



KNX Energy Actuator User Manual

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Content

Legal Statement	III
Update History	IV
1 Introduction	1
1.1 Import Data	2
1.1.1 Import Database into ETS (.knxprod)	2
1.1.2 Import Project (.knxproj)	7
1.2 Open Configuration Window	8
2 General Setting	9
3 Channel All Setting	11
3.1 Function Selection	11
3.2 All: Metering Setting	12
3.3 All: Active Power Setting	14
3.4 All: Current Setting	15
3.5 All: Frequency Setting	17
3.6 All: Load Master Setting	18
3.7 All: Metering Calculator Setting	20
4 Channel A/B/C Setting	21
4.1 Function Selection	21
4.2 Apparent Power and Power Factor Setting	22
4.3 Metering Setting	22
4.4 Active Power Setting	24
4.5 Current Setting	26
4.6 Voltage Setting	27
4.7 Energy Saving	29
5 Object Instruction	31

5.1	Objects “General”	31
5.2	Objects “All”	32
5.2.1	Objects “All: Meter Total”	32
5.2.2	Objects “All: Inter-meter total”	33
5.2.3	Objects “All: Active power total”	34
5.2.4	Objects “All Current total”	35
5.2.5	Objects “All: Frequency”	36
5.2.6	Objects “All: Load control master”	37
5.2.7	Objects “All: Meter calc”	38
5.3	Objects “A/B/C”	38
5.3.1	Objects “A/B/C: Meter”	38
5.3.2	Objects “A/B/C: Inter-meter”	39
5.3.3	Objects “A/B/C: Active power”	40
5.3.4	Objects “A/B/C: Current”	41
5.3.5	Objects “A/B/C: Voltage”	42
5.3.6	Objects “A/B/C: Apparent Power/Power Factor”	43
5.3.7	Object “A/B/C: Load control slave”	43
5.3.8	Object “A/B/C: Switch Actuator”	44
5.3.9	Object “A/B/C: Monitor Current”	44
5.3.10	Object “A/B/C: Flashing”	44
5.3.11	Object “A/B/C: Staircase lighting”	45
5.3.12	Object “A/B/C: Scenes”	45
5.3.13	Object “A/B/C: Forced operation”	45
5.3.14	Object “A/B/C: Energy saving”	46
6	Data Downloading	48
6.1	Interface Setting	48
6.2	Data Downloading	48

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Update History

The form below contains the information of every update. The latest version contains all the updates of all former versions.

No.	Version	Update Information	Date
1	V1.0.0	Initial release	Oct. 18, 2019

1 Introduction

This user manual is aimed at explaining the configuration of KNX Energy Actuator. The following tools might be included:

- KNX Energy Actuator
- A computer with ETS5 software
- KNX USB interface (Model: M/USB.1)
- KNX power supply and auxiliary power supply
- KNX project files
- Dedicated KNX cable(s)

Notice:

Please refer to the datasheet attached to the product for the information of function, wiring, installation, etc.

1.1 Import Data

1.1.1 Import Database into ETS (.knxprod)

1. **Import Catalogs:** click “Catalogs” → “Import...” in the main page of ETS5 and select local database files with the suffix of .knxprod, as shown in Figure 1-1.

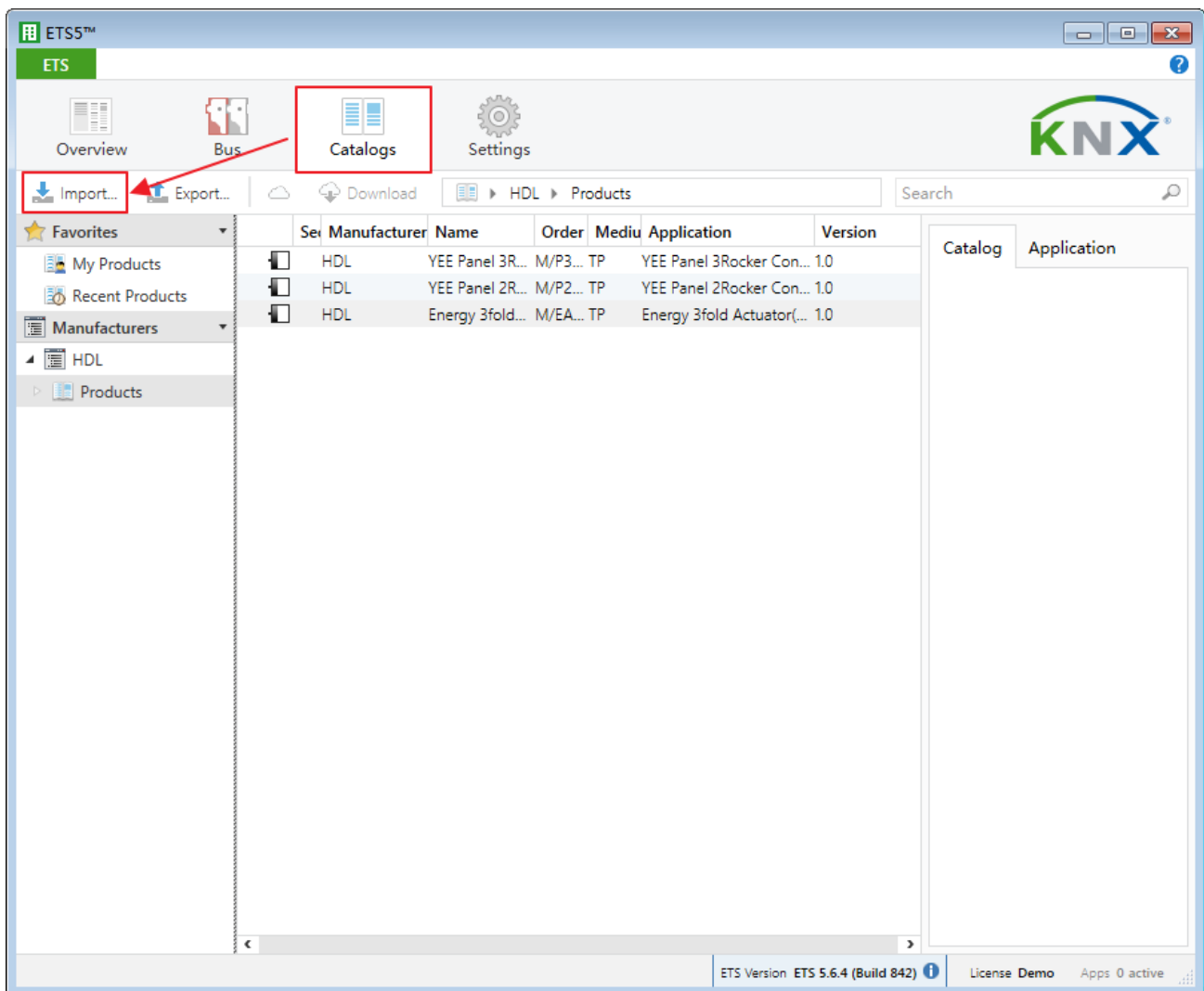


Figure 1-1 Import catalogs

2. **Create Projects:** as shown in Figure 1-2, in “Your Projects” tab page of “Overview” page, click “+” to create projects. After editing project name, please keep other setting items by default.

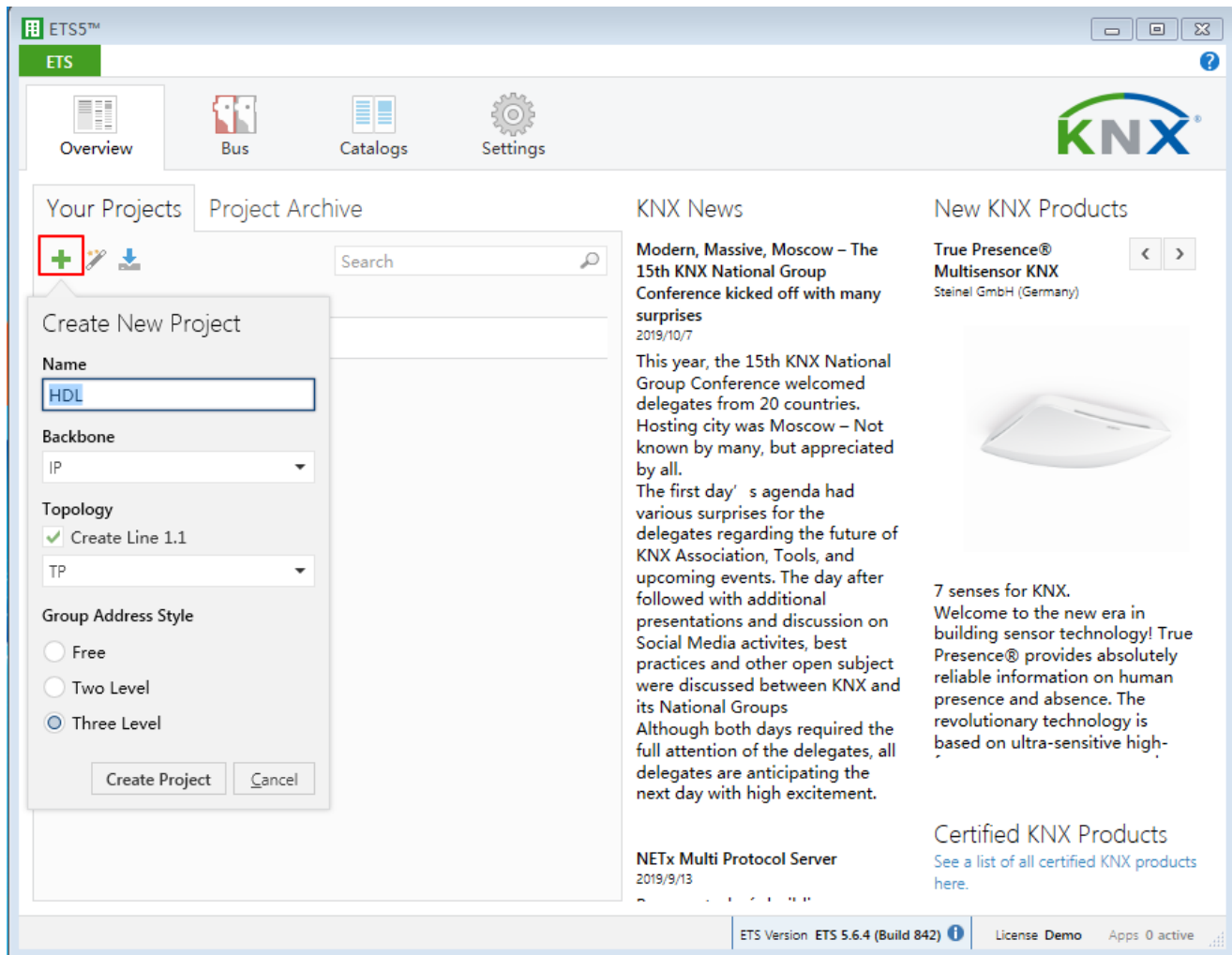


Figure 1-2 Create projects

3. Add Devices to Projects

- ① After creating a project, the project page will show up by default. Click “Buildings” and select “Topology”, as shown in Figure 1-3.

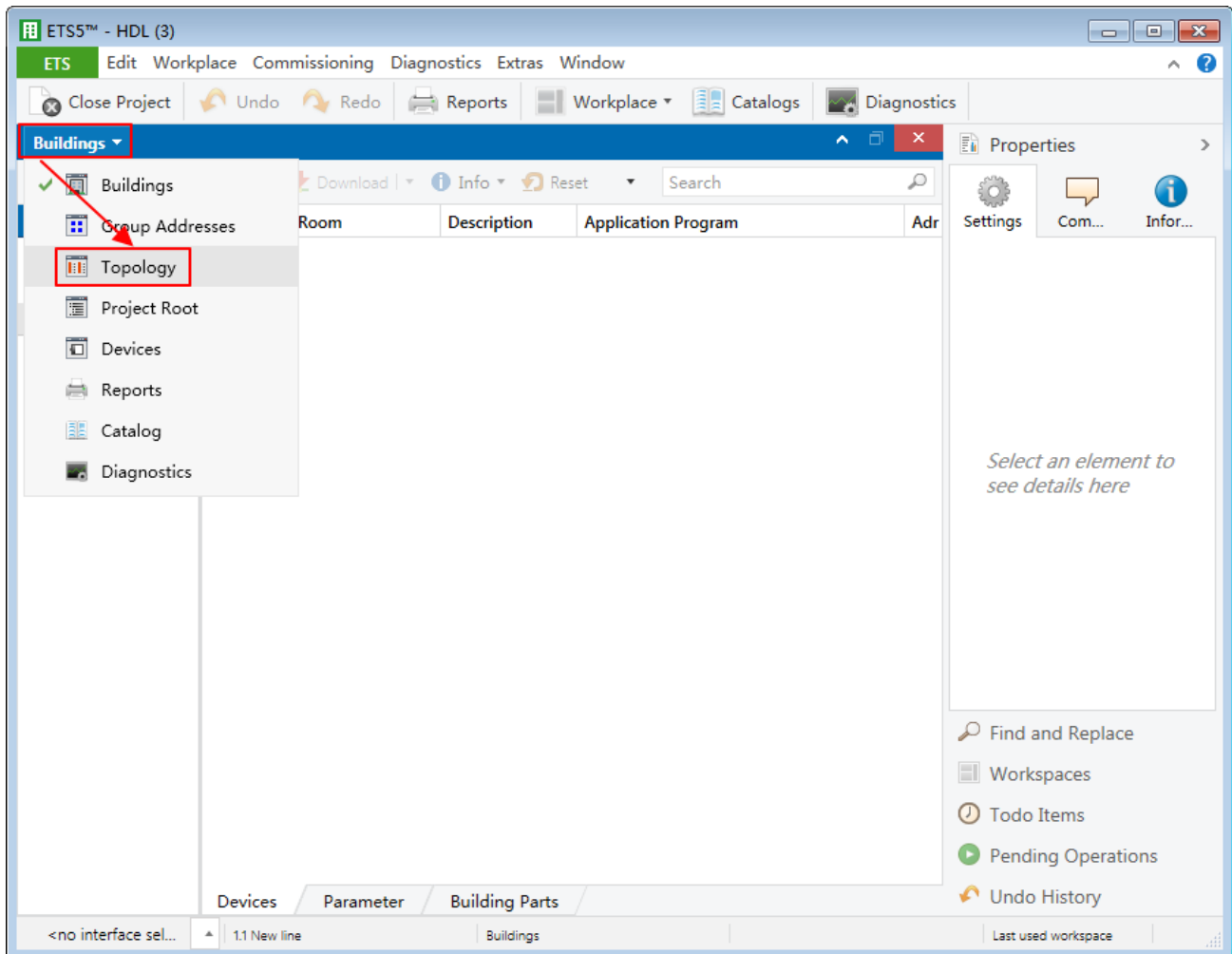


Figure 1-3 Select topology

- ② Figure 1-4 shows “Topology” page. Click the arrow beside “Add Areas” and select “Devices”. The catalog page will show up below.

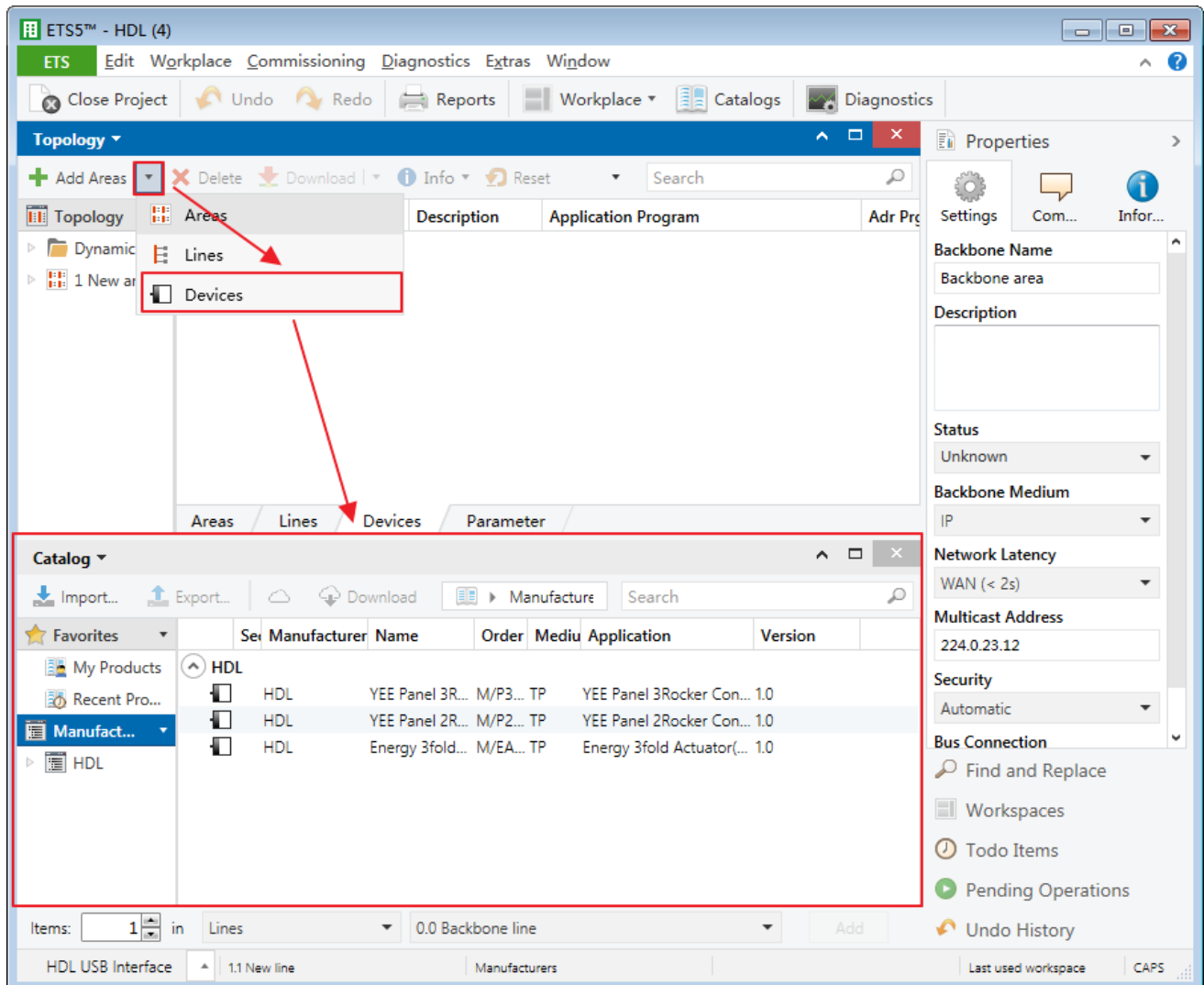


Figure 1-4 Open catalog page

- ③ As shown in Figure 1-5, after selecting “HDL” in “Manufactures” column, select devices to be added to the project on the right. And drag devices to the above area (Method 1) or click “Add” button to add devices after clicking the location needed to add projects below (Method 2).

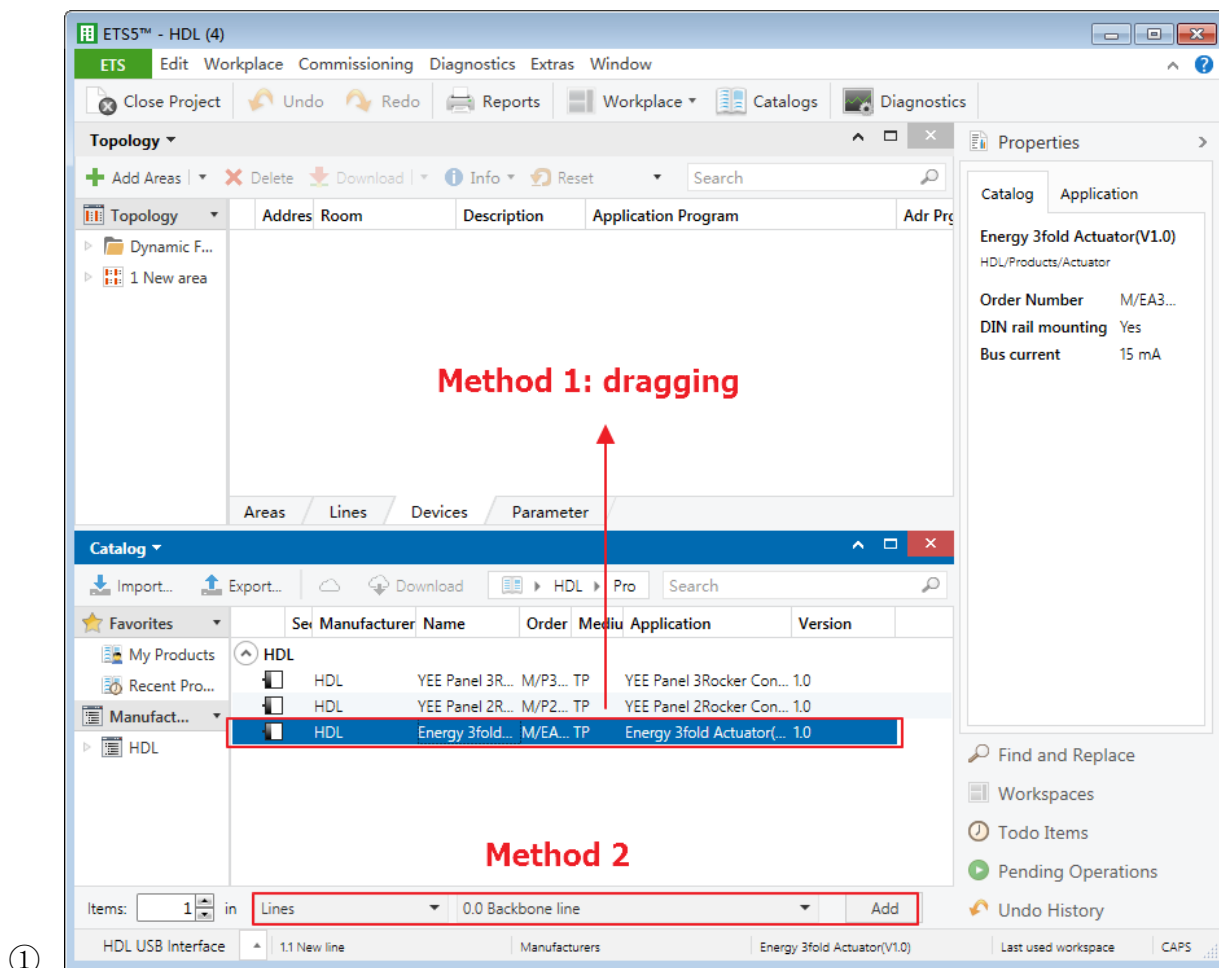


Figure 1-5 Add devices to projects

1.1.2 Import Project (.knxproj)

As shown in Figure 1-6. After opening ETS5, click “Import project” of “Your Project” page of “Overview” page and import obtained KNX project files with the suffix of .knxproj. After the projects are imported successfully, added/created projects will be listed below. Double click to edit.

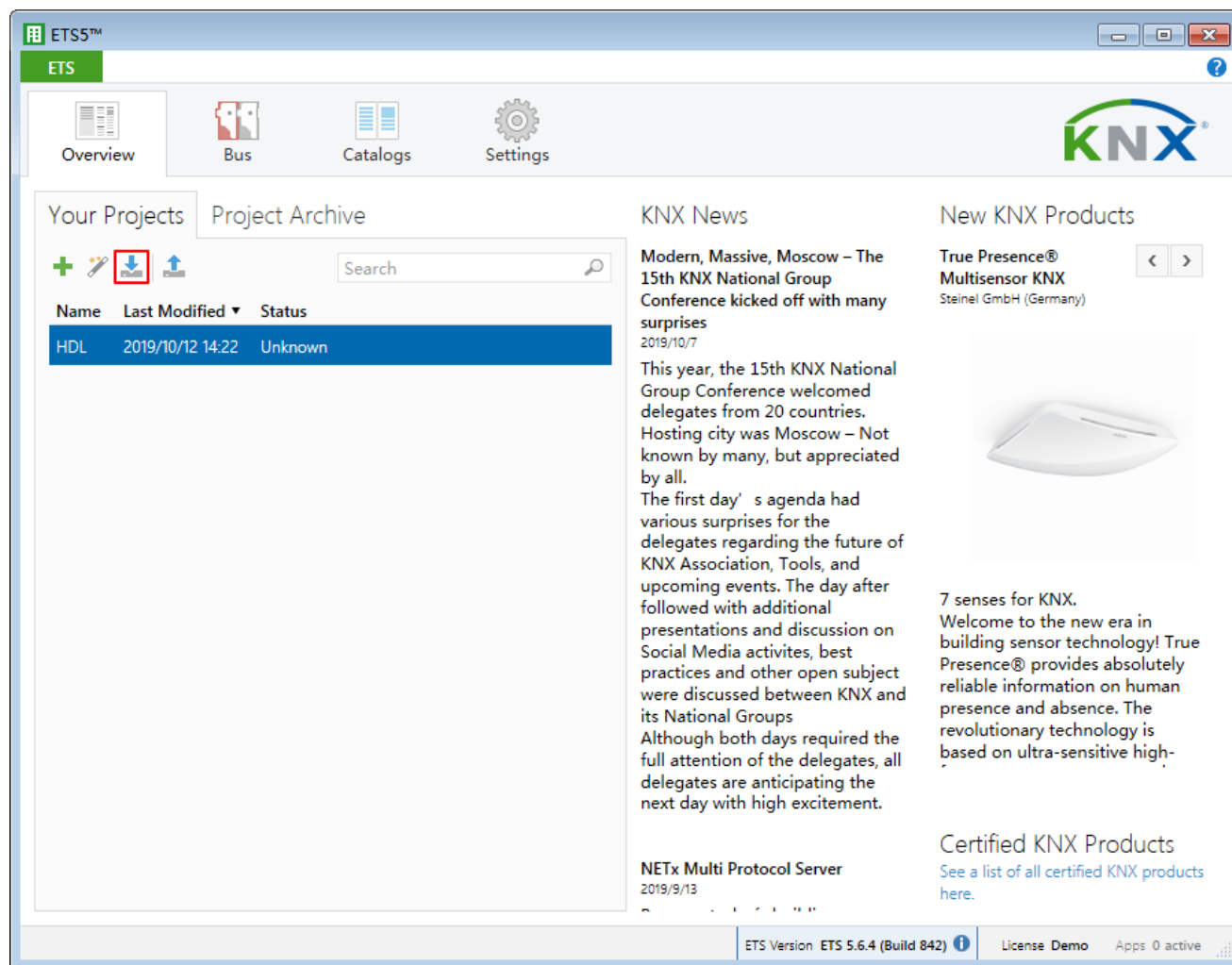


Figure 1-6 Import projects

1.2 Open Configuration Window

Double click projects to be configured to open the project window. And click “Workspace” → “Open New Panel” → “Topology” to open the window, as shown in Figure 1-7.

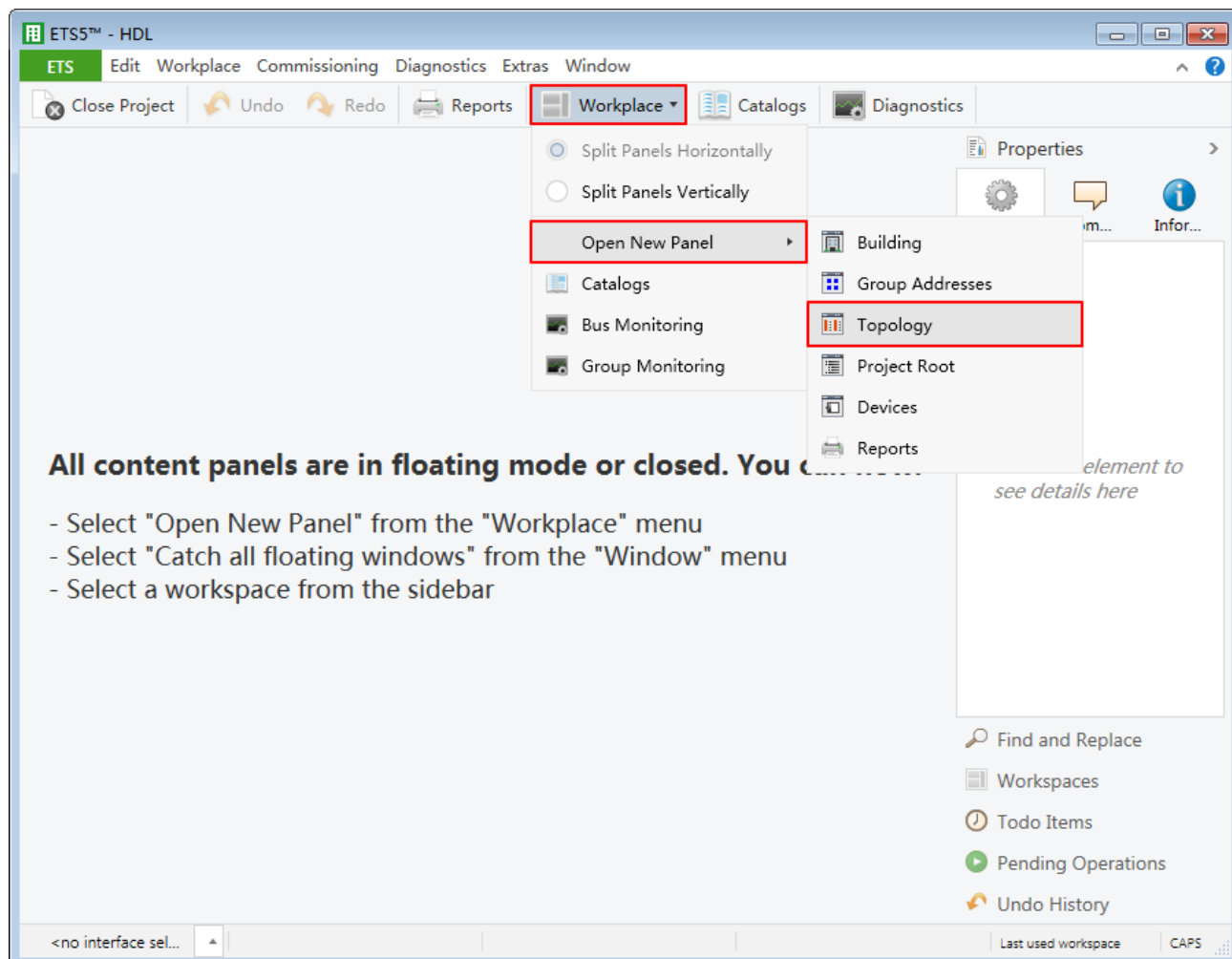


Figure 1-7 Open configuration window

2 General Setting

In topology skeleton on the left side of the topology page, click devices to be set, and click “General” in “Parameter” option, as shown in Figure 2-1.

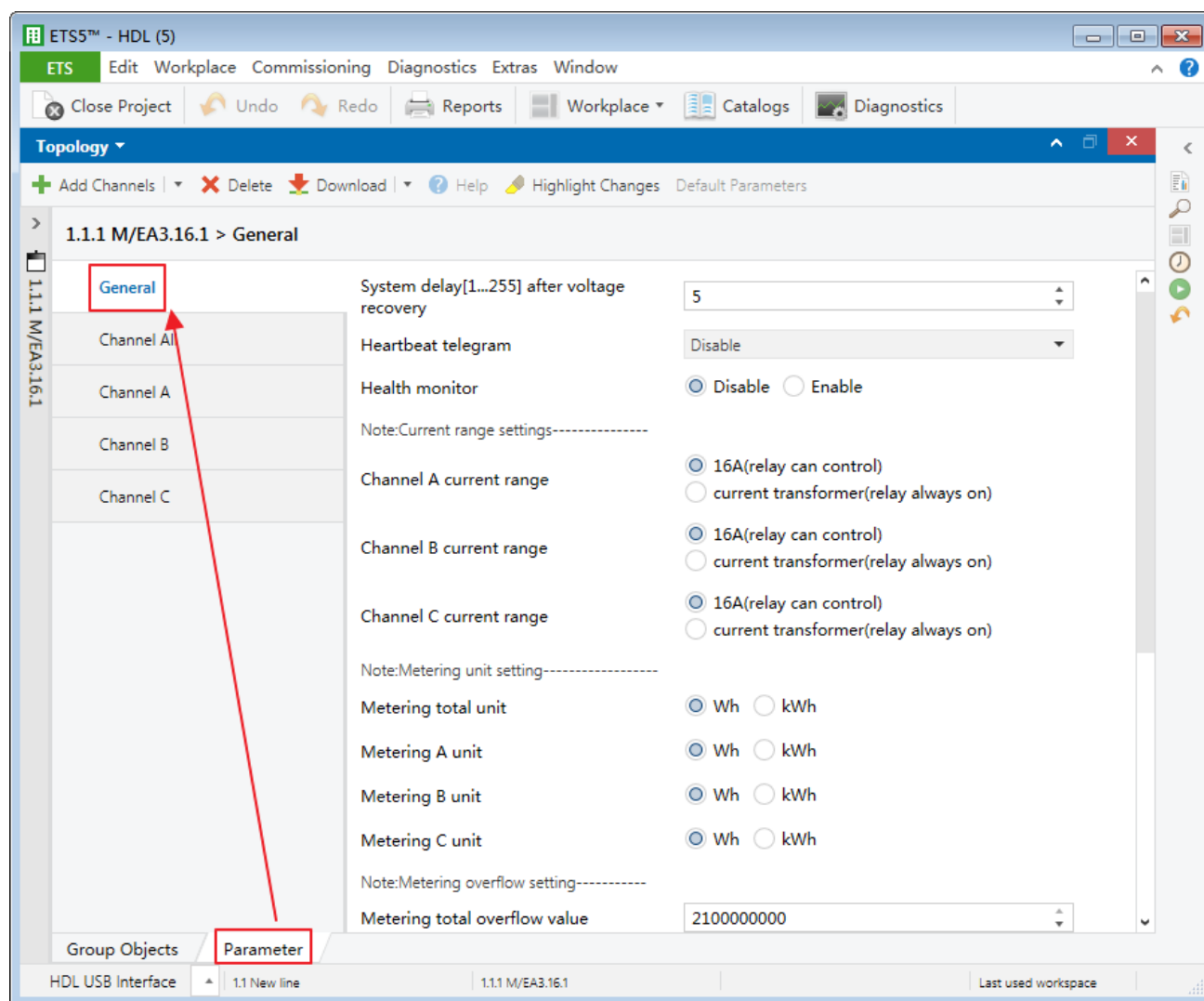


Figure 2-1 General setting

The setting items are explained below:

1. System delay after voltage recovery: time-delay function, namely a delay time between powering on the device and activating the system, range from 1 to 255s.
2. Heartbeat telegram: to choose to send value “1”, “0”, or “1, 0” cyclically.

Sending interval of telegram: to set the interval of sending heartbeat telegram, range from 1 to 65535s.

3. Health monitor: to enable health monitoring function.

- Cycle monitor time: to set the period of health monitoring, range from 1 to 65535s.
- Health voltage sending unit: to select mV or V as the sending unit of health monitoring voltage.
- Send health voltage value: to select the sending mode of health monitor voltage, including “after a change”, “cyclically” or a combination of both.

If “after a change” is selected, the range of sending can be set in “Send health voltage value” below. Monitoring voltage will be sent when the value is beyond the range, range from 1 to 65535mV.

If “cyclically” is selected, the period of sending can be set in “Cycle time” below, range from 1 to 65535s.

- Send health voltage value on request: to enable sending health monitoring voltage after receiving requests. After enabled, users may select signal types below.
- Alarm after unhealth voltage: to enable to send an alarm when unhealthy status is monitored. After enabled, users may set the lower/upper limit of health voltage (both range from 0 to 255V) below. Beyond the range is defined as unhealthy status.

4. Current range setting

This section is to set the range of current for 3 circuits (A/B/C) independently by “16A” or “Current transformer”. If the latter is selected, the ratio of current to 5A can be set below.

5. Metering total unit setting

This section is to set the unit for the main circuit and 3 circuits (A/B/C) independently, including “Wh” or “kWh”.

6. Metering overflow setting

This section is to set overflow value for the main circuit and 3 circuits (A/B/C) independently. And users may enable “warning jump to 0” or disable “No warning jump to 0” below.

Notice: If external current transformer is used, the circuit will be kept ON.

7. All channels operation: to enable the full-open/full-close function of relay.

- Switching ON/OFF: to control all the switches after enabled. The switch mode can be selected below, including “‘1’-ON, ‘0’-OFF” and “‘0’-ON, ‘1’-OFF”.
- Status: to activate/deactivate feedback function. The mode can be selected, including “‘1’-Channels is ON, else ‘0’” and “‘0’-Channels is ON, else ‘1’”.

3 Channel All Setting

3.1 Function Selection

In topology skeleton on the left side of topology page, click the device to be set and select “Channel All” in “Parameter” option, as shown in Figure 3-1.

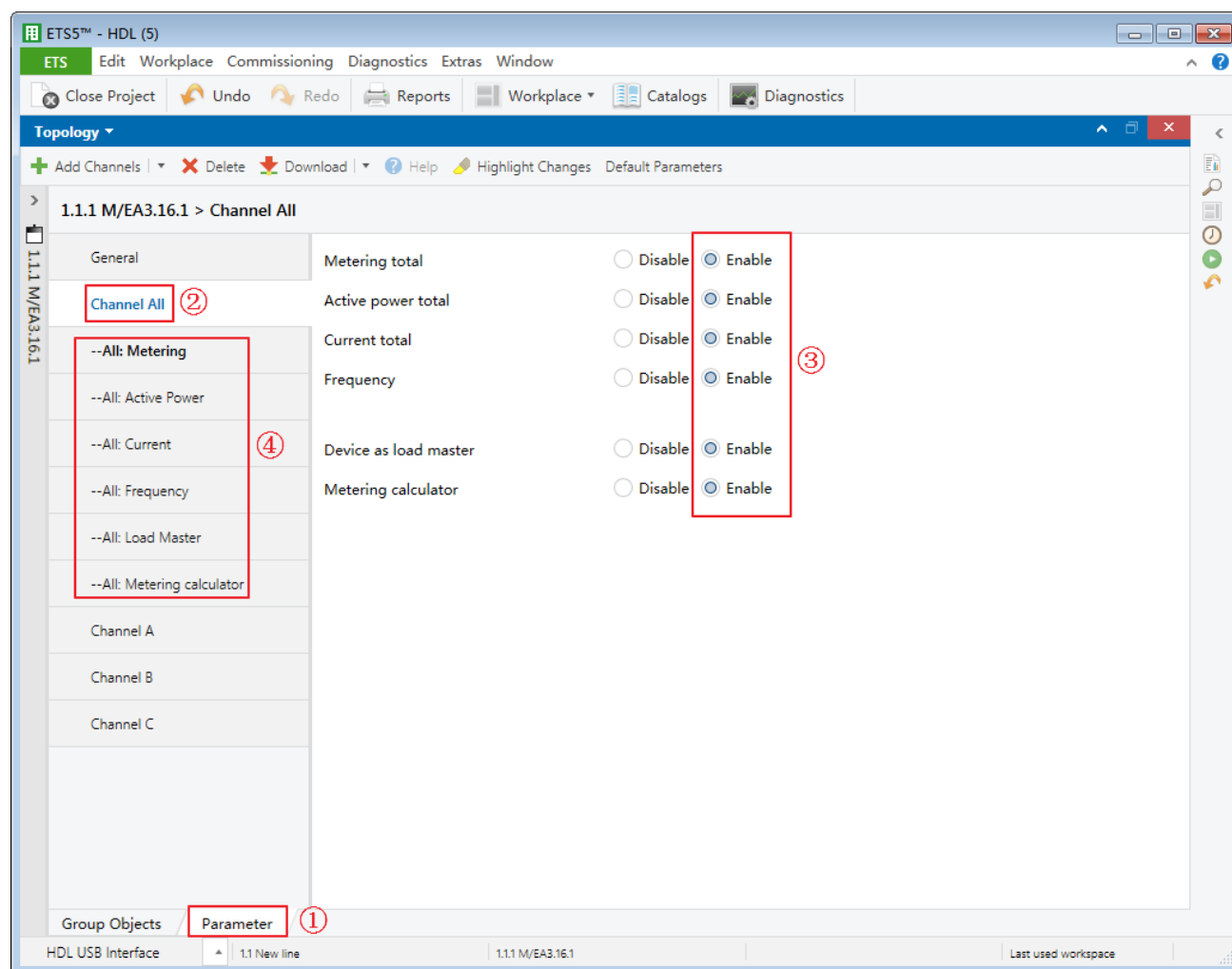


Figure 3-1 Function selection

Click “Enable” to enable corresponding functions and corresponding tabs will show up on the left.

3.2 All: Metering Setting

“All: Metering setting” page is as shown in Figure 3-2.

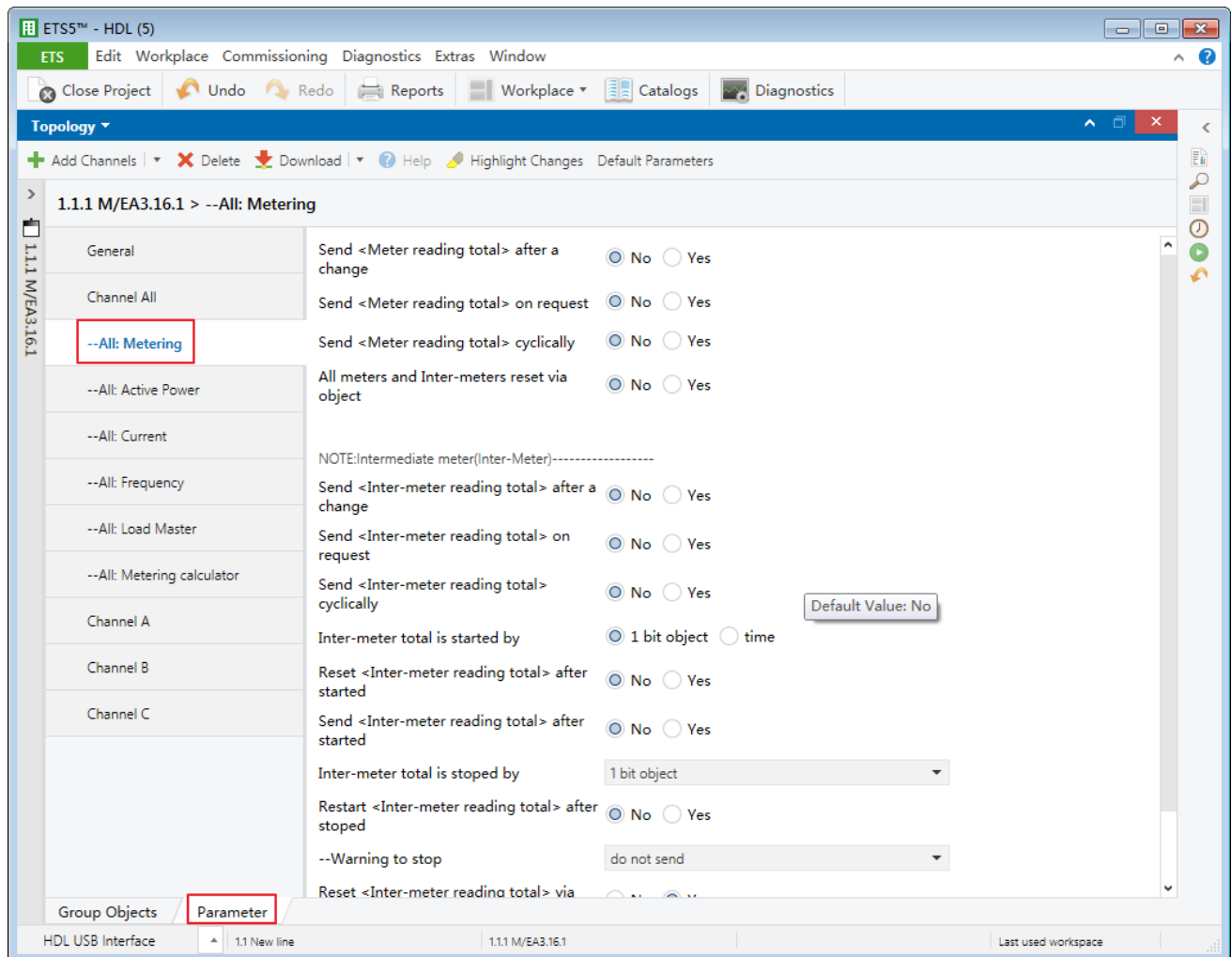


Figure 3-2 All: metering setting

The setting items are explained as follows:

1. Send <Meter reading total> after a change: to enable sending deviation value when total meter changes. After enabled, deviation value can be set in “Wh”, range from 1 to 65535Wh.
2. Send <Meter reading total> on request: to enable sending total meter when receiving commands. After enabled, the format of command can be set in “Request with object value” below.
3. Send <Meter reading total> on cyclically: to enable sending total meter cyclically. After enabled, change the time for sending, range from 1 to 65535s.

4. All meters and Inter-meters reset via object: to enable resetting total meter and inter-meter via objects.
5. Send <Inter-meter reading total> after a change: to enable sending deviation value when total inter-meter changes. After enabled, deviation value can be set in “Wh” below, range from 1 to 65535 Wh.
6. Send <Inter-meter reading total> on request: to enable sending total inter-meter when receiving commands. After enabled, set the format of command in “Request with object value” below.
7. Send <- reading total> cyclically: to enable sending total inter-meter cyclically. After enabled, the time for sending can be set below, range from 1 to 65535s.
8. Inter-meter total is started by: to select inter-meter starts by 1-bit object or time. If the latter is selected, the time can be set below, including hour, minute and week.
9. Reset <Inter-meter reading total> after started: to enable resetting total inter-meter when the counting starts.
10. Send <Inter-meter reading total> after started: to enable sending total inter-meter when the counting starts.
11. Inter-meter total is stopped by: to select the way of stopping inter-meter, including “1 bit”, “time”, “limit”, “duration”. The details can be set below.

Except “time” option, other options can go further to set items, including restarting total inter-meter reading when the counting stops and choosing whether to send an alarm after total inter-meter stops below.
12. Reset <Inter-meter reading total> after started: to enable resetting total inter-meter via objects.
13. Inter-meter parameter after bus voltage recovery: to select the status of inter-meter parameter after the bus voltage recovery, including “unchanged” and “recovery”.

3.3 All: Active Power Setting

“All: Active Power setting” page is as shown in Figure 3-3.

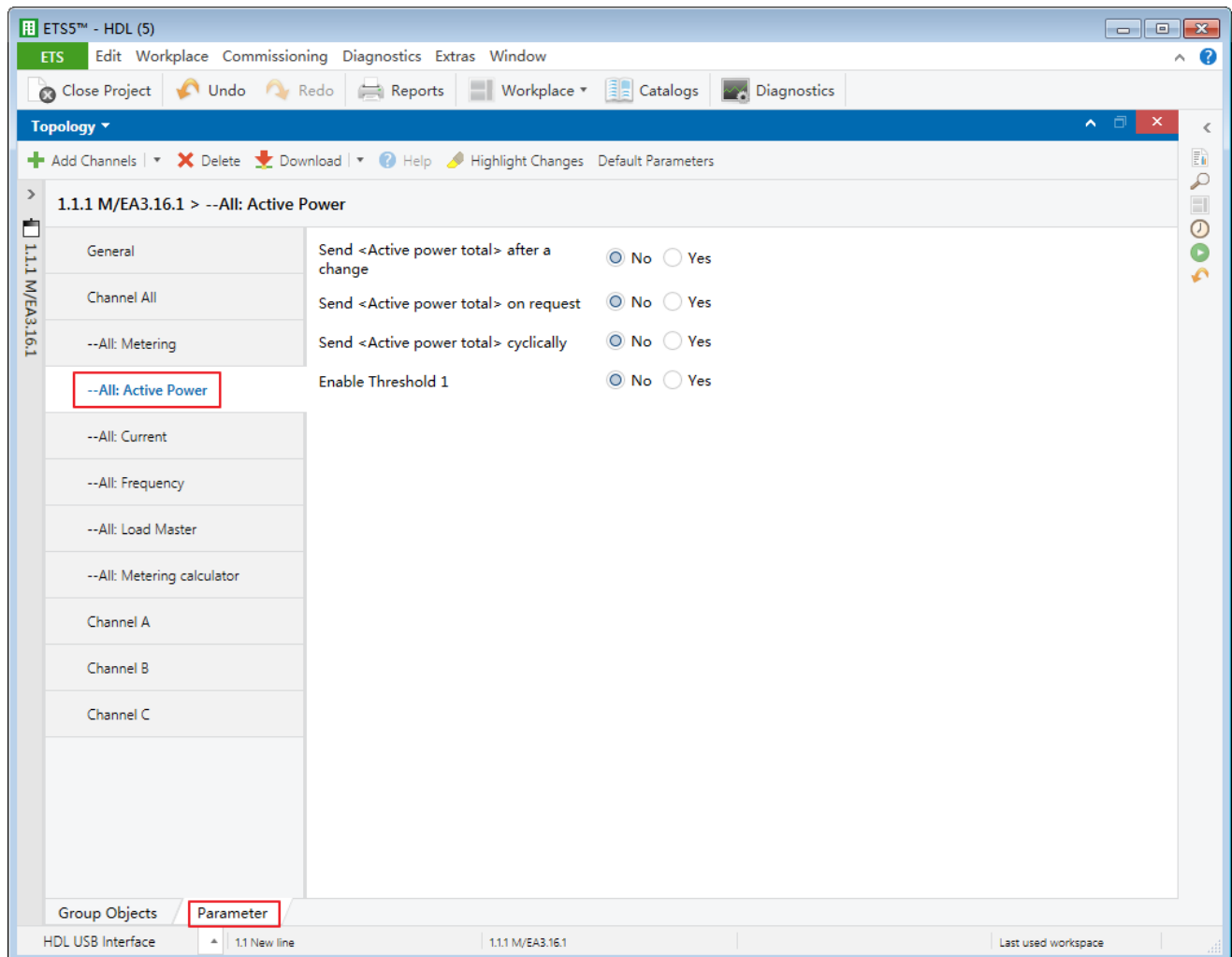


Figure 3-3 All: active power setting

The setting items are explained as follows:

1. Send <Active power total> after a change: to enable sending deviation value when total active power changes. Deviation value can be set below, range from 1 to 65535W.
2. Send <Active power total> on request: to enable sending total active power when receiving commands. After enabled, the format of command can be set below.
3. Send <Active power total> cyclically: to enable sending total active power cyclically. After enabled, set the time for sending cyclically below, range from 1 to 65535s.
4. Enable Threshold 1: to enable “Threshold 1”. After enabled, the details can be set below.
 - Threshold parameter after bus voltage recovery: to select the status of threshold

parameter after the bus voltage recovery, including “unchanged” and “recovery”.

- Threshold 1 lower/upper limit: to select the maximum/minimum of “Threshold 1”, both range from 0 to 65535W.
- Threshold warning: to choose whether to send an alarm when actual threshold exceeds the limit, including “do not send”, “send 0 when exceeding”, “send 1 when exceeding”, “send 0 when falling below”, “send 1 when falling below”, “exceeding 0, falling below 1” and “exceeding 0, falling below 1”.

5. Enable Threshold 2/3/4: to enable “Threshold 2/3/4”, which is set in the same way as “Threshold 1”.

3.4 All: Current Setting

“All: Current setting” page is as shown in Figure 3-4.

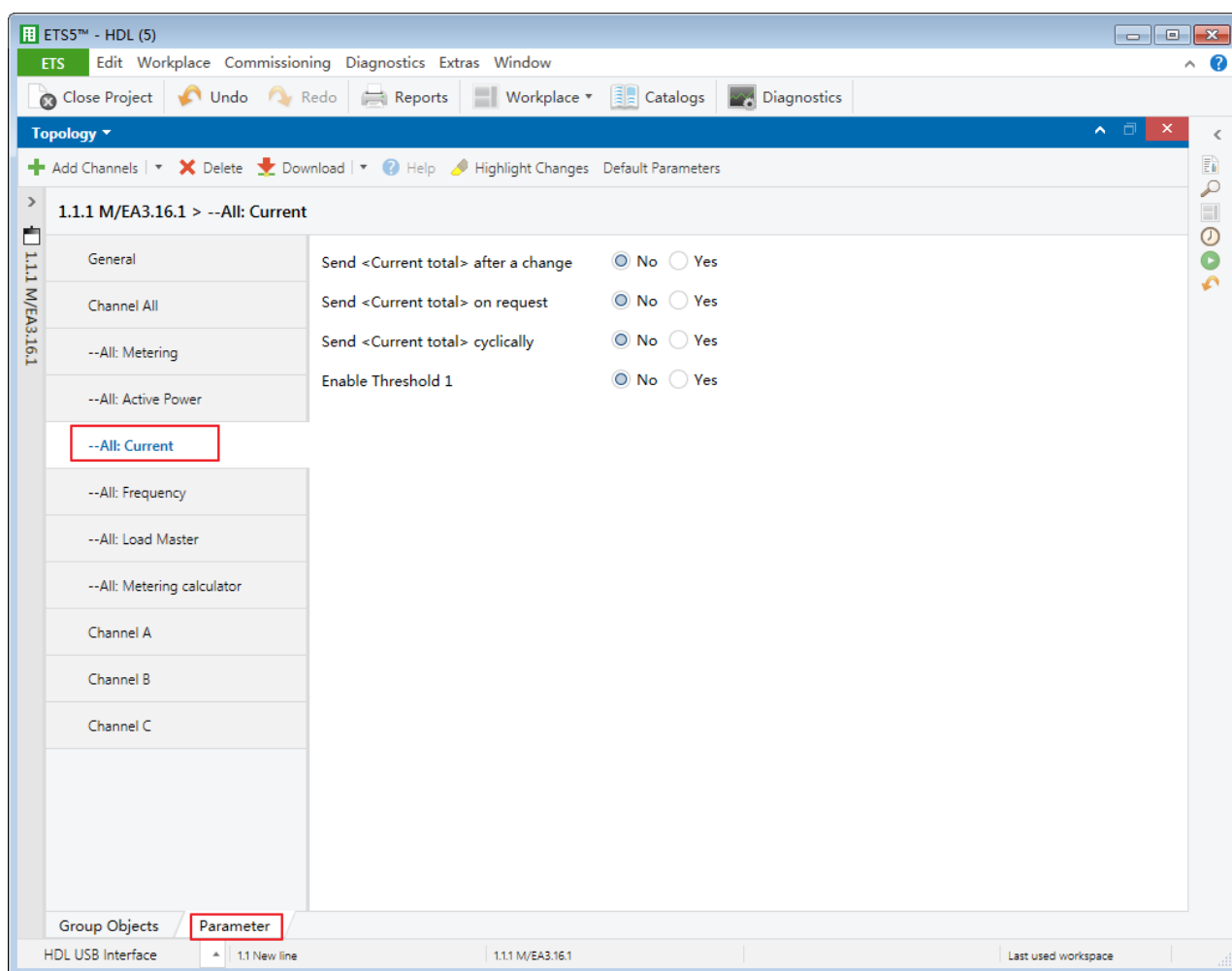


Figure 3-4 All: current setting

The setting items are explained as follows:

1. Send <Current total> after a change: to enable sending deviation value when total current changes. After enabled, deviation value can be set below, range from 1 to 20000mA.
2. Send <Current total> on request: to enable sending total current when receiving commands. After enabled, the format of command can be set below.
3. Send <Current total> cyclically: to enable sending total current cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
4. Enable Threshold 1: to enable “Threshold 1”, the details can be set below.
 - Threshold parameter after bus voltage recovery: to select the status of threshold parameter after the bus voltage recovery, including “unchanged” and “recovery”.
 - Threshold 1 lower/upper limit: to select the maximum/minimum of “Threshold 1”, range from 0 to 200A.
 - Threshold warning: to choose whether to send and alarm when actual threshold exceeds the limit, including “do not send”, “send 0 when exceeding”, “send 1 when exceeding”, “send 0 when falling below”, “send 1 when falling below”, “exceeding 0, falling below 1” and “exceeding 0, falling below 1”.
5. Enable Threshold 2/3/4: to enable “Threshold 2/3/4”, which is set in the same way as “Threshold 1”.

3.5 All: Frequency Setting

“All: Frequency” page is as shown in Figure 3-5.

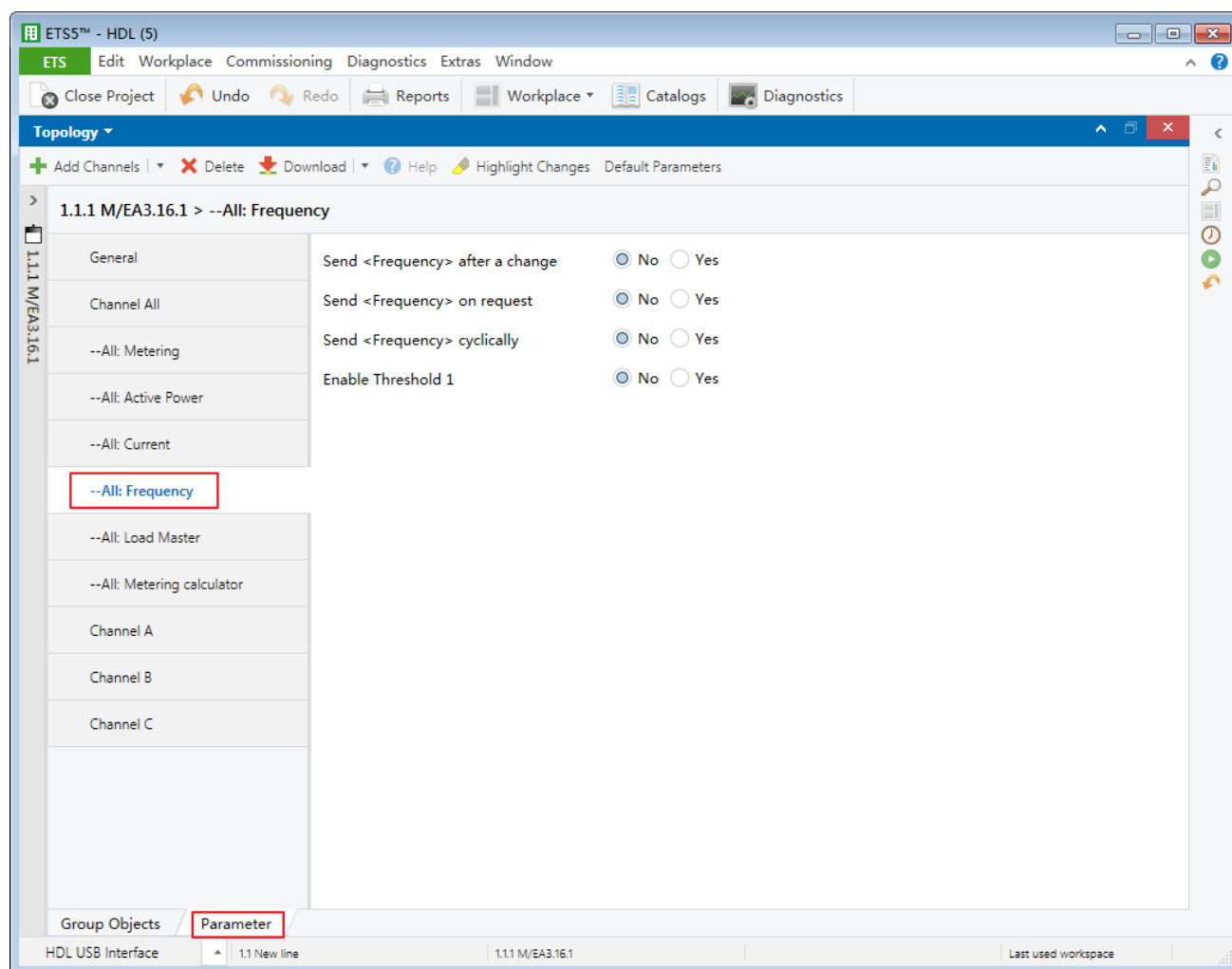


Figure 3-5 All: Frequency setting

The setting items are explained as follows:

1. Send < Frequency> after a change: to enable sending deviation value when the frequency changes. After enabled, deviation value can be set below, range from 1 to 650Hz.
2. Send <Frequency> on request: to enable sending frequency when receiving commands. After enabled, the format of command can be set below.
3. Send <Frequency> cyclically: to enable sending frequency cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
4. Enable Threshold 1: to enable “Threshold 1”, the details can be set below.

- Threshold parameter after bus voltage recovery: to select the status of threshold parameter after the bus voltage recovery, including “unchanged” and “recovery”.
 - Threshold 1 lower/upper limit: to select the maximum/minimum of “Threshold 1”, range from 1 to 650Hz.
 - Threshold warning: to choose whether to send an alarm when actual threshold exceeds the limit, including “do not send”, “send 0 when exceeding”, “send 1 when exceeding”, “send 0 when falling below”, “send 1 when falling below”, “exceeding 0, falling below 1” and “exceeding 0, falling below 1”.
5. Enable Threshold 2/3/4: to enable “Threshold 2/3/4”, which is set in the same way as “Threshold 1”.

3.6 All: Load Master Setting

“All: Load Master setting” page is as shown in Figure 3-6.

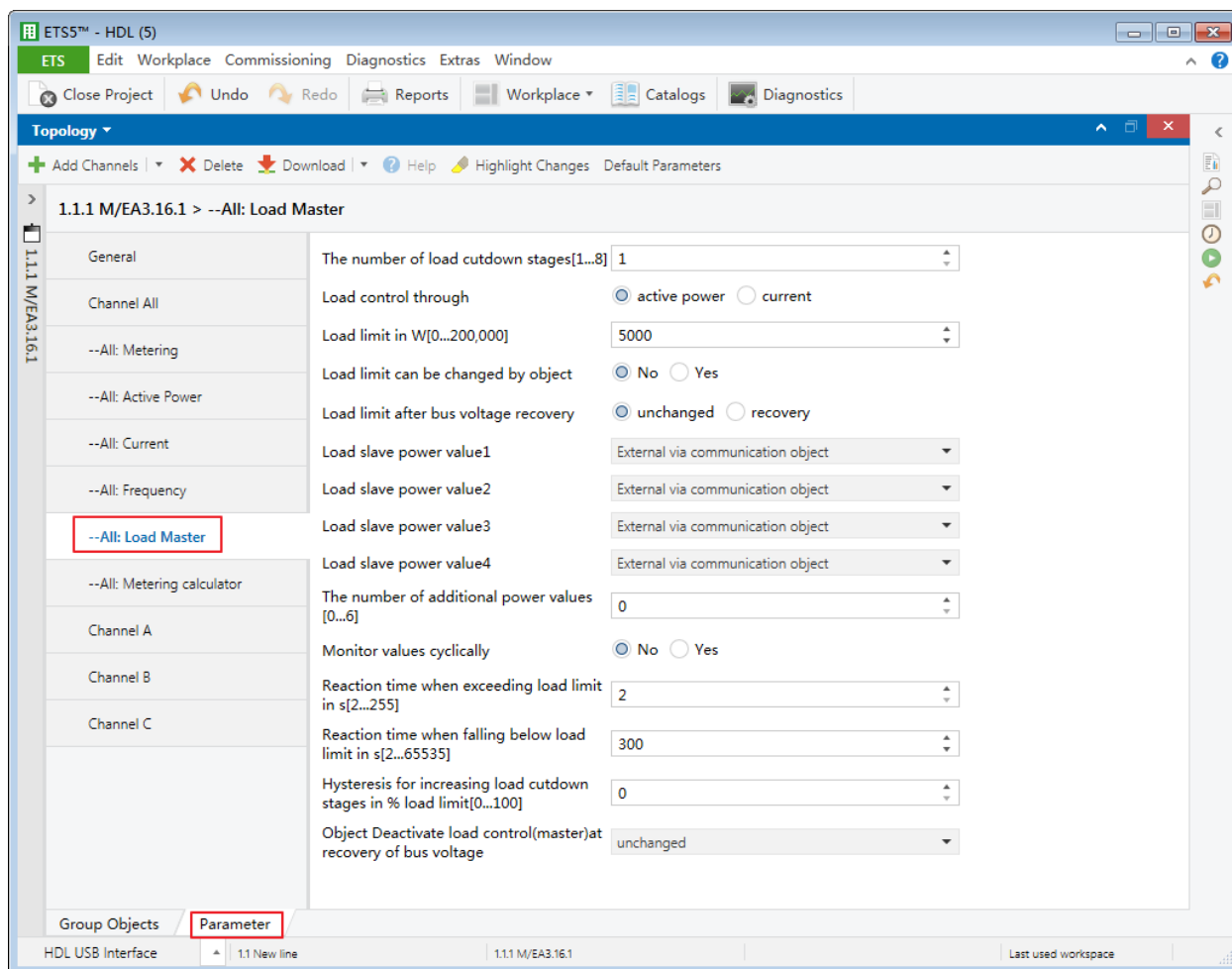


Figure 3-6 All: Load Master setting

The setting items are explained as follows:

1. The number of load cutdown stages: to set the number of slave loads, range from 1 to 8.
2. Load control through: to select to control loads by active power or current. The third option differs from the sixth option according to this selection.
3. Load limit: to set the limit of loads. When active power is selected, the range is from 0 to 200000W. When the current is selected, the range is from 0 to 200A.
4. Load limit can be changed by object: to enable changing load limit via objects.
5. Load limit after bus voltage recovery: to select the status of load limit after the bus voltage recovery, including “unchanged” and “recovery”.
6. Load slave power/current value 1/2/3/4: to select the source of slave power/current, including “Active power” and “External via communication object”.
7. The number of additional power values: to set the number of additional power, range from 0 to 6.
8. Monitor values cyclically: to enable monitoring cyclically. After enabled, change the interval of monitoring below, range from 20 to 65535s.
9. Reaction time when exceeding load limit: to set the reaction time of exceeding the upper limit of load, range from 2 to 255s.
10. Reaction time when falling below load limit: to set the reaction time of falling below the lower limit of load, range from 2 to 65535s.
11. Hysteresis for increasing load cutdown stages in % load limit: to set the bandwidth of load limit, range from 0 to 100%.
12. Object Deactivate load control (master) at recovery of bus voltage: to set whether to disable load control function after the device is powered on again, including “unchanged”, “load control activated” and “load control deactivated”.

3.7 All: Metering Calculator Setting

“All: Metering calculator setting” page is as shown in Figure 3-7.

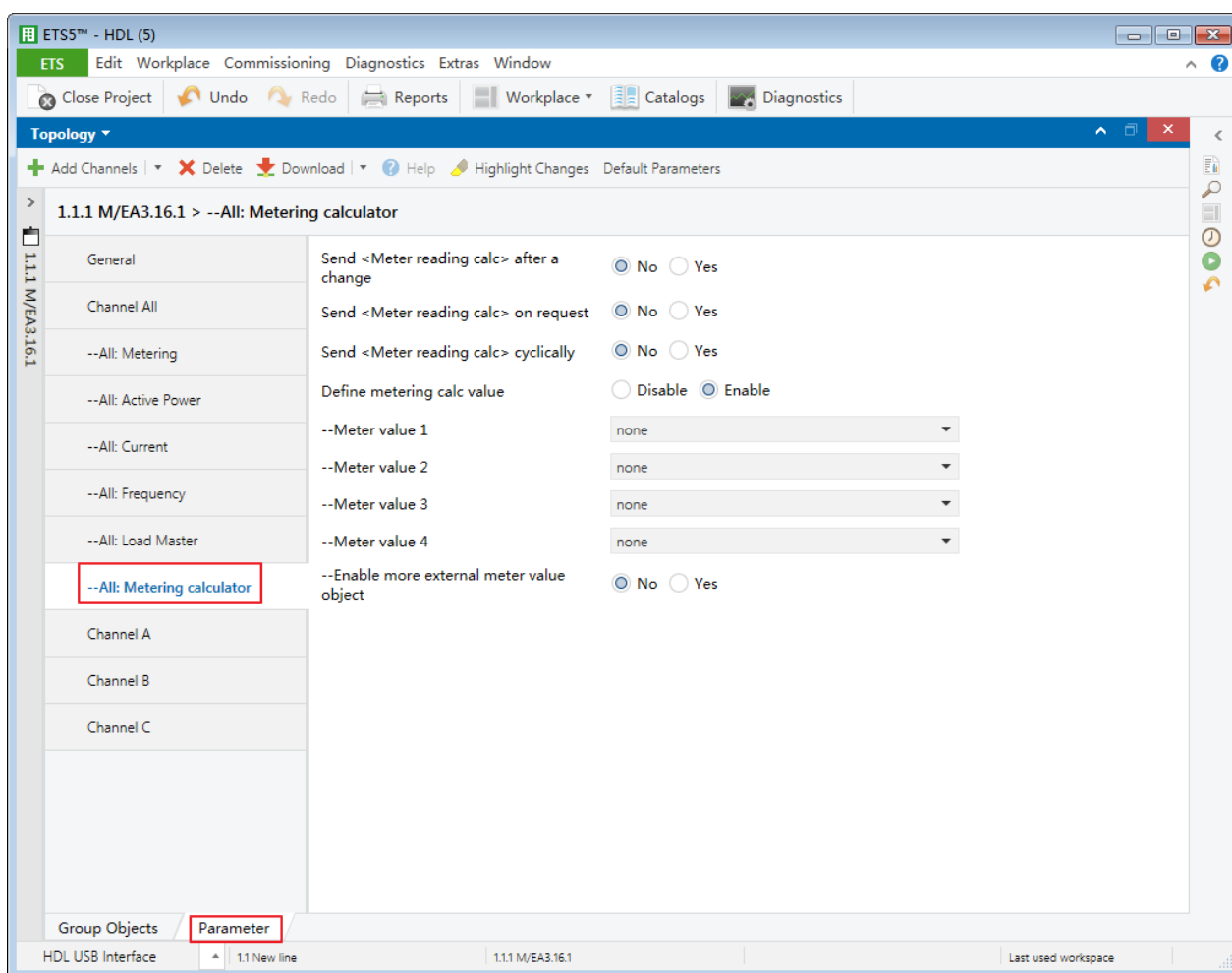


Figure 3-7 All: metering calculator setting

The setting items are explained as follows:

1. Send <Meter reading cal> after a change: to enable sending deviation value when meter cal changes. After enabled, deviation value can be set below, range from 1 to 65535wh.
2. Send <Meter reading cal> on request: to enable sending meter cal when receiving commands. After enabled, the format of command can be set below.
3. Send <Meter reading cal> after a cyclically: to enable sending meter cal cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
4. Define metering cal value: to enable defining metering cal. After enabled, meter cal 1/2/3/4 can be selected independently from “Meter A/B/C/Total” or “External via communication object”.

4 Channel A/B/C Setting

This chapter takes “Channel A” as an example to introduce the function and setting of single channel.

4.1 Function Selection

Click “Parameter” → “Channel A”, as shown in Figure 4-1. After selecting corresponding functions, corresponding tabs will show up on the left.

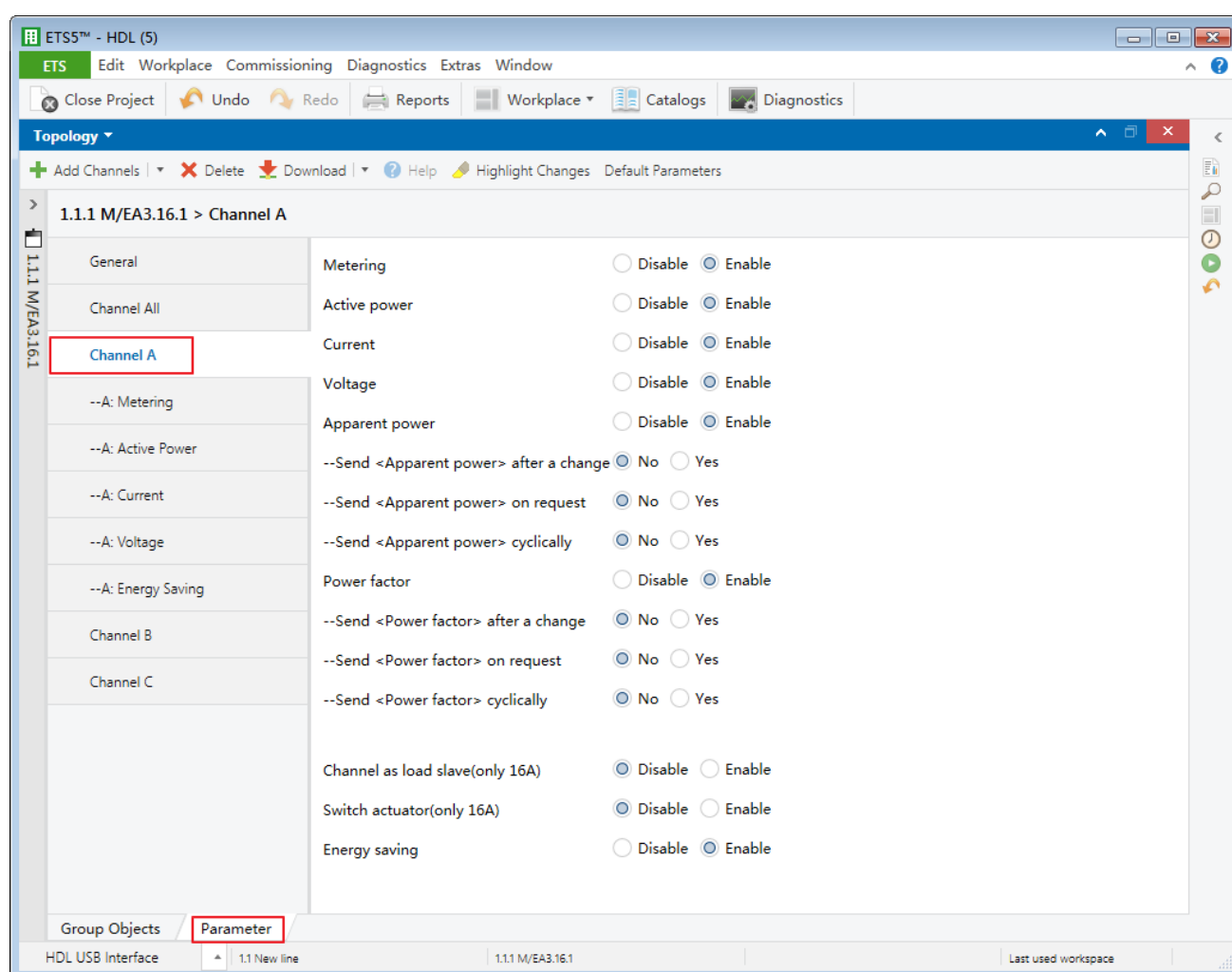


Figure 4-1 Function selection

4.2 Apparent Power and Power Factor Setting

In “Channel A” page, apparent power and power factor can be set, whose setting items are similar.

Notice: in the following options, * represents “Apparent power” or “Power factor”.

1. Send <*> after a change: to enable sending deviation value when apparent power/power factor changes. After enabled, deviation value can be set below, range from 1-65535VA (apparent power)/0.01×(1-100) (power factor).
2. Send <*> on request: to enable sending apparent value/power factor when receiving commands. After enabled, the format of command can be set below.
3. Send <*>> cyclically: to enable sending apparent value/power factor cyclically. After enabled, the interval of sending cyclically can be set below, range from 1 to 65535s.

4.3 Metering Setting

After enabling “Metering” in “Channel A” page, “A: Metering” tab will show up on the left. Click to open the page, as shown in Figure 4-2.

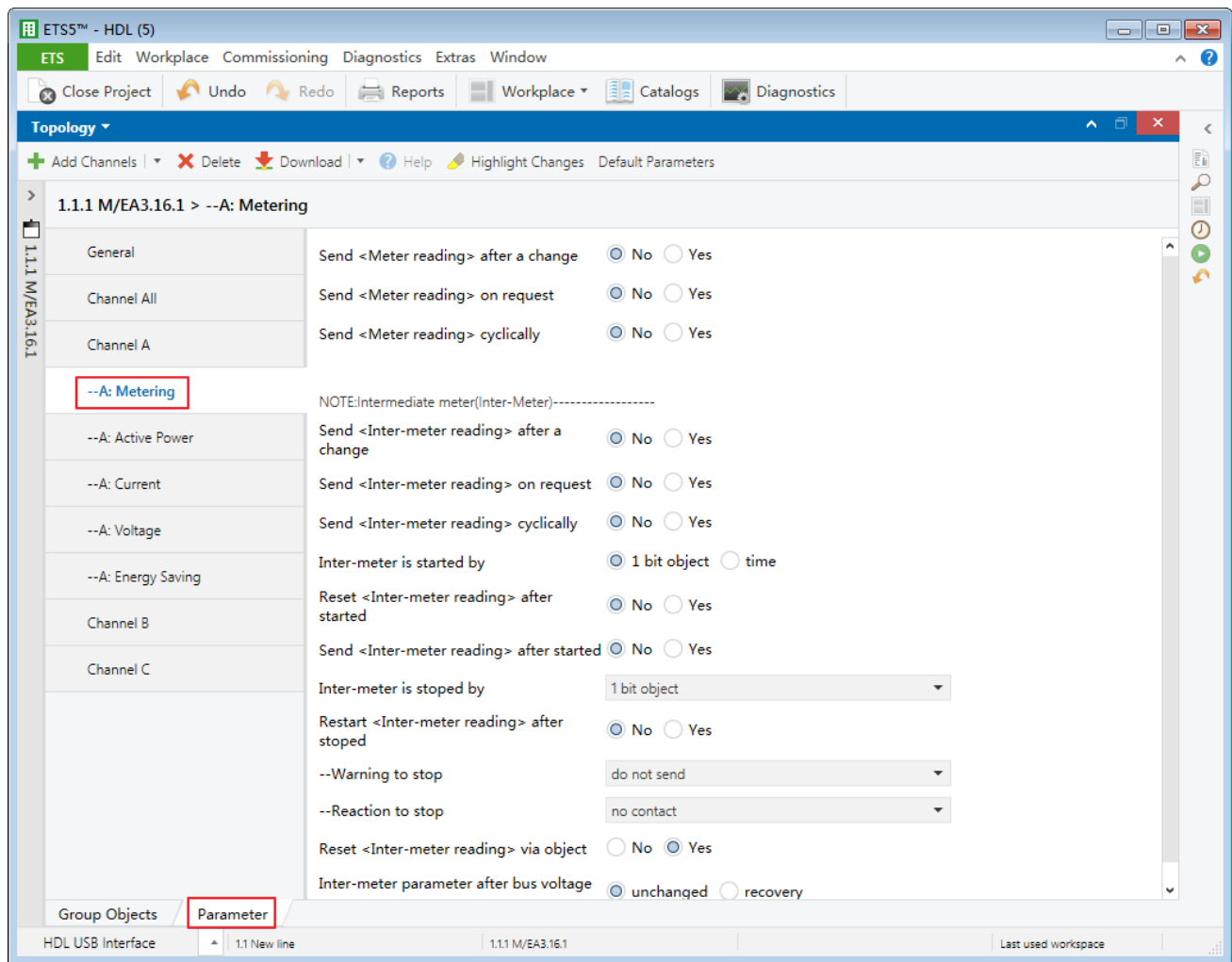


Figure 4-2 Metering setting

The setting items are explained as follows:

1. Send <Meter reading total> after a change: to enable sending deviation value when meter changes. After enabled, deviation value can be set below, range from 1 to 65535wh.
2. Send <Meter reading> on request: to enable sending meter when receiving commands. After enabled, the format of command can be set below.
3. Send <Meter reading> cyclically: to enable sending meter cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
4. Send <Inter-meter reading> after a change: to enable sending deviation value when inter-meter value changes. After enabled, deviation value can be set in “Wh” below, range from 1 to 65535wh.
5. Send <Inter-meter reading> on request: to enable sending inter-meter when receiving commands. After enabled, the format of command can set in “Request with object value”

below.

6. Send <Inter-meter reading> cyclically: to enable sending inter-meter cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
7. Inter-meter is started by: to set that inter-meter is started by 1-bit object or time. If the latter is selected, the time can be set below, including hour, minute and week.
8. Reset <Inter-meter reading > after started: to enable resetting total inter-meter reading when the counting starts.
9. Send<Inter-meter reading > after started: to enable sending total inter-meter when the counting starts.
10. Inter-meter total is stopped by: to select the way of stopping inter-meter, including “1-bit object”, “time”, “limit”, “duration”. The details can be set below.

Except “time” option, other options can go further to set items, including restarting total inter-meter reading when the counting stops and choosing whether to send an alarm after total inter-meter stops below.
11. Reset <Inter-meter reading > after started: to enable resetting inter-meter via objects.
12. Inter-meter parameter after bus voltage recovery: to select the status of inter-meter parameter after the bus voltage recovery, including “unchanged” and “recovery”.

4.4 Active Power Setting

After enable “Active Power” in “Channel A” page, “A: Active Power” tab will show up on the left. Click to open the page, as shown in Figure 4-3.

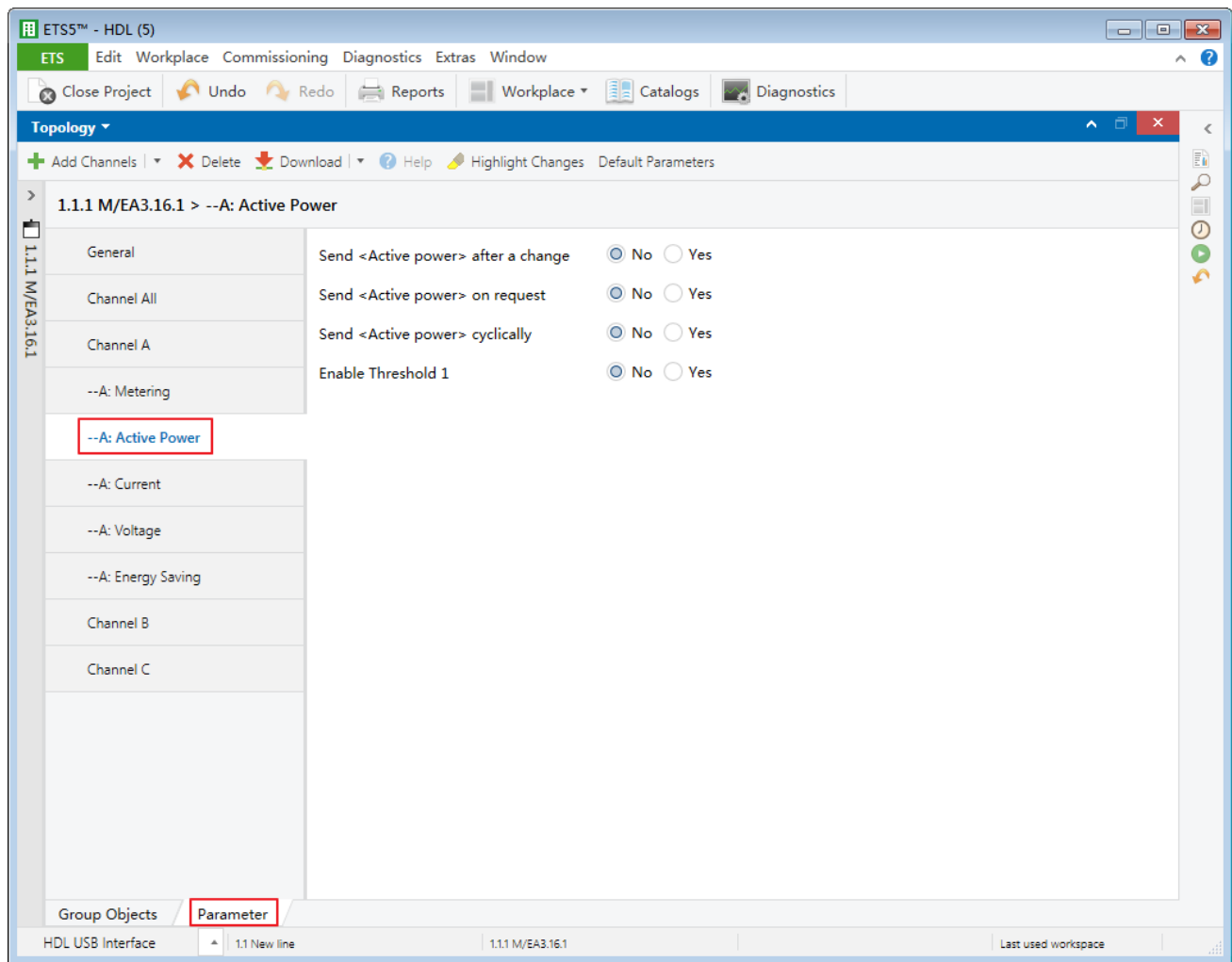


Figure 4-3 Active power setting

The setting items are explained as follows:

1. Send < Active Power> after a change: to enable sending deviation value when active power changes. After enabled, deviation value can be set in “Wh”, range from 1 to 65535Wh.
2. Send <Active Power> on request: to enable sending active power when receiving commands. After enabled, the format of command can be set below.
3. Send <Active Power> cyclically: to enable sending active power cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
4. Enable Threshold 1: to enable “Threshold 1”. After enabled, the details can be set below.
 - Threshold parameter after bus voltage recovery: to select the status of threshold parameter after the bus voltage recovery, including “unchanged” and “recovery”.
 - Threshold 1 lower/upper limit: to select the maximum/minimum of “Threshold 1”,

range from 0 to 65535W.

- Threshold warning: to choose whether to send an alarm when actual threshold exceeds the limit, including “do not send”, “send 0 when exceeding”, “send 1 when exceeding”, “send 0 when falling below”, “send 1 when falling below”, “exceeding 0, falling below 1” and “exceeding 0, falling below 1”.
5. Enable Threshold 2/3/4: to enable “Threshold 2/3/4”, which is set in the same way as “Threshold 1”.

4.5 Current Setting

After enabling “Current” in “Channel A” page, “A: Current” tab will show up on the left. Click to open the page, as shown in Figure 4-4.

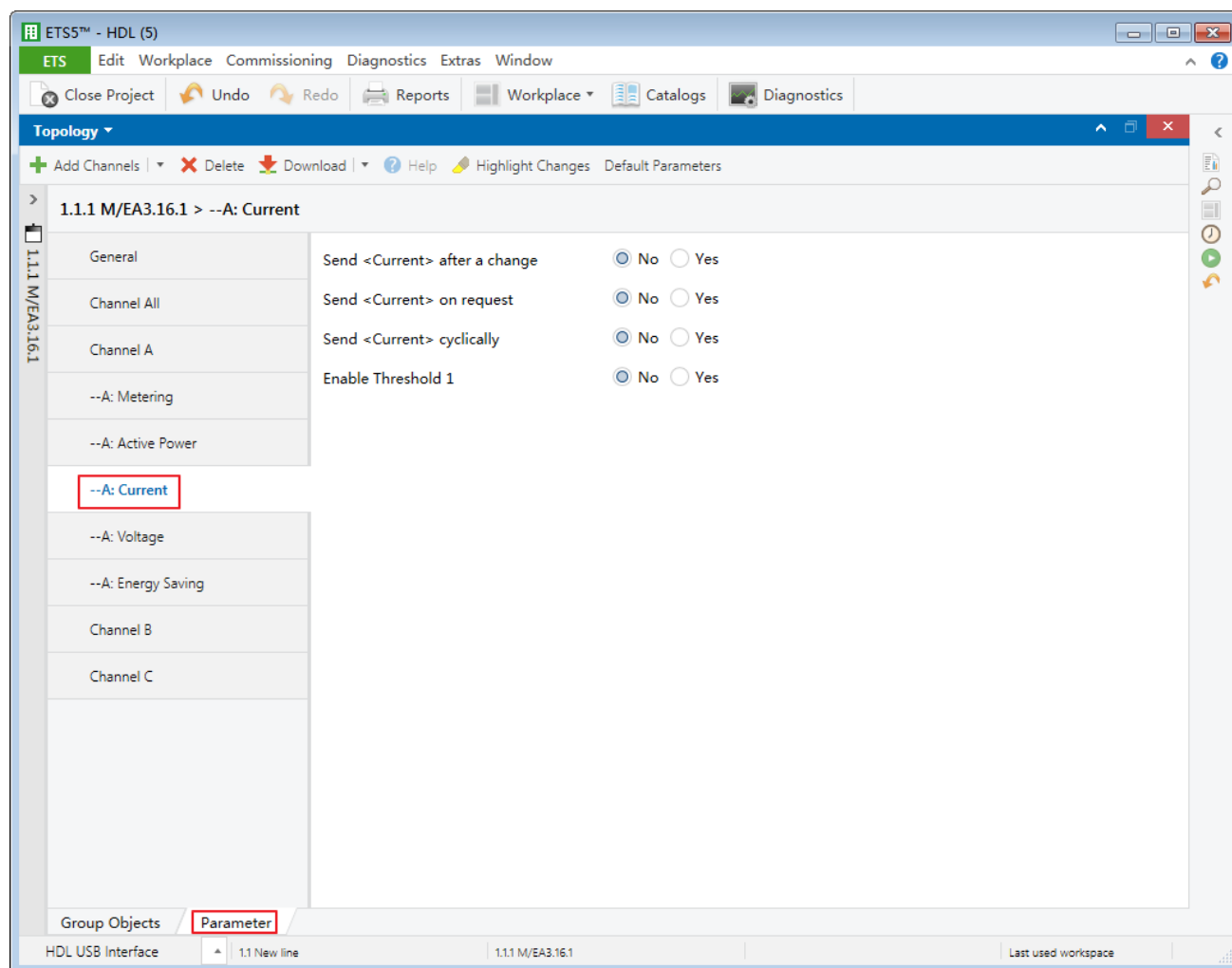


Figure 4-4 Current setting

The setting items are explained below:

1. Send <Current> after a change: to enable sending deviation value when frequency changes. Deviation value can be set below, range from 1 to 20000mA.
2. Send <Current> on request: to enable sending current when receiving commands. After enabled, the format of command can be set in “Request with object value” below.
3. Send <Current> cyclically: to enable sending current cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
4. Enable Threshold 1: to enable “Threshold 1”. After enabled, the details can be set below.
 - Threshold parameter after bus voltage recovery: to select the status of threshold parameter after the bus voltage recovery, including “unchanged” and “recovery”.
 - Threshold 1 lower/upper limit: to select the maximum/minimum of “Threshold 1”, range from 0 to 200A.
 - Threshold warning: to choose whether to send an alarm when actual threshold exceeds the limit, including “do not send”, “send 0 when exceeding”, “send 1 when exceeding”, “send 0 when falling below”, “send 1 when falling below”, “exceeding 0, falling below 1” and “exceeding 0, falling below 1”.
5. Enable Threshold 2/3/4: to enable “Threshold 2/3/4”, which is set in the same way as “Threshold 1”.

4.6 Voltage Setting

After enabling “Voltage” in “Channel A” page, “A: Voltage” will show up on the left. Click to open the page, as shown in Figure 4-5.

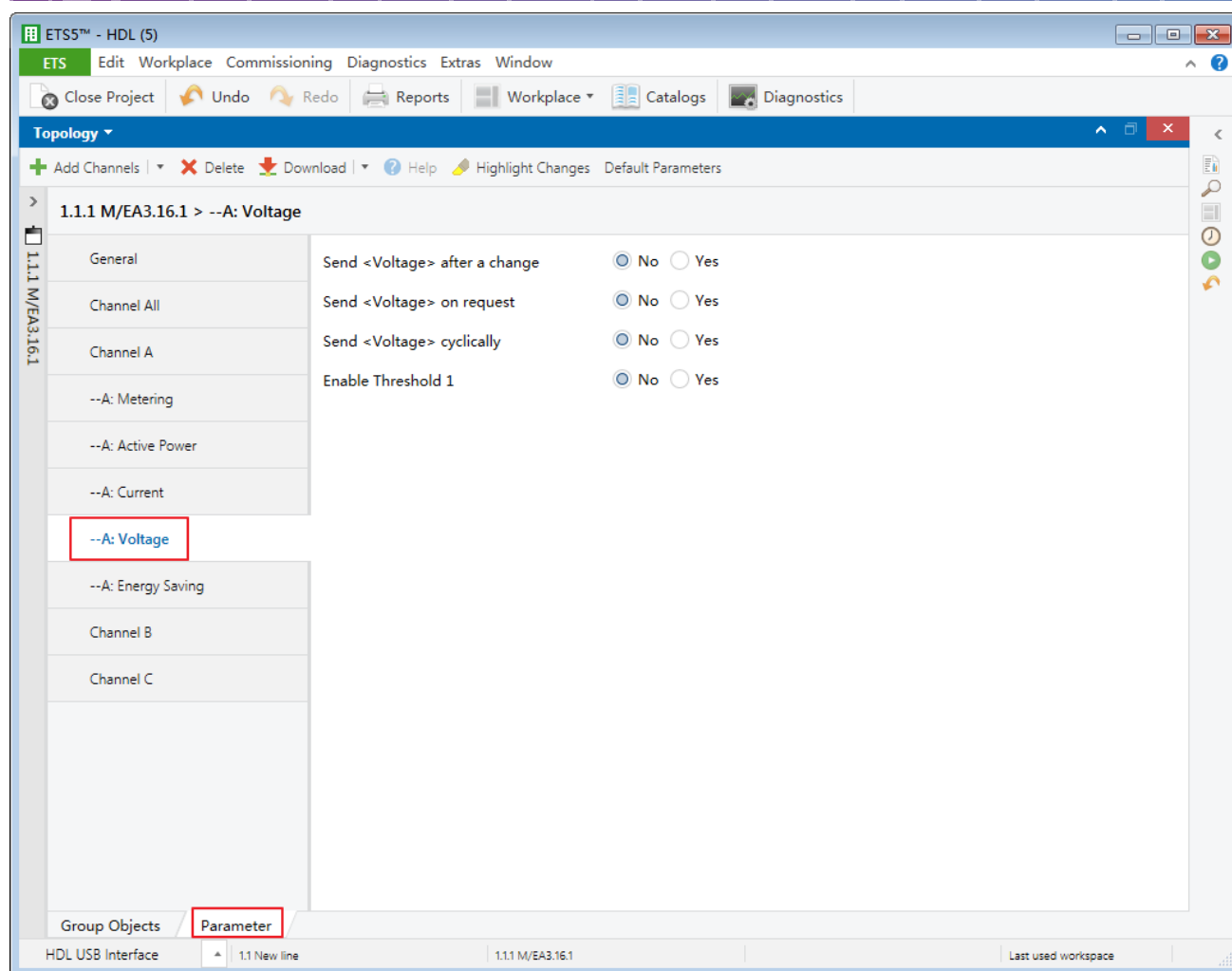


Figure 4-5 Voltage setting

The setting items are explained as follows:

1. Send < Voltage> after a change: to enable to send deviation value when voltage changes. After enabled, deviation value can be set below, rang from 1 to 265V.
2. Send <Voltage> on request: to enable sending voltage when receiving commands. After enabled, the format of command can be set in “Request with object value” below.
3. Send <Voltage> cyclically: to enable sending voltage cyclically. After enabled, the time for sending cyclically can be set below, range from 1 to 65535s.
4. Enable Threshold 1: to enable “Threshold 1”. After enabled, the details can be set below.
 - Threshold parameter after bus voltage recovery: to select the status of threshold parameter after the bus voltage recovery, including “unchanged” and “recovery”.
 - Threshold 1 lower/upper limit: to select the maximum/minimum of “Threshold 1”, range from 0 to 265V.

- Threshold warning: to choose whether to send an alarm when actual threshold exceeds the limit, including “do not send”, “send 0 when exceeding”, “send 1 when exceeding”, “send 0 when falling below”, “send 1 when falling below”, “exceeding 0, falling below 1” and “exceeding 0, falling below 1”.
5. Enable Threshold 2/3/4: to enable “Threshold 2/3/4”, which is set in the same way as “Threshold 1”.

4.7 Energy Saving

After enabling “Energy Saving” in “Channel A” page, “A: Energy Saving” tab will show up on the left. Click to open the page, as shown in Figure 4-6.

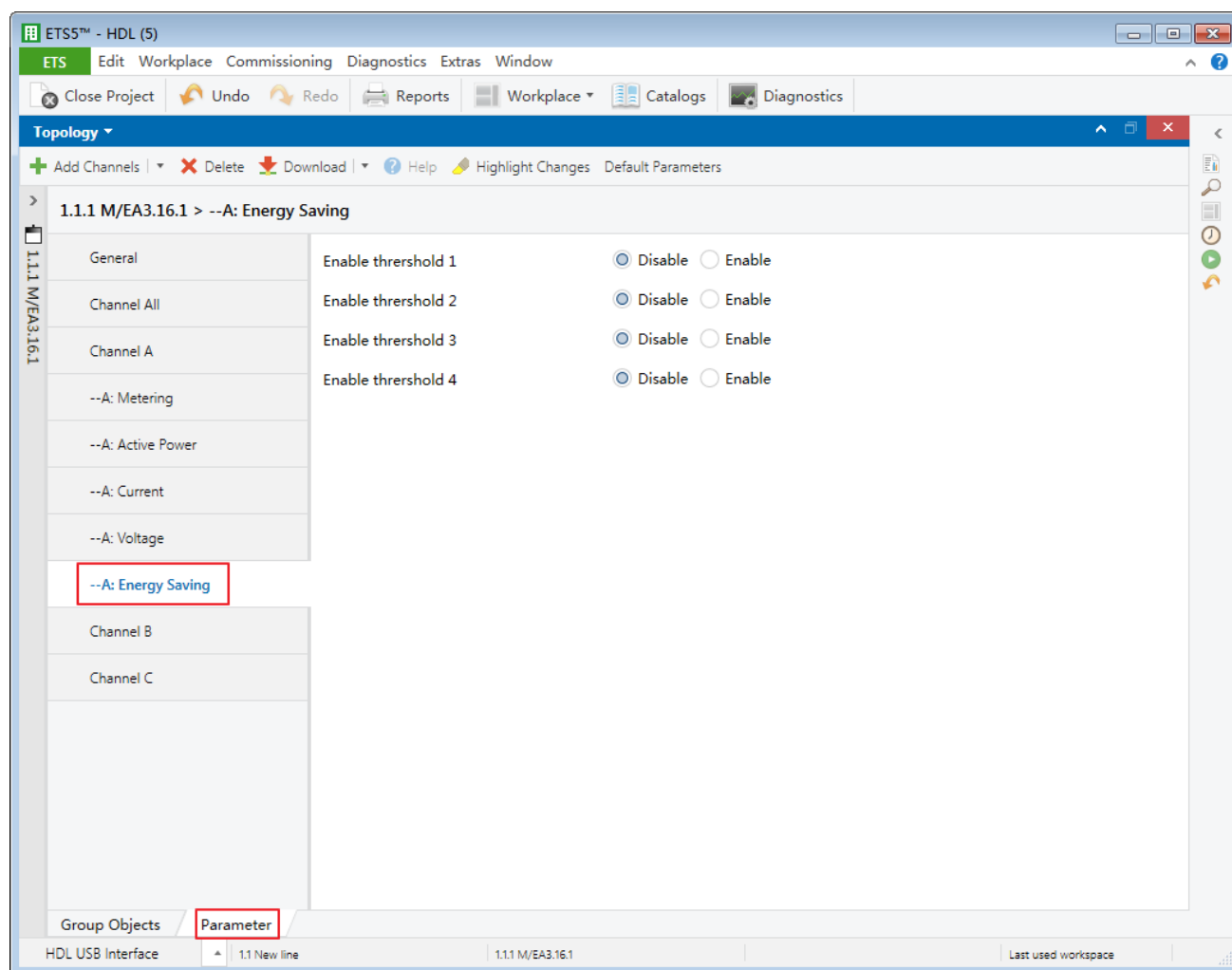


Figure 4-6 Energy saving setting

The energy-saving mode is that operations to set objects and close other appliances will be

activated when the current exceeds current limit.

The energy-saving mode of each circuit includes 4 thresholds, this part takes the first threshold of circuit A as an example to explain.

1. Current limit threshold 1 in 100mA: current threshold, whose unit is 100mA, range from 0 to 200, namely range from 0 to 20000mA.
2. Tolerance: the bandwidth of current threshold, range from 0 to 30%.
3. Delay for sending objects: to set the delay time of sending objects, range from 0 to 65535s.
4. Switch object: to enable sending switch objects. After enabled, ON or OFF can be set in "Send telegram" below.
5. Value object: to enable to send 1-byte objects. After enabled, Objects can be set in "Send telegram" below, range from 0 to 255.
6. Dimming object: to enable to send the value of dimming. After enabled, Objects can be set in "Send telegram" below after enabled.
7. Scene object: to enable sending scene objects. After enabled, Objects can be set in "Send telegram" below, range from 0 to 63.
8. Temperature object: to enable sending the value of temperature. After enabled, the unit of temperature can be selected in "Temperature unit" below, including "Celsius" and "Fahrenheit". Objects can be set in "Send telegram", range from 0 to 255.

5 Object Instruction

KNX communication objects are used for receiving and sending data. The length of these objects is from 1 to 14 bits according to different function settings. Each object has a flag with communication property.

1. “C”-Communication, representing that communication objects are connected normally via the bus.
2. “R”-Read, representing that communication objects can be read via the bus.
3. “W”-Write, representing that communication objects can be rewritten via the bus.
4. “T”-Transmit, representing that communication objects have transmit function. When this object is modified, send the message.
5. “U”-Update, representing that communication object can be updated via the bus response message.

5.1 Objects “General”

Objects “General”											
序号 ^	名称	对象功能	长度	C	R	W	T	U	数据类型	优先级	
1	General	Heartbeat telegram	1 bit	C	R	-	T	-	enable	低	
2	General	Health monitor	1 bit	C	R	-	T	-	switch	低	
3	General	Health monitor value	2 bytes	C	R	-	T	-	voltage (m...	低	
4	General	Health value Request	1 bit	C	-	W	-	-	trigger	低	
5	General	Receive time	3 bytes	C	-	W	-	-	time of day	低	
6	General	Receive load shedding stage	1 byte	C	-	W	-	-		低	
7	General	Meter Total overflow warning	1 bit	C	-	-	T	-	alarm	低	
8	General	Meter A overflow warning	1 bit	C	-	-	T	-	alarm	低	
9	General	Meter B overflow warning	1 bit	C	-	-	T	-	alarm	低	
10	General	Meter C overflow warning	1 bit	C	-	-	T	-	alarm	低	
11	General	All Switching ON/OFF	1 bit	C	R	W	T	-	open/close	低	
12	General	All Switching status	1 bit	C	R	-	T	-	open/close	低	

No	Name	Function	Flag	Data Type
1	General	Heartbeat telegram	C R T	DPT1.003 1 bit
This object can be activated in “Heartbeat Telegram”, by selecting “Send value “0”cyclically, Send value“1”cyclically, Send value“1/0” inverted cyclically”, which is used for checking whether the device connects to the system normally.				
2	General	Health monitor	C R T	DPT1.001 1 bit

This object is used for reporting whether the bus voltage is healthy.				
3	General	Health monitor value	C R T	DPT9.020 2 bytes DPT14.027 4 bytes
These objects are used for reporting the data of health monitoring.				
4	General	Health value request	C W	DPT1.017 1 bit
This object is used for requests for health monitoring.				
5	General	Receive time	C W	DPT10.001 3 bytes
6	General	Receive load shedding stage	C W	DPT236.001 1 byte
These objects are used for receiving time and load shedding stage independently.				
7	General	Meter Total overflow warning	C T	DPT1.005 1 bit
8	General	Meter A overflow warning	C T	
9	General	Meter B overflow warning	C T	
10	General	Meter C overflow warning	C T	
These objects are used for controlling the overflow warning function of total meter and each meter.				
11	General	All Switching ON/OFF	C R W T	DPT1.009 1 bit
12	General	All Switching status	C R T	
These objects are used for all switching on/off relays on 3 circuits, indicating full open and full close.				

5.2 Objects “All”

5.2.1 Objects “All: Meter Total”

Objects function status--“All: Meter Total”											
	序号 ^	名称	对象功能	长度	C	R	W	T	U	数据类型	优先级
	21	All:Meter total	Meter reading	4 bytes	C	R	-	T	-	active ener...	低
	22	All:Meter total	Request	1 bit	C	-	W	-	-	trigger	低
	23	All:Meter total	Reset	1 bit	C	-	W	-	-	reset	低
No.	Name		Function	Flag		Data Type					
21	All: Meter Total		Meter reading	C R T		DPT13.010 4 bytes					
This object is used for reporting total meter.											
22	All: Meter Total		Request	C W		DPT1.017 1 bit					

This object is used for requests for reporting total meter.				
23	All: Meter Total	Reset	C W	DPT1.015 1 bit
These objects are used for resetting total meter, total inter-meter, circuit meter and circuit inter-meter.				

5.2.2 Objects “All: Inter-meter total”

Objects function status--“All: Inter-meter total”				
24	All:Inter-meter total	Meter reading	4 bytes C R - T -	active ener...低
25	All:Inter-meter total	Request	1 bit C - W - -	trigger 低
26	All:Inter-meter total	Change start time	3 bytes C R W T -	time of day 低
27	All:Inter-meter total	Change stop duration	2 bytes C R W T -	time (min) 低
28	All:Inter-meter total	Warning	1 bit C R - T -	alarm 低
29	All:Inter-meter total	Reset	1 bit C - W - -	reset 低
30	All:Inter-meter total	Status	1 bit C R - T -	state 低
No.	Name	Function	Flag	Data Type
24	All: Inter-meter total	Meter reading	C R T	DPT13.010 4 bytes
This object is used for reporting total inter-meter.				
25	All: Inter-meter total	Request	C W	DPT1.017 1bit
The object is used for requests for reporting total inter-meter.				
26,27	All: Inter-meter total	Trigger 1 bit start/stop	C R W T	DPT1.017 1 bit
These objects are used for starting/stopping total inter-meter.				
26,27	All: Inter-meter total	Change start time/stop time/stop limit/stop duration	C R W T	DPT10.001 3 bytes DPT13.010 4 bytes DPT7.006 2 bytes
This object is used for changing “start time/stop time/stop limit/stop duration”.				
28,29,30	All: Inter-meter total	Warning/Reset/Status	C R T C W	DPT1.005 1 bit DPT1.015 1 bit DPT 1.010 1 bit
These objects are used for stopping total inter-meter warning, resetting total inter-meter and indicating the current status of total inter-meter.				

5.2.3 Objects “All: Active power total”

Objects function status--“All: Active power total”						
31	All:Active power total	Active power	4 bytes	C R - T -	power (W)	低
32	All:Active power total	Request	1 bit	C - W - -	trigger	低
33	All:Active power total	Threshold lower limit 1	4 bytes	C R W T -	power (W)	低
34	All:Active power total	Threshold upper limit 1	4 bytes	C R W T -	power (W)	低
35	All:Active power total	Threshold warning 1	1 bit	C R - T -	alarm	低
36	All:Active power total	Threshold lower limit 2	4 bytes	C R W T -	power (W)	低
37	All:Active power total	Threshold upper limit 2	4 bytes	C R W T -	power (W)	低
38	All:Active power total	Threshold warning 2	1 bit	C R - T -	alarm	低
39	All:Active power total	Threshold lower limit 3	4 bytes	C R W T -	power (W)	低
40	All:Active power total	Threshold upper limit 3	4 bytes	C R W T -	power (W)	低
41	All:Active power total	Threshold warning 3	1 bit	C R - T -	alarm	低
42	All:Active power total	Threshold lower limit 4	4 bytes	C R W T -	power (W)	低
43	All:Active power total	Threshold upper limit 4	4 bytes	C R W T -	power (W)	低
44	All:Active power total	Threshold warning 4	1 bit	C R - T -	alarm	低

No.	Name	Function	Flag	Data Type
31	All: Active power total	Active power	C R T	DPT14.056 4 bytes
This object is used for reporting total active power.				
32	All: Active power total	Request	C W	DPT1.017 1 bit
This object is used for requesting for reporting total active power.				
33,36,39,42	All: Active power total	Threshold lower limit 1/2/3/4	C R W T	DPT14.056 4 bytes
34,37,40,43	All: Active power total	Threshold upper limit 1/2/3/4	C R W T	DPT14.056 4 bytes
These objects are used for setting the upper/lower limit of “Threshold 1/2/3/4”.				
35,38,41,44	All: Active power total	Threshold warning 1/2/3/4	C R T	DPT1.005 1 bit
These objects are used for sending an alarm when current threshold is higher/lower than the upper/lower limit.				

5.2.4 Objects “All Current total”

Objects function status--“All: Current total”				
45	All:Current total	Current	4 bytes C R - T -	electric cur...低
46	All:Current total	Request	1 bit C - W - -	trigger 低
47	All:Current total	Threshold lower limit 1	4 bytes C R W T -	electric cur...低
48	All:Current total	Threshold upper limit 1	4 bytes C R W T -	electric cur...低
49	All:Current total	Threshold warning 1	1 bit C R - T -	alarm 低
50	All:Current total	Threshold lower limit 2	4 bytes C R W T -	electric cur...低
51	All:Current total	Threshold upper limit 2	4 bytes C R W T -	electric cur...低
52	All:Current total	Threshold warning 2	1 bit C R - T -	alarm 低
53	All:Current total	Threshold lower limit 3	4 bytes C R W T -	electric cur...低
54	All:Current total	Threshold upper limit 3	4 bytes C R W T -	electric cur...低
55	All:Current total	Threshold warning 3	1 bit C R - T -	alarm 低
56	All:Current total	Threshold lower limit 4	4 bytes C R W T -	electric cur...低
57	All:Current total	Threshold upper limit 4	4 bytes C R W T -	electric cur...低
58	All:Current total	Threshold warning 4	1 bit C R - T -	alarm 低

No.	Name	Function	Flag	Data Type
45	All: Current total	Current	C R T	DPT14.019 4 bytes
This object is used for reporting total current.				
46	All: Current total	Request	C W	DPT1.017 1 bit
This object is used for requesting for reporting total current.				
47,50,53 ,56	All: Current total	Threshold lower limit 1/2/3/4	C R W T	DPT14.019 4 bytes
48,51,54 ,57	All: Current total	Threshold upper limit 1/2/3/4	C R W T	DPT14.019 4 bytes
These objects are used for setting the upper/lower limit of “Threshold 1/2/3/4”.				
49,52,55 ,58	All: Current total	Threshold warning 1/2/3/4	C R T	DPT1.005 1 bit
These objects are used for sending an alarm when current threshold is higher/lower than the upper/lower limit.				

5.2.5 Objects “All: Frequency”

Objects function status--“All: Frequency”				
59	All:Frequency	Frequency	4 bytes C R - T -	frequency... 低
60	All:Frequency	Request	1 bit C - W - -	trigger 低
61	All:Frequency	Threshold lower limit 1	4 bytes C R W T -	frequency... 低
62	All:Frequency	Threshold upper limit 1	4 bytes C R W T -	frequency... 低
63	All:Frequency	Threshold warning 1	1 bit C R - T -	alarm 低
64	All:Frequency	Threshold lower limit 2	4 bytes C R W T -	frequency... 低
65	All:Frequency	Threshold upper limit 2	4 bytes C R W T -	frequency... 低
66	All:Frequency	Threshold warning 2	1 bit C R - T -	alarm 低
67	All:Frequency	Threshold lower limit 3	4 bytes C R W T -	frequency... 低
68	All:Frequency	Threshold upper limit 3	4 bytes C R W T -	frequency... 低
69	All:Frequency	Threshold warning 3	1 bit C R - T -	alarm 低
70	All:Frequency	Threshold lower limit 4	4 bytes C R W T -	frequency... 低
71	All:Frequency	Threshold upper limit 4	4 bytes C R W T -	frequency... 低
72	All:Frequency	Threshold warning 4	1 bit C R - T -	alarm 低
No.	Name	Function	Flag	Data Type
59	All: Frequency	Frequency	C R T	DPT14.033 4 bytes
This object is used for reporting frequency.				
60	All: Frequency	Request	C W	DPT1.017 1 bit
This object is used for requests for reporting frequency.				
61,64,67 ,70	All: Frequency	Threshold lower limit 1/2/3/4	C R W T	DPT14.033 4 bytes
62,65,68 ,71	All: Frequency	Threshold upper limit 1/2/3/4	C R W T	DPT14.033 4 bytes
These objects are used for setting the upper/lower limit of “Threshold 1/2/3/4”.				
63,66,69 ,72	All: Frequency	Threshold warning 1/2/3/4	C R T	DPT1.005 1 bit
These objects are used for sending an alarm when current threshold is higher/lower than the upper/lower limit.				

5.2.6 Objects “All: Load control master”

Objects function status--“All: Load control master”						
73	All:Load control master	Deactivate load control	1 bit	C R W T -	enable	低
74	All:Load control master	Load limit exceeded	1 bit	C R - T -	alarm	低
75	All:Load control master	Receive power value 1	4 bytes	C - W T U	power (W)	低
76	All:Load control master	Receive power value 2	4 bytes	C - W T U	power (W)	低
77	All:Load control master	Receive power value 3	4 bytes	C - W T U	power (W)	低
78	All:Load control master	Receive power value 4	4 bytes	C - W T U	power (W)	低
85	All:Load control master	Send sum power values	4 bytes	C R - T -	power (W)	低
86	All:Load control master	Send load cutdown stages	1 byte	C R - T -		低
87	All:Load control master	Receive/send load limit	4 bytes	C R W T -	power (W)	低
88	All:Load control master	Status	4 bytes	C R - T -	bit-combi...	低

No.	Name	Function	Flag	Data Type
73	All: Load control master	Deactivate load control	C R W T	DPT1.003 1 bit
This object is used for deactivating load control function.				
74	All: Load control master	Load limit exceeded	C R T	DPT1.005 1 bit
This object is used for indicating whether load exceeds the limit.				
75-84	All: Load control master	Receive power value 1-10	C W T U	DPT14.056 4 bytes
These objects are used for obtaining the active power of slave loads.				
85	All: Load control master	Send sum power values	C R T	DPT14.056 4 bytes DPT14.019 4 bytes
This object is used for requests for reporting the active power of slave loads.				
86	All: Load control master	Send load cutdown stages	C R T	DPT 236.001 1 byte
This object is used for reporting load number to be unloaded or loaded.				
87	All: Load control master	Receive/send load limit	C R W T	DPT14.056 4 bytes
This object is used for sending or receiving load limit.				
88	All: Load control master	Status	C R T	DPT27.001 1 byte
This object is used for indicating load control status (invalid for now).				

5.2.7 Objects “All: Meter calc”

Objects function status--“All: Meter calc”				
89	All: Meter calc	Meter reading	4 bytes C R - T - active ener...低	
90	All: Meter calc	Request	1 bit C - W - - trigger 低	
91	All: Meter calc	Receive meter value 1	4 bytes C - W T U active ener...低	
92	All: Meter calc	Receive meter value 2	4 bytes C - W T U active ener...低	
93	All: Meter calc	Receive meter value 3	4 bytes C - W T U active ener...低	
94	All: Meter calc	Receive meter value 4	4 bytes C - W T U active ener...低	
95	All: Meter calc	Receive meter value 5	4 bytes C - W T U active ener...低	
96	All: Meter calc	Receive meter value 6	4 bytes C - W T U active ener...低	
97	All: Meter calc	Receive meter value 7	4 bytes C - W T U active ener...低	
98	All: Meter calc	Receive meter value 8	4 bytes C - W T U active ener...低	
No.	Name	Function	Flag	Data Type
89	All: Meter calc	Meter reading	C R T	DPT13.010 4 bytes
This object is used for reporting total meter calc.				
90	All: Meter calc	Request	C W	DPT1.017 1 bit
This object is used for requests for reporting total meter calc.				
91-98	All: Meter calc	Receive meter value 1-8	C W T U	DPT13.010 4 bytes
These objects are used for receiving meter.				

5.3 Objects “A/B/C”

5.3.1 Objects “A/B/C: Meter”

Objects function status--“A/B/C: Meter”				
(Take circuit A as an example)				
99	A: Meter	Meter reading	4 bytes C R - T - active ener...低	
100	A: Meter	Request	1 bit C - W - - trigger 低	
No.	Name	Function	Flag	Data Type
99,189,279	A/B/C: Meter	Meter reading	C R T	DPT13.010 4 bytes
These objects are used for reporting “A/B/C: meter”.				
100,190,280	A/B/C: Meter	Request	C W	DPT1.017 1 bit
This object is used for requests for reporting “A/B/C: meter”.				

5.3.2 Objects “A/B/C: Inter-meter”

Objects function status--“A/B/C: Inter-meter”						
(Take circuit A as an example)						
102	A: Inter-meter	Meter reading	4 bytes	C	R	- T - active ener...低
103	A: Inter-meter	Request	1 bit	C	-	W - - trigger 低
104	A: Inter-meter	Trigger 1 bit start	1 bit	C	R	W T - trigger 低
105	A: Inter-meter	Change stop duration	2 bytes	C	R	W T - time (min) 低
106	A: Inter-meter	Warning	1 bit	C	R	- T - alarm 低
107	A: Inter-meter	Reset	1 bit	C	-	W - - reset 低
108	A: Inter-meter	Status	1 bit	C	R	- T - state 低
No.	Name	Function	Flag	Data Type		
102,192, 282	A/B/C: Inter-meter	Meter reading	C R T	DPT13.010 1bit		
These objects are used for reporting “A/B/C: inter-meter”.						
103,193, 283	A/B/C: Inter-meter	Request	C W	DPT1.017 1bit		
These objects are used for requests for reporting “A/B/C: inter-meter”.						
104,194, 284	A/B/C: Inter-meter	Trigger 1 bit start	C R W T	DPT1.017 1bit		
105,195, 285	A/B/C: Inter-meter	Trigger 1 bit stop	C R W T	DPT1.017 1bit		
These objects are used for starting/stopping inter-meter.						
104,194, 284	A/B/C: Inter-meter	Change start time	C R W T	DPT10.001 3 bytes		
105,195, 285		Change stop time		DPT10.001 3 bytes		
		Change stop limit		DPT13.010 4 bytes		
		Change stop duration		DPT7.006 2 bytes		
These objects are used for changing “start time”, “stop time”, “stop limit” and “stop duration”.						
106,196, 286	A/B/C: Inter-meter	Warning	C R T	DPT1.005 1 bit		
107,197, 287		Reset	C W	DPT1.015 1 bit		
108,198, 288		Status	C R T	DPT1.010 1 bit		
These objects are used for stopping inter-meter warning, resetting inter-meter and indicating inter-meter status.						

5.3.3 Objects “A/B/C: Active power”

Objects function status--“A/B/C: Active power”						
(Take circuit A as an example)						
109	A: Active power	Active power	4 bytes	C	R	- T - power (W) 低
110	A: Active power	Request	1 bit	C	- W - -	trigger 低
111	A: Active power	Threshold lower limit 1	4 bytes	C	R	W T - power (W) 低
112	A: Active power	Threshold upper limit 1	4 bytes	C	R	W T - power (W) 低
113	A: Active power	Threshold warning 1	1 bit	C	R	- T - alarm 低
114	A: Active power	Threshold lower limit 2	4 bytes	C	R	W T - power (W) 低
115	A: Active power	Threshold upper limit 2	4 bytes	C	R	W T - power (W) 低
116	A: Active power	Threshold warning 2	1 bit	C	R	- T - alarm 低
117	A: Active power	Threshold lower limit 3	4 bytes	C	R	W T - power (W) 低
118	A: Active power	Threshold upper limit 3	4 bytes	C	R	W T - power (W) 低
119	A: Active power	Threshold warning 3	1 bit	C	R	- T - alarm 低
120	A: Active power	Threshold lower limit 4	4 bytes	C	R	W T - power (W) 低
121	A: Active power	Threshold upper limit 4	4 bytes	C	R	W T - power (W) 低
122	A: Active power	Threshold warning 4	1 bit	C	R	- T - alarm 低
No.	Name	Function	Flag	Data Type		
109,199,289	A/B/C: Active power	Active power	C R T	DPT14.056 4 bytes		
These objects are used for reporting circuit active power.						
110,200,290	A/B/C: Active power	Request	C W	DPT1.017 1 bit		
These objects are used for requests for reporting circuit active power.						
111,114,117,120, 201,204,207,210, 291,294,297,300	A/B/C: Active power	Threshold lower limit 1/2/3/4	C R W T	DPT14.056 4 bytes		
112,115,118,121, 202,205,208,211, 292,295,298,301		Threshold upper limit 1/2/3/4				
These objects are used for setting the upper/lower limit of “Threshold 1/2/3/4”.						
113,116,119,122, 203,206,209,212, 293,296,299,302	A/B/C: Active power	Threshold warning 1/2/3/4	C R T	DPT1.005 1 bit		
These objects are used for sending an alarm when current threshold is higher/lower than the upper/lower limit.						

5.3.4 Objects “A/B/C: Current”

Objects function status--“A/B/C: Current”				
(Take circuit A as an example)				
123	A: Current	Current	4 bytes C R - T -	electric cur...低
124	A: Current	Request	1 bit C - W - -	trigger 低
125	A: Current	Threshold lower limit 1	4 bytes C R W T -	electric cur...低
126	A: Current	Threshold upper limit 1	4 bytes C R W T -	electric cur...低
127	A: Current	Threshold warning 1	1 bit C R - T -	alarm 低
128	A: Current	Threshold lower limit 2	4 bytes C R W T -	electric cur...低
129	A: Current	Threshold upper limit 2	4 bytes C R W T -	electric cur...低
130	A: Current	Threshold warning 2	1 bit C R - T -	alarm 低
131	A: Current	Threshold lower limit 3	4 bytes C R W T -	electric cur...低
132	A: Current	Threshold upper limit 3	4 bytes C R W T -	electric cur...低
133	A: Current	Threshold warning 3	1 bit C R - T -	alarm 低
134	A: Current	Threshold lower limit 4	4 bytes C R W T -	electric cur...低
135	A: Current	Threshold upper limit 4	4 bytes C R W T -	electric cur...低
136	A: Current	Threshold warning 4	1 bit C R - T -	alarm 低
No.	Name	Function	Flag	Data Type
123,213,303	A/B/C: Current	Current	C R T	DPT14.019 4 bytes
This object is used for reporting current.				
124,214,304	A/B/C: Current	Request	C W	DPT1.017 1 bit
These objects are used for requests for reporting current.				
125,128,131,134, 215,218,221,224, 305,308,311,314	A/B/C: Current	Threshold lower limit 1/2/3/4	C R W T	DPT14.019 4 bytes
126,129,132,135, 216,219,222,225, 306,309,312,315		Threshold upper limit 1/2/3/4		
These objects are used for setting the upper/lower limit of “Threshold 1/2/3/4”.				
127,130,133,136, 217,220,223,226, 307,310,313,316	A/B/C: Current	Threshold warning 1/2/3/4	C R T	DPT1.005 1 bit
These objects are used for sending an alarm when current threshold is higher/lower than the upper/lower limit.				

5.3.5 Objects “A/B/C: Voltage”

Objects function status--“A/B/C: Voltage”				
(Take circuit A as an example)				
137	A: Voltage	Voltage	4 bytes C R - T -	electric po... 低
138	A: Voltage	Request	1 bit C - W - -	trigger 低
139	A: Voltage	Threshold lower limit 1	4 bytes C R W T -	electric po... 低
140	A: Voltage	Threshold upper limit 1	4 bytes C R W T -	electric po... 低
141	A: Voltage	Threshold warning 1	1 bit C R - T -	alarm 低
142	A: Voltage	Threshold lower limit 2	4 bytes C R W T -	electric po... 低
143	A: Voltage	Threshold upper limit 2	4 bytes C R W T -	electric po... 低
144	A: Voltage	Threshold warning 2	1 bit C R - T -	alarm 低
145	A: Voltage	Threshold lower limit 3	4 bytes C R W T -	electric po... 低
146	A: Voltage	Threshold upper limit 3	4 bytes C R W T -	electric po... 低
147	A: Voltage	Threshold warning 3	1 bit C R - T -	alarm 低
148	A: Voltage	Threshold lower limit 4	4 bytes C R W T -	electric po... 低
149	A: Voltage	Threshold upper limit 4	4 bytes C R W T -	electric po... 低
150	A: Voltage	Threshold warning 4	1 bit C R - T -	alarm 低
No.	Name	Function	Flag	Data Type
137,227,317	A/B/C: Voltage	Voltage	C R T	DPT14.027 4 bytes
These objects are used for reporting voltage.				
138,228,318	A/B/C: Voltage	Request	C W	DPT1.017 1 bit
These objects are used for requests for reporting voltage.				
139,142,145,148, 229,232,235,238, 319,322,325,328	A/B/C: Current	Threshold lower limit 1/2/3/4	C R W T	DPT14.027 4 bytes
140,143,146,149, 230,233,236,239, 320,323,326,329		Threshold upper limit 1/2/3/4		
These objects are used for setting the upper/lower limit of “Threshold 1/2/3/4”.				
141,144,147,150, 231,234,237,240 321,324,327,330	A/B/C: Current	Threshold warning 1/2/3/4	C R T	DPT1.005 1 bit
These objects are used for sending an alarm when current threshold is higher/lower than the upper/lower limit.				

5.3.6 Objects “A/B/C: Apparent Power/Power Factor”

Objects function status--“A/B/C: Apparent Power/Power Factor”				
(Take circuit A as an example)				
151	A: Apparent power	Apparent power	4 bytes C R - T -	power (W) 低
152	A: Apparent power	Request	1 bit C - W - -	trigger 低
153	A: Power factor	Power factor	4 bytes C R - T -	power fact... 低
154	A: Power factor	Request	1 bit C - W - -	trigger 低
No.	Name	Function	Flag	Data Type
151,241,331	A/B/C: Apparent Power	Apparent Power	C R T	DPT14.056 4 bytes
These objects are used for reporting apparent power.				
152,242,332	A/B/C: Apparent Power	Request	C W	DPT1.017 1 bit
These objects are used for requests for reporting apparent power.				
153,243,333	A/B/C: Power Factor	Power Factor	C R T	DPT14.057 4 bytes
These objects are used for reporting power factor.				
154,244,334	A/B/C: Power Factor	Request	C W	DPT1.017
These objects are used for requests for reporting power factor.				

5.3.7 Object “A/B/C: Load control slave”

Objects function status--“A/B/C: Load control slave”				
155	A: Load control slave	Deactivate load control	1 bit C R W - -	enable 低
156	A: Load control slave	Load cutdown stage output	1 byte C R W T -	counter pu... 低
No.	Name	Function	Flag	Data Type
155,245,335	A/B/C: Load control slave	Deactivate load control	C R W	DPT1.003 1 bit
These objects are used for deactivating load control function.				
156,246,336	A/B/C: Load control slave	Load cutdown stage output	C R W T	DPT5.010 1 byte
These objects are used for circuit A/B/C to accept “load cutdown stage”.				

5.3.8 Object “A/B/C: Switch Actuator”

Objects function status--“A/B/C: Switch Actuator”									
(Take circuit A as an example)									
157	A: Switch actuator	Output(0=OFF,1=ON)	1 bit	C	R	W	T	-	open/close 低
158	A: Switch actuator	Status	1 bit	C	R	-	T	-	open/close 低
No.	Name	Function	Flag	Data Type					
157,247,337	A/B/C: Switch actuator	Output (0=OFF, 1=ON)	C R W T	DPT1.009 1 bit					
		Output (1=OFF, 0=ON)							
These objects are used for controlling relay output.									
158,248,338	A/B/C: Switch actuator	Status	C R W	DPT1.009 1 bit					
These objects are used for indicating relay status.									

5.3.9 Object “A/B/C: Monitor Current”

Objects function status--“A/B/C: Monitor Current”				
(Take circuit A as an example)				
159	A: Monitor current	YES-1,NO-0	1 bit	C R - T - alarm 低
No.	Name	Function	Flag	Data Type
159,249,339	A/B/C: Monitor current	YES-1, NO-0	C R T	DPT1.005 1 bit
These objects are used for monitoring whether there is current in the circuit.				

5.3.10 Object “A/B/C: Flashing”

Objects function status--“A/B/C: Flashing”				
(Take circuit A as an example)				
160	A: Flashing	Switch	1 bit	C R W - - open/close 低
No.	Name	Function	Flag	Data Type
160,250,340	A/B/C: Flashing	Switch	C R W	DPT1.009 1 bit
These objects are used for controlling flashing lights.				

5.3.11 Object “A/B/C: Staircase lighting”

Objects function status--“A/B/C: Staircase lighting”				
(Take circuit A as an example)				
161	A: Staircase lighting	Switch	1 bit C R W - -	switch 低
162	A: Staircase lighting	Change time	2 bytes C R W T -	time (s) 低
163	A: Staircase lighting	Alarm	1 bit C R - T -	alarm 低
No.	Name	Function	Flag	Data Type
161,251,341	A/B/C: Staircase lighting	Switch	C R W	DPT1.001 1 bit
These objects are used for turning on/off staircase lights.				
162,252,342	A/B/C: Staircase lighting	Change time	C R W T	DPT7.005 2 bytes
These objects are used for changing the duration of staircase lights.				
163,253,343	A/B/C: Staircase lighting	Alarm	C R T	DPT1.005 1 bit
These objects are used for sending an alarm when the staircase lights of circuit A/B/C are on.				

5.3.12 Object “A/B/C: Scenes”

Objects function status--“A/B/C: Scenes”				
(Take circuit A as an example)				
164	A: Scenes	Scenes(1-64)	1 byte C R W T -	scene cont... 低
No.	Name	Function	Flag	Data Type
164,254,344	A/B/C: Scenes	Scenes (1-64)	C R W T	DPT18.001 1 byte
These objects are used for receiving the scene number of circuit A/B/C.				

5.3.13 Object “A/B/C: Forced operation”

Objects function status--“A/B/C: Forced operation”				
(Take circuit A as an example)				
167	A: Forced operation	Forced operation(1 bit)	1 bit C - W - -	enable 低
168	A: Forced operation	Status(1 bit)	1 bit C R - T -	enable 低
No.	Name	Function	Flag	Data Type
167,257,347	A/B/C: Forced operation	Forced operation (1 bit)	C W	DPT1.003 1 bit
		Forced operation (2 bit)		DPT2.001

				2 bits
These objects are used for circuit A/B/C to start or stop the forced operation.				
168,258,348	A/B/C: Forced operation	Status (1 bit)	C R T	DPT1.003 1 bit
		Status (2 bit)		DPT2.001 2 bits
These objects are used for indicating the forced operation status of circuit A/B/C.				

5.3.14 Object “A/B/C: Energy saving”

Objects function status--“A/B/C: Energy saving”							
169	A: Energy saving	Switch object 1	1 bit	C	-	-	T - switch 低
170	A: Energy saving	Value object 1	1 byte	C	-	-	T - percentag... 低
171	A: Energy saving	Dimming object 1	4 bit	C	-	-	T - dimming c... 低
172	A: Energy saving	Scene object 1	1 byte	C	-	-	T - scene cont... 低
173	A: Energy saving	Temperature 1	2 bytes	C	-	-	T - temperatu... 低
174	A: Energy saving	Switch object 2	1 bit	C	-	-	T - switch 低
175	A: Energy saving	Value object 2	1 byte	C	-	-	T - percentag... 低
176	A: Energy saving	Dimming object 2	4 bit	C	-	-	T - dimming c... 低
177	A: Energy saving	Scene object 2	1 byte	C	-	-	T - scene cont... 低
178	A: Energy saving	Temperature 2	2 bytes	C	-	-	T - temperatu... 低
179	A: Energy saving	Switch object 3	1 bit	C	-	-	T - switch 低
180	A: Energy saving	Value object 3	1 byte	C	-	-	T - percentag... 低
181	A: Energy saving	Dimming object 3	4 bit	C	-	-	T - dimming c... 低
182	A: Energy saving	Scene object 3	1 byte	C	-	-	T - scene cont... 低
183	A: Energy saving	Temperature 3	2 bytes	C	-	-	T - temperatu... 低
184	A: Energy saving	Switch object 4	1 bit	C	-	-	T - switch 低
185	A: Energy saving	Value object 4	1 byte	C	-	-	T - percentag... 低
186	A: Energy saving	Dimming object 4	4 bit	C	-	-	T - dimming c... 低
187	A: Energy saving	Scene object 4	1 byte	C	-	-	T - scene cont... 低
188	A: Energy saving	Temperature 4	2 bytes	C	-	-	T - temperatu... 低
No.	Name		Function	Flag	Data Type		
169,174,179,184, 259,264,269,274, 349,354,359,364	A/B/C: Energy saving		Switch object 1/2/3/4	C T	DPT1.001 1 bit		
When circuit A/B/C meets energy-saving function, these objects will be sent by the set value.							
170,175,180,185, 260,265,270,275, 350,355,360,365	A/B/C: Energy saving		Value object 1/2/3/4	C T	DPT5.001 1 byte		
When circuit A/B/C meets energy-saving function, these objects will be sent by the set value, range from 0 to 255.							

171,176,181,186, 261,266,271,276, 351,356,361,366	A/B/C: Energy saving	Dimming object 1/2/3/4	C T	DPT3.007 4 bits
When circuit A/B/C meets energy-saving function, these objects will be sent by the set value (Up 100%-Down 100%).				
172,177,182,187, 262,267,272,277, 352,357,362,367	A/B/C: Energy saving	Scene object 1/2/3/4	C T	DPT18.001 1 byte
When circuit A/B/C meets energy-saving function, these objects will be sent by the set value, range from 0 to 63.				
173,178,183,188, 263,268,273,278, 353,358,363,368	A/B/C: Energy saving	Temperature 1/2/3/4	C T	DPT9.001 2 bytes DPT9.027 2 bytes
When circuit A/B/C meets energy-saving function, these objects will be sent by the set value, range from 0 to 255 Celsius/Fahrenheit.				

6 Data Downloading

6.1 Interface Setting

when downloading data to energy actuator, KNX interface is necessary.

After connecting KNX interface to a computer via USB, click “Bus” in the main page of ETS, “HDL USB Interface” will show up in “Discovered Interfaces”. Double click to add devices and the interface will show up in “Current Interface”, as shown in Figure 6-1.

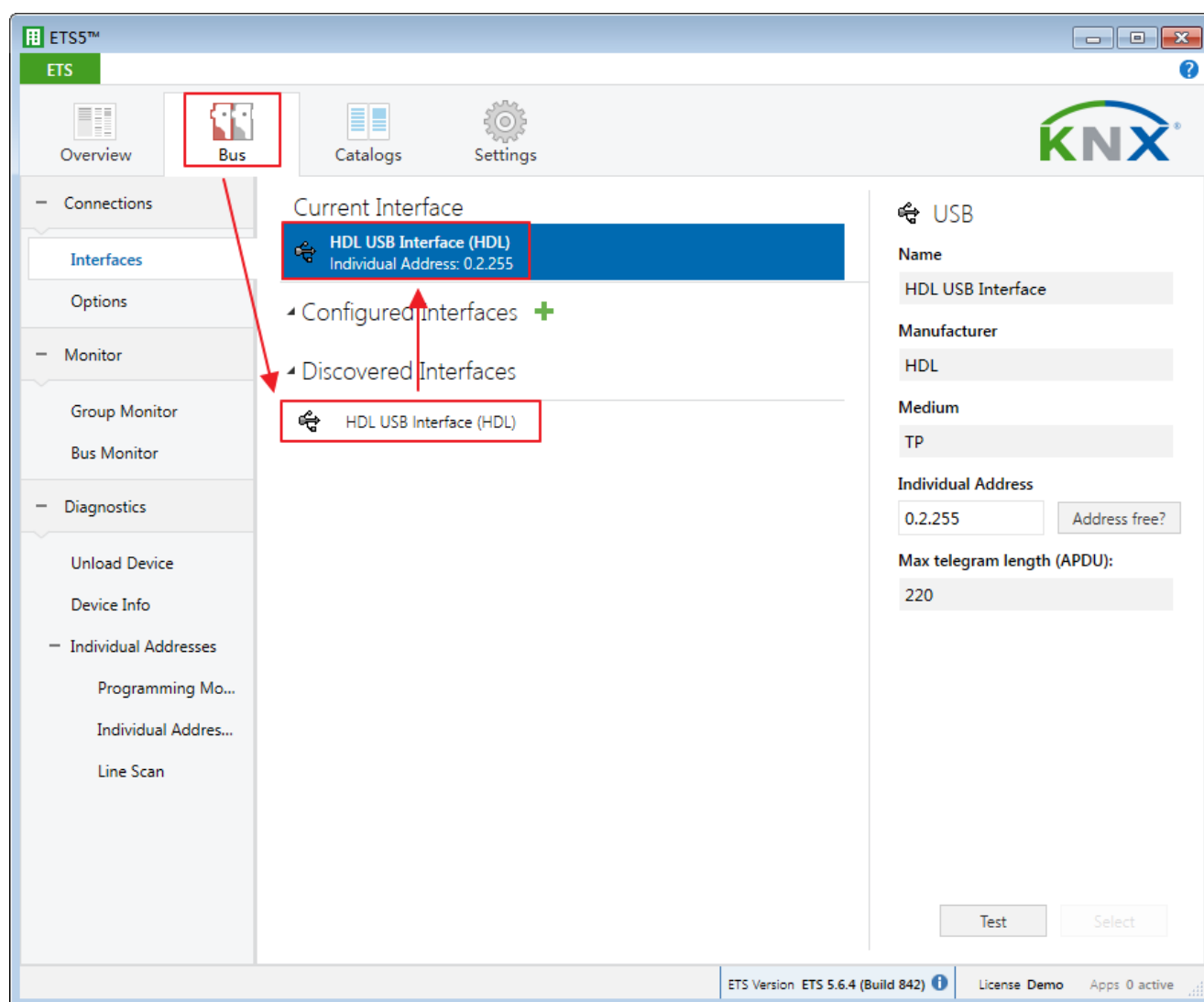


Figure 6-1 Interface setting

6.2 Data Downloading

Right click on the database to be downloaded to the energy actuator and select “Download”.

Turn on the programming mode of energy actuator and the red LED will be kept on. As shown in Figure 6-2, it shows the data has been downloaded on the right side of ETS.

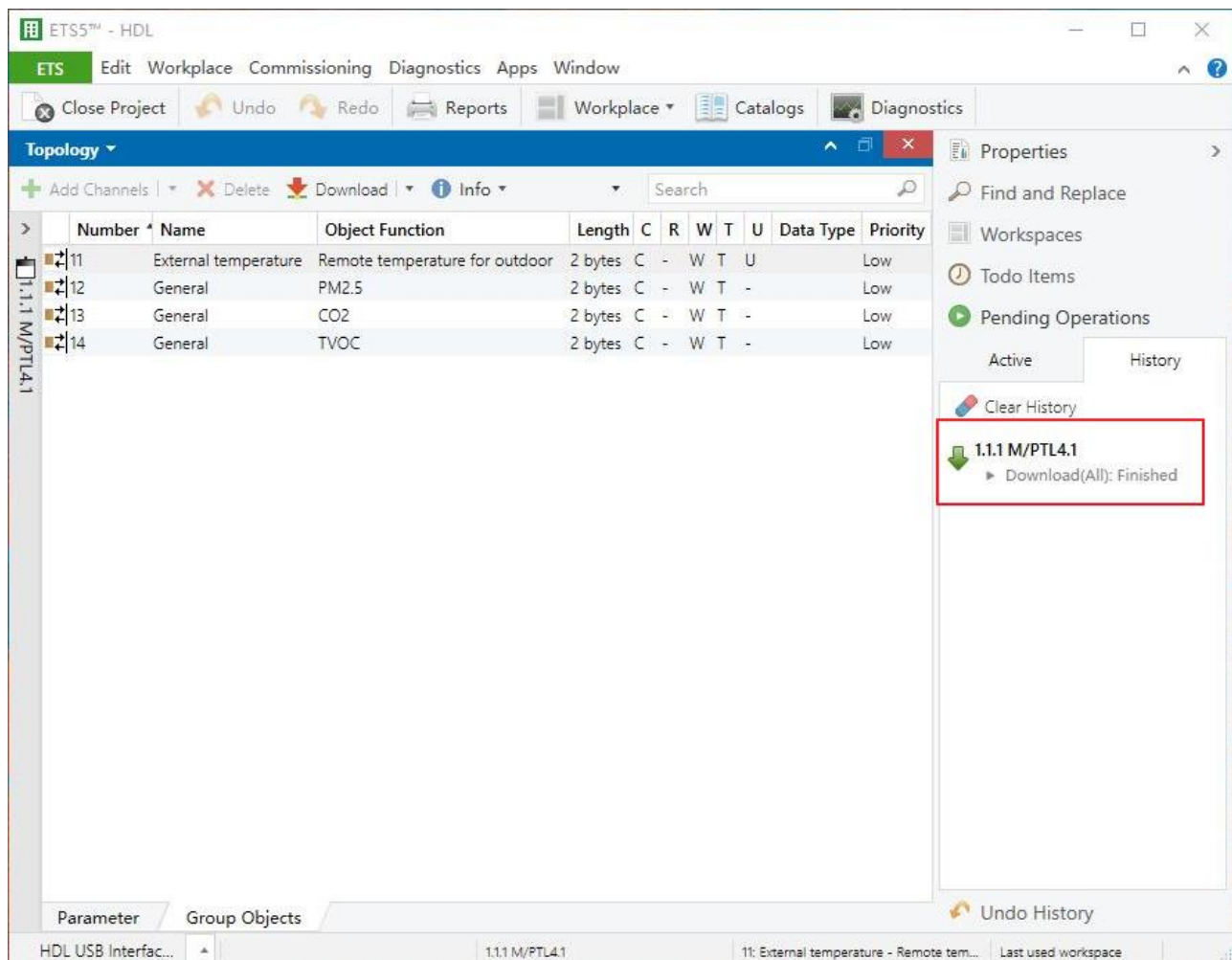


Figure 6-2 Download data