase)

Always available

Options:

Yes	No

Default value: No

Reduce gear's play by reaching the position from the same side (improved positioning).

Minimum stroke position

Always available

Parameter type: Integer

Range: Min: 0, Max: 8500

Default value: 0

Unit: µm

Indicate a minimum stroke position.

Continues on next page

Enable maximum 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: 6900

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: 6900

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: Never
Perform a calibration at this frequency.

Enable forced position 1?

Always available
Options:

Disabled	Enabled

Default value: Disabled
Enable the configuration of a forced position 1.

Forced position 1

Available when forced position_1 is enabled
Parameter type: Integer
Range: Min: 0, Max: 10000
Default value: 0
Unit: per 10000
Value of the forced position 1.

Forced position 1 applies to

Available when forced position_1 is enabled
Options:

Limited stroke	Full stroke

Default value: Limited stroke
Define the range of forced position 1.

Enable forced position 2?

Always available
Options:

Disabled	Enabled

Default value: Disabled
Enable the configuration of forced position 2.

Forced position 2

Available when forced position_2 is enabled
Parameter type: Integer
Range: Min: 0, Max: 10000
Default value: 10000
Unit: per 10000
Value of the forced position 2.

Continues on next page

Forced position 2 applies to

Available when forced position_2 is enabled

Options:

Limited stroke	Full stroke

Default value: Limited stroke

Define the range of forced position 2.

Highest priority

Available when forced position_1 and forced position_2 are enabled

Options:

Forced position 1	Forced position 2

Default value: Forced position 1

Define the highest priority if both forced position are activated.

Valve blockage protection

Available when forced position_1 and forced position_2 are enabled

Options:

Never	Weekly	Monthly

Default value: Never 1

Automatically moves by a quarter of its stroke if the actuator has not moved during the specified period.

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.

On-change transmission of input state

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.

Continues on next page

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: Yes
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.