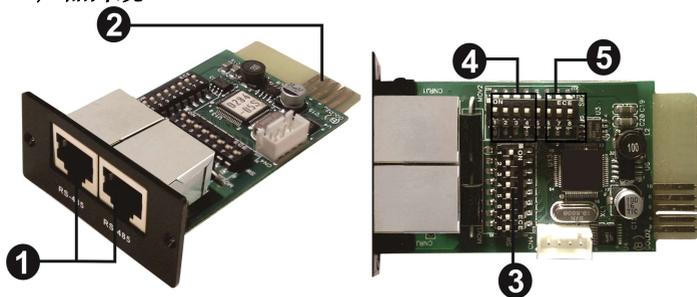


感谢购买此 Modbus 卡，此说明书包含安装、操作与储存此卡需注意的事项，请将此安装手册好好保存，以利未来查询使用。

## 特殊注意事项:

- 若此卡在安装前需要单独保存，请将此卡保存在干的地方。
- 可接受的储藏温度为-10°C 到+70°C。

## 1. 产品外观



- ① RS-485 接口
- ② 金手指接口
- ③ 地址设置开关
- ④ 通信设置
- ⑤ 阻抗匹配设置开关

## 2. 产品简介

Modbus 通讯卡是提供 Modbus 通讯协议，让 UPS 能够与计算机进行数据交换。

- 支持 MODBUS RTU 通讯协议
- 通过寄存器对数据进行读取与写入的操作
- 提供 RS-485 接口
- 提供突波保护

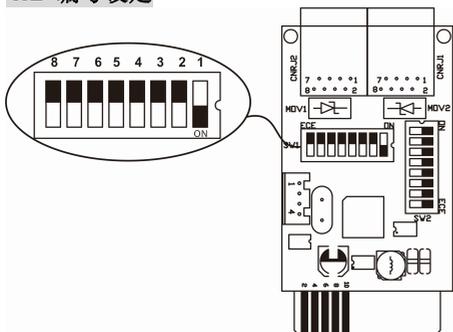
## 3. 安装与操作

依照底下步骤来安装与使用 Modbus 通讯卡:

1. 设定 Modbus 编号 (详细设定请参考 4.1)
2. 选定通讯型式 (详细设定请参考 4.2)
3. 将 Modbus 通讯卡插入智能型插槽里
4. 使用 RJ45 线将 Modbus 通讯卡与计算机连接, 此时, 无须将 UPS 关机。(详情请参考 4.5)

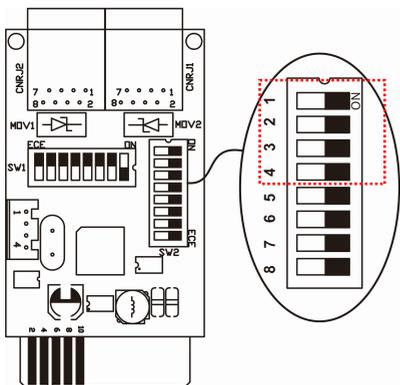
## 4. 设定

### 4.1 编号设定



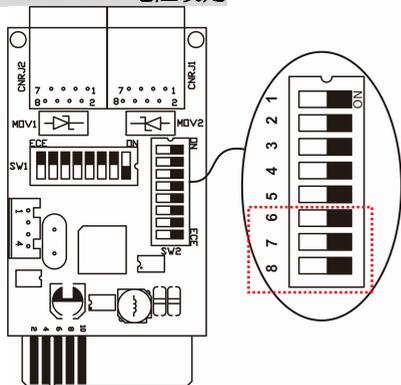
每一张卡片的编号可以透过 SW1 里的 8 个数字来设定, 从左至右代表 8 到 1 的位置, 如左图, 当 1 的位置里的按键往下拨动时, 此数字代表“1”, 往上拨动则代表“0”, 此时, 卡片的标号就是 0x01, 请参考附件为编号号码与 SW1 的设定。

### 4.2 通讯型式设定



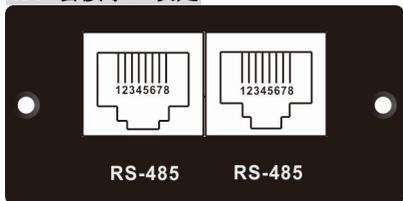
功能	字符设定		代表意思
波特率	# 2	# 1	
	OFF	OFF	2400bps
	OFF	ON	4800bps
	ON	OFF	9600bps
	ON	ON	19200bps(default)
同位检查	# 4	# 3	
	OFF	OFF	偶数同位
	ON	OFF	奇数同位
	OFF	ON	无奇偶校验位, 1 停止位 (预设)
	ON	ON	无奇偶校验位, 2 停止位

## 4.3 RS-485 电阻设定



功能	字符 #	设定	意义
上拉电阻	# 6	ON	使能 (预设)
		OFF	不使能
下拉电阻	# 7	ON	使能 (预设)
		OFF	不使能
终端电阻	# 8	ON	使能 (预设)
		OFF	不使能

## 4.4 套接字口设定

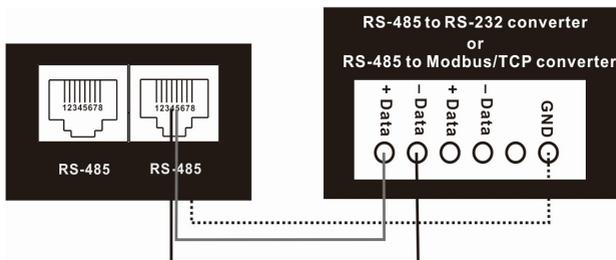


### RS-485 针脚定义

针脚	功能
4	RS-485 - B
5	RS-485 - A
8	地线(GND)

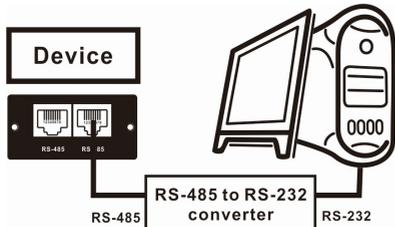
## 4.5 连接

首先, 请先使用一个 RS-485 转 RS-232 转换器或 RS-485 转 Modbus/TCP 转换器接在计算机与 Modbus 卡中间做为转换媒介, 并依照底下接线图将转换媒介与 RJ45 连接起来。

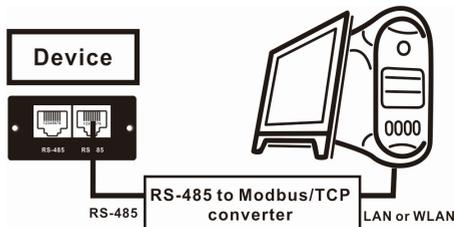


接线图

之后，再依照下图连接到个人计算机：



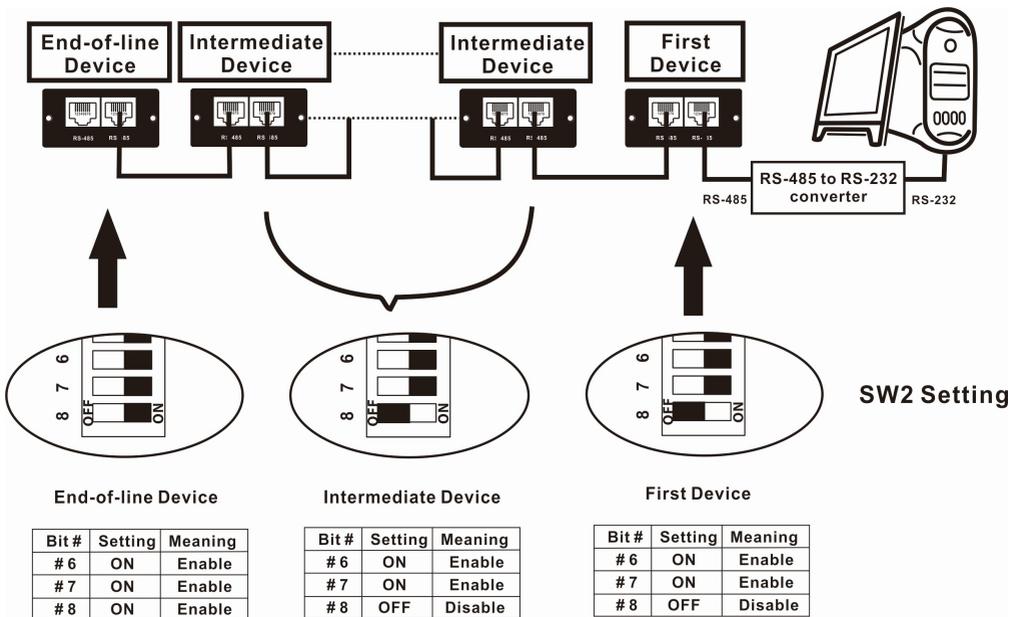
使用 RS-485 转 RS-232 转换器



使用 RS-485 转 Modbus/TCP 转换器

## 5. 多机监控

一张 modbus 卡只能接一台 UPS，当每一台 UPS 安装一张 modbus 卡，可以透过一台计算机监控最多 31 台 UPS。



附件：机器编号设定表(SW1) √=ON ×=OFF

SW1 ID	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
1	√	×	×	×	×	×	×	×
2	×	√	×	×	×	×	×	×
3	√	√	×	×	×	×	×	×
4	×	×	√	×	×	×	×	×
5	√	×	√	×	×	×	×	×
6	×	√	√	×	×	×	×	×
7	√	√	√	×	×	×	×	×
8	×	×	×	√	×	×	×	×
9	√	×	×	√	×	×	×	×
10	×	√	×	√	×	×	×	×
11	√	√	×	√	×	×	×	×
12	×	×	√	√	×	×	×	×
13	√	×	√	√	×	×	×	×
14	×	√	√	√	×	×	×	×
15	√	√	√	√	×	×	×	×
16	×	×	×	×	√	×	×	×
17	√	×	×	×	√	×	×	×
18	×	√	×	×	√	×	×	×
19	√	√	×	×	√	×	×	×
20	×	×	√	×	√	×	×	×
21	√	×	√	×	√	×	×	×
22	×	√	√	×	√	×	×	×
23	√	√	√	×	√	×	×	×
24	×	×	×	√	√	×	×	×
25	√	×	×	√	√	×	×	×
26	×	√	×	√	√	×	×	×
27	√	√	×	√	√	×	×	×
28	×	×	√	√	√	×	×	×
29	√	×	√	√	√	×	×	×
30	×	√	√	√	√	×	×	×
31	√	√	√	√	√	×	×	×
32	×	×	×	×	×	√	×	×
33	√	×	×	×	×	√	×	×
34	×	√	×	×	×	√	×	×
35	√	√	×	×	×	√	×	×
36	×	×	√	×	×	√	×	×
37	√	×	√	×	×	√	×	×
38	×	√	√	×	×	√	×	×
39	√	√	√	×	×	√	×	×

40	x	x	x	√	x	√	x	x
41	√	x	x	√	x	√	x	x
42	x	√	x	√	x	√	x	x
43	√	√	x	√	x	√	x	x
44	x	x	√	√	x	√	x	x
45	√	x	√	√	x	√	x	x
46	x	√	√	√	x	√	x	x
47	√	√	√	√	x	√	x	x
48	x	x	x	x	√	√	x	x
49	√	x	x	x	√	√	x	x
50	x	√	x	x	√	√	x	x
51	√	√	x	x	√	√	x	x
52	x	x	√	x	√	√	x	x
53	√	x	√	x	√	√	x	x
54	x	√	√	x	√	√	x	x
55	√	√	√	x	√	√	x	x
56	x	x	x	√	√	√	x	x
57	√	x	x	√	√	√	x	x
58	x	√	x	√	√	√	x	x
59	√	√	x	√	√	√	x	x
60	x	x	√	√	√	√	x	x
61	√	x	√	√	√	√	x	x
62	x	√	√	√	√	√	x	x
63	√	√	√	√	√	√	x	x
64	x	x	x	x	x	x	√	x
65	√	x	x	x	x	x	√	x
66	x	√	x	x	x	x	√	x
67	√	√	x	x	x	x	√	x
68	x	x	√	x	x	x	√	x
69	√	x	√	x	x	x	√	x
70	x	√	√	x	x	x	√	x
71	√	√	√	x	x	x	√	x
72	x	x	x	√	x	x	√	x
73	√	x	x	√	x	x	√	x
74	x	√	x	√	x	x	√	x
75	√	√	x	√	x	x	√	x
76	x	x	√	√	x	x	√	x
77	√	x	√	√	x	x	√	x
78	x	√	√	√	x	x	√	x
79	√	√	√	√	x	x	√	x
80	x	x	x	x	√	x	√	x
81	√	x	x	x	√	x	√	x

82	x	√	x	x	√	x	√	x
83	√	√	x	x	√	x	√	x
84	x	x	√	x	√	x	√	x
85	√	x	√	x	√	x	√	x
86	x	√	√	x	√	x	√	x
87	√	√	√	x	√	x	√	x
88	x	x	x	√	√	x	√	x
89	√	x	x	√	√	x	√	x
90	x	√	x	√	√	x	√	x
91	√	√	x	√	√	x	√	x
92	x	x	√	√	√	x	√	x
93	√	x	√	√	√	x	√	x
94	x	√	√	√	√	x	√	x
95	√	√	√	√	√	x	√	x
96	x	x	x	x	x	√	√	x
97	√	x	x	x	x	√	√	x
98	x	√	x	x	x	√	√	x
99	√	√	x	x	x	√	√	x
100	x	x	√	x	x	√	√	x
101	√	x	√	x	x	√	√	x
102	x	√	√	x	x	√	√	x
103	√	√	√	x	x	√	√	x
104	x	x	x	√	x	√	√	x
105	√	x	x	√	x	√	√	x
106	x	√	x	√	x	√	√	x
107	√	√	x	√	x	√	√	x
108	x	x	√	√	x	√	√	x
109	√	x	√	√	x	√	√	x
110	x	√	√	√	x	√	√	x
111	√	√	√	√	x	√	√	x
112	x	x	x	x	√	√	√	x
113	√	x	x	x	√	√	√	x
114	x	√	x	x	√	√	√	x
115	√	√	x	x	√	√	√	x
116	x	x	√	x	√	√	√	x
117	√	x	√	x	√	√	√	x
118	x	√	√	x	√	√	√	x
119	√	√	√	x	√	√	√	x
120	x	x	x	√	√	√	√	x
121	√	x	x	√	√	√	√	x
122	x	√	x	√	√	√	√	x
123	√	√	x	√	√	√	√	x

124	x	x	√	√	√	√	√	x
125	√	x	√	√	√	√	√	x
126	x	√	√	√	√	√	√	x
127	√	√	√	√	√	√	√	x
128	x	x	x	x	x	x	x	√
129	√	x	x	x	x	x	x	√
130	x	√	x	x	x	x	x	√
131	√	√	x	x	x	x	x	√
132	x	x	√	x	x	x	x	√
133	√	x	√	x	x	x	x	√
134	x	√	√	x	x	x	x	√
135	√	√	√	x	x	x	x	√
136	x	x	x	√	x	x	x	√
137	√	x	x	√	x	x	x	√
138	x	√	x	√	x	x	x	√
139	√	√	x	√	x	x	x	√
140	x	x	√	√	x	x	x	√
141	√	x	√	√	x	x	x	√
142	x	√	√	√	x	x	x	√
143	√	√	√	√	x	x	x	√
144	x	x	x	x	√	x	x	√
145	√	x	x	x	√	x	x	√
146	x	√	x	x	√	x	x	√
147	√	√	x	x	√	x	x	√
148	x	x	√	x	√	x	x	√
149	√	x	√	x	√	x	x	√
150	x	√	√	x	√	x	x	√
151	√	√	√	x	√	x	x	√
152	x	x	x	√	√	x	x	√
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154	x	√	x	√	√	x	x	√
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156	x	x	√	√	√	x	x	√
157	√	x	√	√	√	x	x	√
158	x	√	√	√	√	x	x	√
159	√	√	√	√	√	x	x	√
160	x	x	x	x	x	√	x	√
161	√	x	x	x	x	√	x	√
162	x	√	x	x	x	√	x	√
163	√	√	x	x	x	√	x	√
164	x	x	√	x	x	√	x	√
165	√	x	√	x	x	√	x	√

166	x	√	√	x	x	√	x	√
167	√	√	√	x	x	√	x	√
168	x	x	x	√	x	√	x	√
169	√	x	x	√	x	√	x	√
170	x	√	x	√	x	√	x	√
171	√	√	x	√	x	√	x	√
172	x	x	√	√	x	√	x	√
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174	x	√	√	√	x	√	x	√
175	√	√	√	√	x	√	x	√
176	x	x	x	x	√	√	x	√
177	√	x	x	x	√	√	x	√
178	x	√	x	x	√	√	x	√
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181	√	x	√	x	√	√	x	√
182	x	√	√	x	√	√	x	√
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184	x	x	x	√	√	√	x	√
185	√	x	x	√	√	√	x	√
186	x	√	x	√	√	√	x	√
187	√	√	x	√	√	√	x	√
188	x	x	√	√	√	√	x	√
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191	√	√	√	√	√	√	x	√
192	x	x	x	x	x	x	√	√
193	√	x	x	x	x	x	√	√
194	x	√	x	x	x	x	√	√
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196	x	x	√	x	x	x	√	√
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205	√	x	√	√	x	x	√	√
206	x	√	√	√	x	x	√	√
207	√	√	√	√	x	x	√	√

208	x	x	x	x	√	x	√	√
209	√	x	x	x	√	x	√	√
210	x	√	x	x	√	x	√	√
211	√	√	x	x	√	x	√	√
212	x	x	√	x	√	x	√	√
213	√	x	√	x	√	x	√	√
214	x	√	√	x	√	x	√	√
215	√	√	√	x	√	x	√	√
216	x	x	x	√	√	x	√	√
217	√	x	x	√	√	x	√	√
218	x	√	x	√	√	x	√	√
219	√	√	x	√	√	x	√	√
220	x	x	√	√	√	x	√	√
221	√	x	√	√	√	x	√	√
222	x	√	√	√	√	x	√	√
223	√	√	√	√	√	x	√	√
224	x	x	x	x	x	√	√	√
225	√	x	x	x	x	√	√	√
226	x	√	x	x	x	√	√	√
227	√	√	x	x	x	√	√	√
228	x	x	√	x	x	√	√	√
229	√	x	√	x	x	√	√	√
230	x	√	√	x	x	√	√	√
231	√	√	√	x	x	√	√	√
232	x	x	x	√	x	√	√	√
233	√	x	x	√	x	√	√	√
234	x	√	x	√	x	√	√	√
235	√	√	x	√	x	√	√	√
236	x	x	√	√	x	√	√	√
237	√	x	√	√	x	√	√	√
238	x	√	√	√	x	√	√	√
239	√	√	√	√	x	√	√	√
240	x	x	x	x	√	√	√	√
241	√	x	x	x	√	√	√	√
242	x	√	x	x	√	√	√	√
243	√	√	x	x	√	√	√	√
244	x	x	√	x	√	√	√	√
245	√	x	√	x	√	√	√	√
246	x	√	√	x	√	√	√	√
247	√	√	√	x	√	√	√	√