Case Introduction (UPS Power Supply)

1. Function Implementation

Collect data from a relatively complex RS485 interface UPS (Uninterruptible Power Supply) device, and report to the 61850 master station.

> This UPS device contains two types of data points: telemetry type (integer or floating point) and telesignaling type (status bit 0/1), so we need two device models: YC_RM telemetry and YX_RS telesignaling.

2. Device RS485 Communication Parameters

UPS Device No.1: 9600 baud, no parity, 1 stop bit

3. Device Modbus Data Point Table

The following data points use Modbus 03 Read Holding Registers function code

Data Point Address	Name	Modbus Data Type	Additional Notes	61850 Data Type
0000H	Input Voltage	U_AB (16-bit unsigned integer)	Integer divided by 10, unit: 0.1V	YC_RM Telemetry-Float
0001H	Output Voltage	U_AB (16-bit unsigned integer)	Integer divided by 10, unit: 0.1V	YC_RM Telemetry-Float
0002H	Load	U_AB (16-bit unsigned integer)	Unit: 1%	YC_RM Telemetry-Integer
0003H	Battery Voltage	U_AB (16-bit unsigned integer)	Integer divided by 10, unit: 0.1V	YC_RM Telemetry-Float
0004H	Temperature	S_AB (16-bit signed integer)	Unit: °C	YC_RM Telemetry-Integer
0005H	Input Frequency	U_AB (16-bit unsigned integer)	Integer divided by 10, unit: 0.1Hz	YC_RM Telemetry-Float

The following data points use Modbus 02 Read Discrete Inputs function code

Coil Address	Name	Modbus Data Type	Additional Notes	61850 Data Type
0000H	Overload	Bool	0-Normal 1-Overload	YX_RS Telesignaling-Switch
0001H	Power State	Bool	0-On 1-Off	YX_RS Telesignaling-Switch
0002H	Test	Bool	0-Normal 1-Test	YX_RS Telesignaling-Switch
0003H	Reserved	Bool		
0004H	System Fault	Bool	0-Normal 1-System Fault	YX_RS Telesignaling-Switch
0005H	Working Mode	Bool	0-Inverter 1-Bypass	YX_RS Telesignaling-Switch
0006H	Battery Voltage	Bool	0-Normal 1-Battery Low	YX_RS Telesignaling-Switch
0007H	Mains Fault	Bool	0-Normal 1-Mains Fault	YX_RS Telesignaling-Switch
0008H	Charging Fault	Bool	0-Normal 1-Charging Fault	YX_RS Telesignaling-Switch
0009H-000FH	Reserved	Bool		
0010H	Circuit Switch 1	Bool	0-Open 1-Closed	YX_RS Telesignaling-Switch
0011H	Circuit Switch 2	Bool	0-Open 1-Closed	YX_RS Telesignaling-Switch
...				
004EH	Circuit Switch 63	Bool	0-Open 1-Closed	YX_RS Telesignaling-Switch
004FH	Circuit Switch 64	Bool	0-Open 1-Closed	YX_RS Telesignaling-Switch

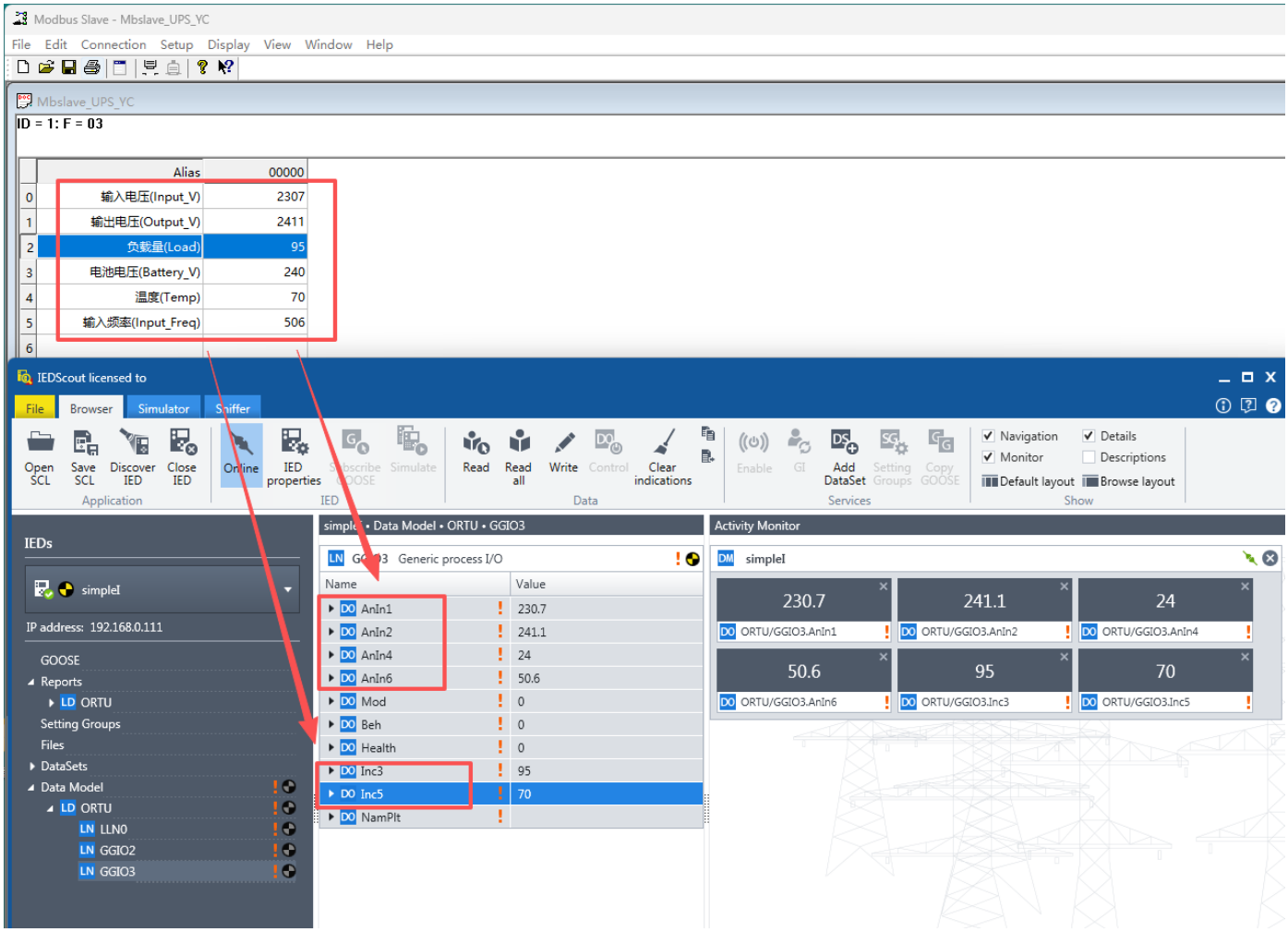
4. How to Use This Case

- Copy the init folder in this case to completely overwrite the init folder in the FLEXLUA_61850 software directory, then click Generate in Step 4 of the software to generate the required 3 files (main.lua, model.cfg, rtu.cid).
- The main.lua and model.cfg files need to be placed into the protocol converter through the USB-C port. The rtu.cid file can be provided to 61850 master station developers for device import.

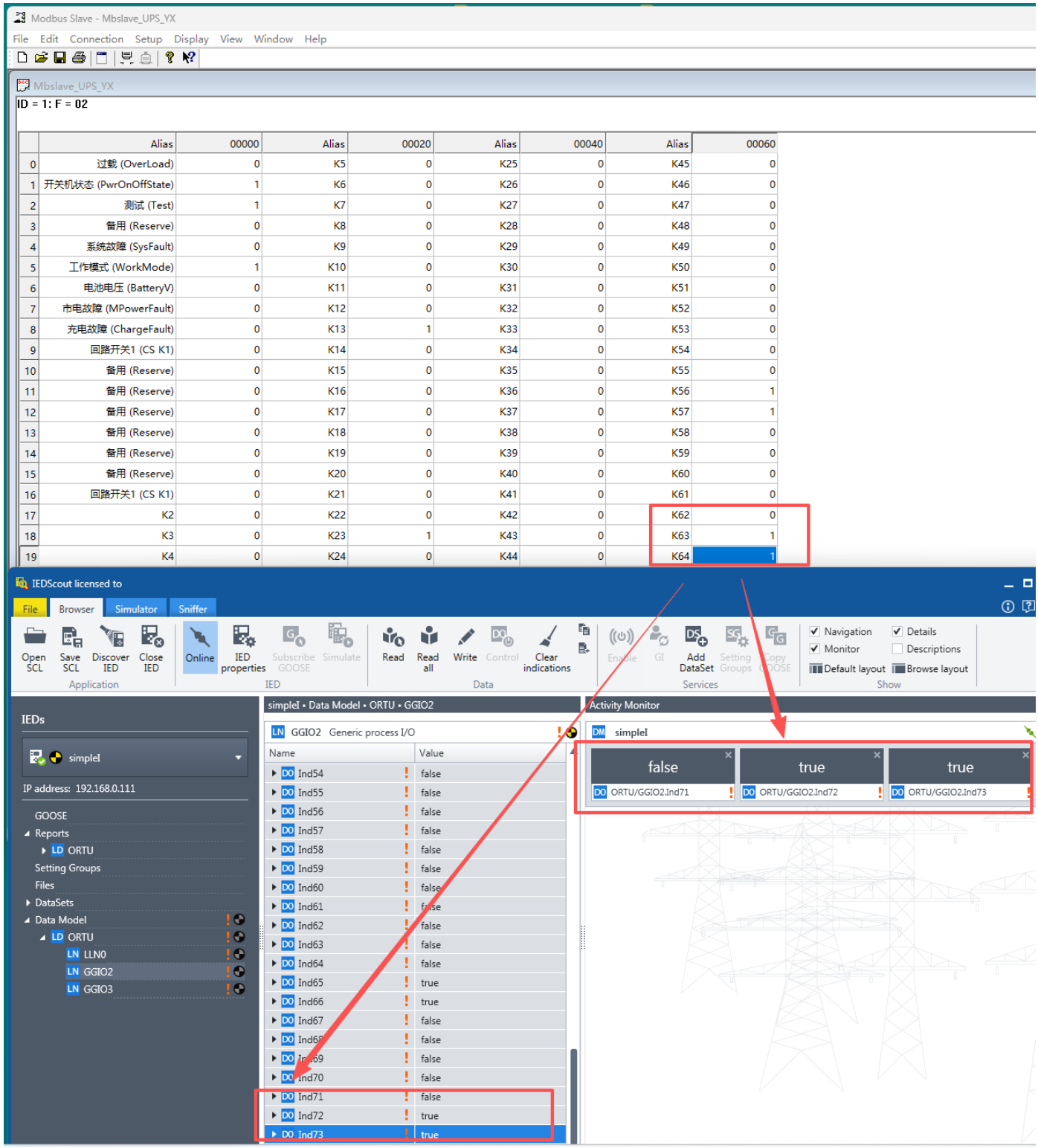
5. Testing

In the test folder of this case, there are modbus slave device simulation files. If you have modbus slave and IEDScout testing tool software installed on your computer, they can be used to simulate modbus slave devices and 61850 master station software respectively to complete testing.

Read Registers (Telemetry) Test Results



Read Coils (Telesignaling) Test Results



	Alias	00000	Alias	00020	Alias	00040	Alias	00060
0	过载 (OverLoad)	0	K5	0	K25	0	K45	0
1	开关机状态 (PwrOnOffState)	1	K6	0	K26	0	K46	0
2	测试 (Test)	1	K7	0	K27	0	K47	0
3	备用 (Reserve)	0	K8	0	K28	0	K48	0
4	系统故障 (SysFault)	0	K9	0	K29	0	K49	0
5	工作模式 (WorkMode)	1	K10	0	K30	0	K50	0
6	电池电压 (BatteryV)	0	K11	0	K31	0	K51	0
7	市电故障 (MPowerFault)	0	K12	0	K32	0	K52	0
8	充电故障 (ChargeFault)	0	K13	1	K33	0	K53	0
9	回路开关1 (CS K1)	0	K14	0	K34	0	K54	0
10	备用 (Reserve)	0	K15	0	K35	0	K55	0
11	备用 (Reserve)	0	K16	0	K36	0	K56	1
12	备用 (Reserve)	0	K17	0	K37	0	K57	1
13	备用 (Reserve)	0	K18	0	K38	0	K58	0
14	备用 (Reserve)	0	K19	0	K39	0	K59	0
15	备用 (Reserve)	0	K20	0	K40	0	K60	0
16	回路开关1 (CS K1)	0	K21	0	K41	0	K61	0
17	K2	0	K22	0	K42	0	K62	0
18	K3	0	K23	1	K43	0	K63	1
19	K4	0	K24	0	K44	0	K64	1