Schneider Electric

User Manual Easy UPS Modbus Card SRVSMB001

Important Safety Information

Read the instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, service or maintain it. The following special messages may appear throughout this document or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to either a "Danger" or "Warning" product safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER
DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING
WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION
CAUTION indicates a hazardous situation which, if not avoided, **could result in** minor or moderate injury.

NOTICE
NOTICE is used to address practices not related to physical injury.

Product Description

The Modbus card provides UPS systems with the functionality of communication with PCs through MODBUS protocol:

- Implements MODBUS RTU protocol
- Provides MODBUS functions including read Holding Registers and write Registers.
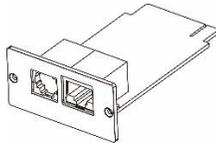- Provides RS485 interface
- Provides surge protection

Supported Devices

The Modbus Card can be installed in any compatible device that is equipped with Intelligent Card Slot, including:

- Easy UPS On-Line: SRVS series UPS

Package Contents

The packaging is recyclable; save it for reuse or dispose of it properly.

| (1) | (1) |
| Modbus Card | User manual |

Disclaimer

Thank you for purchasing Modbus Card. This manual contains instructions that should be followed during the installation, operation and storage of the card. Keep this manual for future reference.
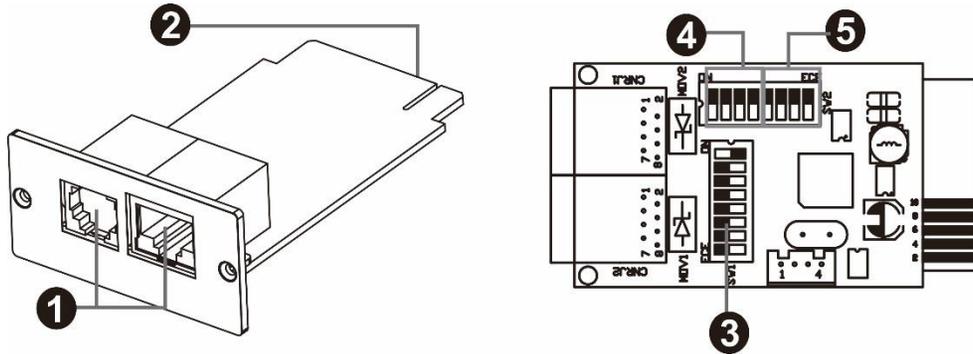
Special Precautions

- If the card must be stored prior to installation; store it in a dry place.
- The storage temperature range is from -10ºC to +70ºC.

Recycle

The shipping materials are recyclable. Save them for later use, or dispose of them properly.

Product Overview

❶	RS-485 port	❹	Communication setting
❷	Golden finger	❺	Resistance switch
❸	Address switch		

# Specifications

Physical	Dimensions with package Width x Height x Depth	168 mm (6.61in) x 42 mm (1.65in) x 132 mm (5.2in)
	Dimensions without package Width x Height x Depth	52.4 mm (2.06in) x 26 mm (1.02in) x 80 mm (3.15in)
	Weight with package	0.12 kg (0.26 lb)
	Weight without package	0.03 kg (0.07 lb)
Temperature	Operating	0 to 40°C (32 to 104°F)
	Storage	-10 to 70°C (13.4 to 158°F)
Humidity	Operating	0 to 95% relative humidity, non-condensing
Supported Protocol		Modbus RTU
Power Consumption	Operating	0.5 W (max.)
	Standby	0.3 W (max.)
Supported Power		12 V (10 V – 14 V)
Communication Interface	Console Communication	RJ45 port
	UPS	Golden finger
Firmware Upgrading		RS485

Installation & Operation

Follow the steps below when installing and using this modbus card:

1. Configure Modbus ID (Refer to the next section "Configuration" for details.)

2. Configure communication format (Refer to the next section "Configuration" for details.)

3. Insert the modbus card into the intelligent card slot.
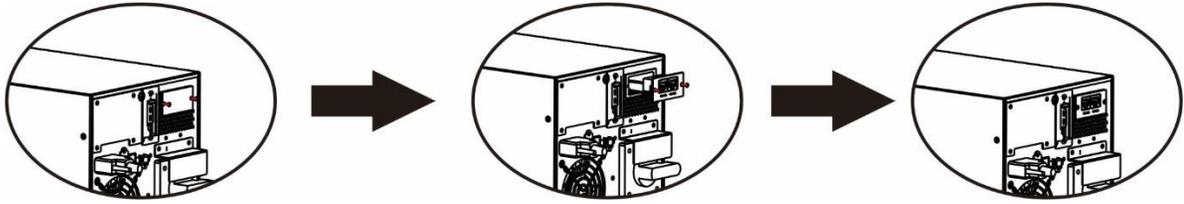
4. With the UPS turned off, connect the modbus card to a computer using a RJ45 cable. (Refer to the next section "Configuration" for details.)

Configuration

Machine ID Configuration
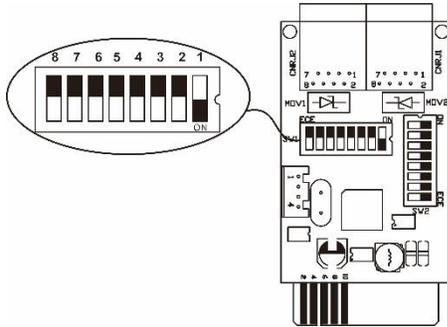
The registry settings of each card may be configured through the 8 switches on SW1. Switches 8 to 1 are numbered from left to right as shown on the figure on the left. When user slides the switch position downwards, its setting is 1. When pushed upwards, the setting is 0. In this example, the registry setting of the card is 0x01. See the appendix section for more details.

Communication Format Configuration
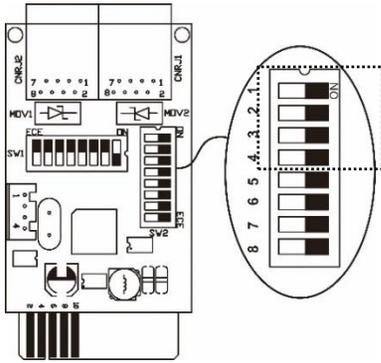
Function	Bit Setting		Meaning
Baud rate	# 2	# 1	
	OFF	OFF	2400bps
	OFF	ON	4800bps
	ON	OFF	9600bps
	ON	ON	19200bps(default)
Parity check	# 4	# 3	
	OFF	OFF	Even parity
	ON	OFF	Odd parity
	OFF	ON	No parity check 1 stop bits (Default)
	ON	ON	No parity check 2 stop bits

RS-485 Resistance Configuration
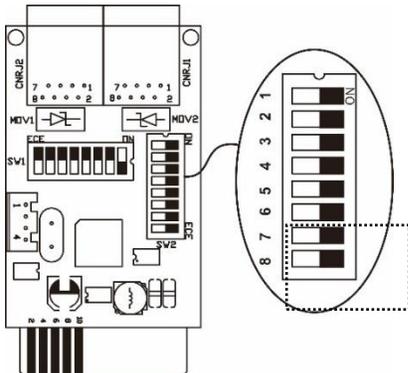
Function	Bit #	Setting	Meaning
Push up resistance	# 6	ON	Enable (Default)
		OFF	Disable
Push down resistance	# 7	ON	Enable (Default)
		OFF	Disable
Terminate resistance	# 8	ON	Enable (Default)
		OFF	Disable

Interface Configuration
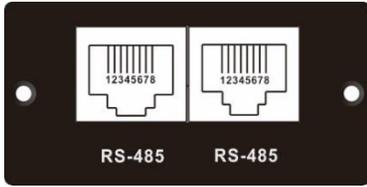
RS-485 Pin Configuration

Pin	Function
4	RS-485 - B
5	RS-485 - A
8	GND

Connection

First, use one RS-485 to RS-232 converter or RS-485 to Modbus/TCP converter as media converter between Modbus card and computer. Refer to the illustration below for wiring connection between RJ45 and media converter:
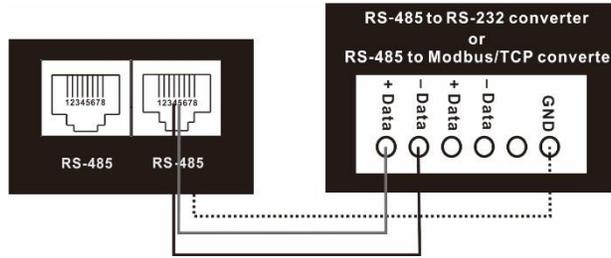
Wiring connection between RJ45 and media converter

Then, follow the diagram below when connecting to a personal computer.
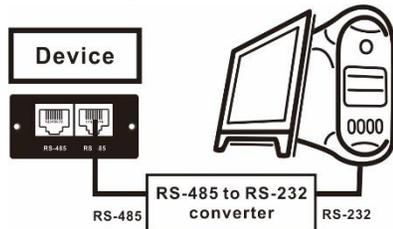
Using RS-485 to RS-232 converter   **Use RS-485 to Modbus/TCP converter**
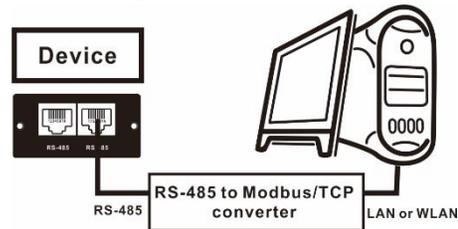
Multiple Wiring

Multiple connection is also possible by pairing one modbus card to one UPS at a single time. This type of wiring connection allows the monitoring of 31 UPSs (maximum) from a single computer.

SW2 Setting

End-of-line Device

Bit #	Setting	Meaning
# 6	ON	Enable
# 7	ON	Enable
# 8	ON	Enable

Intermediate Device

Bit #	Setting	Meaning
# 6	ON	Enable
# 7	ON	Enable
# 8	OFF	Disable

First Device

Bit #	Setting	Meaning
# 6	ON	Enable
# 7	ON	Enable
# 8	OFF	Disable
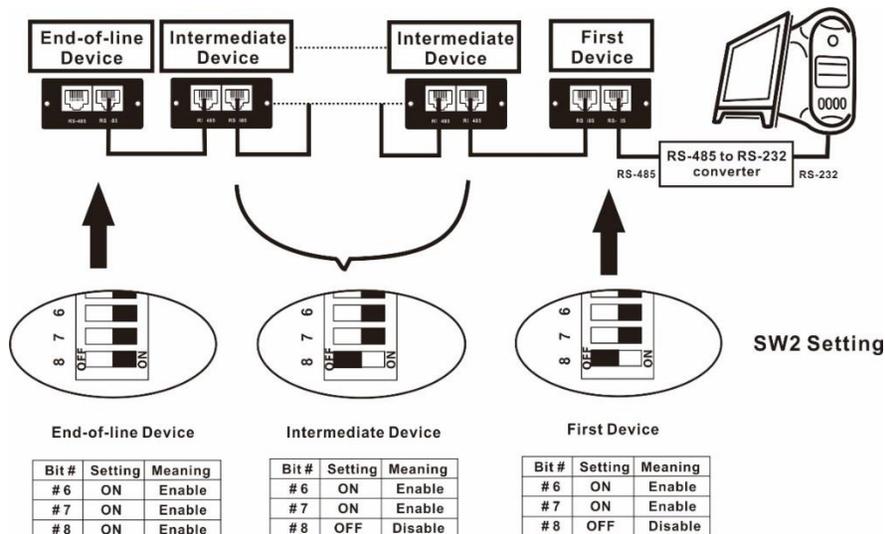
Software Monitoring

1. Install SchneiderUPS monitoring software in your PC. After software is installed successfully, its software shortcut icon "" will appear on the system tray.

2. Select "" ➔ modbus communication setting. You can set up Modbus related parameters here. Refer to "SchneiderUPS" software user manual for the detailed settings.
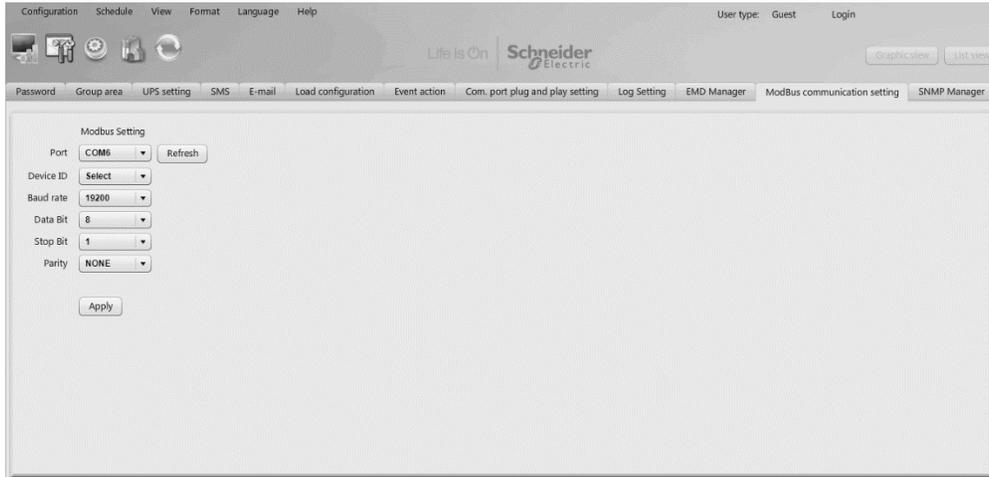
3. After configurations are complete, you may monitor each Modbus device by clicking "View" function on task bar.
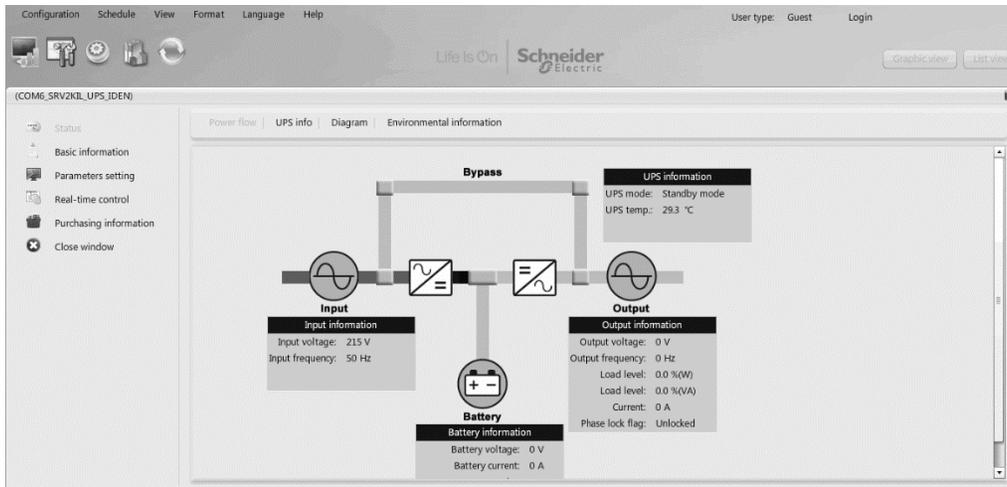
APPENDIX: Machine ID Configuration Table (SW1)

√=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	×	×	×	√	×	√	×	×
41	√	×	×	√	×	√	×	×
42	×	√	×	√	×	√	×	×
43	√	√	×	√	×	√	×	×
44	×	×	√	√	×	√	×	×
45	√	×	√	√	×	√	×	×
46	×	√	√	√	×	√	×	×
47	√	√	√	√	×	√	×	×
48	×	×	×	×	√	√	×	×

49	√	×	×	×	√	√	×	×
50	×	√	×	×	√	√	×	×
51	√	√	×	×	√	√	×	×
52	×	×	√	×	√	√	×	×
53	√	×	√	×	√	√	×	×
54	×	√	√	×	√	√	×	×
55	√	√	√	×	√	√	×	×
56	×	×	×	√	√	√	×	×
57	√	×	×	√	√	√	×	×
58	×	√	×	√	√	√	×	×
59	√	√	×	√	√	√	×	×
60	×	×	√	√	√	√	×	×
61	√	×	√	√	√	√	×	×
62	×	√	√	√	√	√	×	×
63	√	√	√	√	√	√	×	×
64	×	×	×	×	×	×	√	×
65	√	×	×	×	×	×	√	×
66	×	√	×	×	×	×	√	×
67	√	√	×	×	×	×	√	×
68	×	×	√	×	×	×	√	×
69	√	×	√	×	×	×	√	×
70	×	√	√	×	×	×	√	×
71	√	√	√	×	×	×	√	×
72	×	×	×	√	×	×	√	×
73	√	×	×	√	×	×	√	×
74	×	√	×	√	×	×	√	×
75	√	√	×	√	×	×	√	×
76	×	×	√	√	×	×	√	×
77	√	×	√	√	×	×	√	×
78	×	√	√	√	×	×	√	×
79	√	√	√	√	×	×	√	×
80	×	×	×	×	√	×	√	×
81	√	×	×	×	√	×	√	×
82	×	√	×	×	√	×	√	×
83	√	√	×	×	√	×	√	×
84	×	×	√	×	√	×	√	×
85	√	×	√	×	√	×	√	×
86	×	√	√	×	√	×	√	×
87	√	√	√	×	√	×	√	×
88	×	×	×	√	√	×	√	×
89	√	×	×	√	√	×	√	×
90	×	√	×	√	√	×	√	×
91	√	√	×	√	√	×	√	×
92	×	×	√	√	√	×	√	×
93	√	×	√	√	√	×	√	×
94	×	√	√	√	√	×	√	×
95	√	√	√	√	√	×	√	×
96	×	×	×	×	×	√	√	×
97	√	×	×	×	×	√	√	×
98	×	√	×	×	×	√	√	×
99	√	√	×	×	×	√	√	×
100	×	×	√	×	×	√	√	×
101	√	×	√	×	×	√	√	×
102	×	√	√	×	×	√	√	×

103	√	√	√	×	×	√	√	×
104	×	×	×	√	×	√	√	×
105	√	×	×	√	×	√	√	×
106	×	√	×	√	×	√	√	×
107	√	√	×	√	×	√	√	×
108	×	×	√	√	×	√	√	×
109	√	×	√	√	×	√	√	×
110	×	√	√	√	×	√	√	×
111	√	√	√	√	×	√	√	×
112	×	×	×	×	√	√	√	×
113	√	×	×	×	√	√	√	×
114	×	√	×	×	√	√	√	×
115	√	√	×	×	√	√	√	×
116	×	×	√	×	√	√	√	×
117	√	×	√	×	√	√	√	×
118	×	√	√	×	√	√	√	×
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120	×	×	×	√	√	√	√	×
121	√	×	×	√	√	√	√	×
122	×	√	×	√	√	√	√	×
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124	×	×	√	√	√	√	√	×
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126	×	√	√	√	√	√	√	×
127	√	√	√	√	√	√	√	×
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129	√	×	×	×	×	×	×	√
130	×	√	×	×	×	×	×	√
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132	×	×	√	×	×	×	×	√
133	√	×	√	×	×	×	×	√
134	×	√	√	×	×	×	×	√
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137	√	×	×	√	×	×	×	√
138	×	√	×	√	×	×	×	√
139	√	√	×	√	×	×	×	√
140	×	×	√	√	×	×	×	√
141	√	×	√	√	×	×	×	√
142	×	√	√	√	×	×	×	√
143	√	√	√	√	×	×	×	√
144	×	×	×	×	√	×	×	√
145	√	×	×	×	√	×	×	√
146	×	√	×	×	√	×	×	√
147	√	√	×	×	√	×	×	√
148	×	×	√	×	√	×	×	√
149	√	×	√	×	√	×	×	√
150	×	√	√	×	√	×	×	√
151	√	√	√	×	√	×	×	√
152	×	×	×	√	√	×	×	√
153	√	×	×	√	√	×	×	√
154	×	√	×	√	√	×	×	√
155	√	√	×	√	√	×	×	√
156	×	×	√	√	√	×	×	√

157	√	×	√	√	√	×	×	√
158	×	√	√	√	√	×	×	√
159	√	√	√	√	√	×	×	√
160	×	×	×	×	×	√	×	√
161	√	×	×	×	×	√	×	√
162	×	√	×	×	×	√	×	√
163	√	√	×	×	×	√	×	√
164	×	×	√	×	×	√	×	√
165	√	×	√	×	×	√	×	√
166	×	√	√	×	×	√	×	√
167	√	√	√	×	×	√	×	√
168	×	×	×	√	×	√	×	√
169	√	×	×	√	×	√	×	√
170	×	√	×	√	×	√	×	√
171	√	√	×	√	×	√	×	√
172	×	×	√	√	×	√	×	√
173	√	×	√	√	×	√	×	√
174	×	√	√	√	×	√	×	√
175	√	√	√	√	×	√	×	√
176	×	×	×	×	√	√	×	√
177	√	×	×	×	√	√	×	√
178	×	√	×	×	√	√	×	√
179	√	√	×	×	√	√	×	√
180	×	×	√	×	√	√	×	√
181	√	×	√	×	√	√	×	√
182	×	√	√	×	√	√	×	√
183	√	√	√	×	√	√	×	√
184	×	×	×	√	√	√	×	√
185	√	×	×	√	√	√	×	√
186	×	√	×	√	√	√	×	√
187	√	√	×	√	√	√	×	√
188	×	×	√	√	√	√	×	√
189	√	×	√	√	√	√	×	√
190	×	√	√	√	√	√	×	√
191	√	√	√	√	√	√	×	√
192	×	×	×	×	×	×	√	√
193	√	×	×	×	×	×	√	√
194	×	√	×	×	×	×	√	√
195	√	√	×	×	×	×	√	√
196	×	×	√	×	×	×	√	√
197	√	×	√	×	×	×	√	√
198	×	√	√	×	×	×	√	√
199	√	√	√	×	×	×	√	√
200	×	×	×	√	×	×	√	√
201	√	×	×	√	×	×	√	√
202	×	√	×	√	×	×	√	√
203	√	√	×	√	×	×	√	√
204	×	×	√	√	×	×	√	√
205	√	×	√	√	×	×	√	√
206	×	√	√	√	×	×	√	√
207	√	√	√	√	×	×	√	√
208	×	×	×	×	√	×	√	√
209	√	×	×	×	√	×	√	√
210	×	√	×	×	√	×	√	√

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

Schneider Electric Worldwide Customer Support

Customer support for this or any other Schneider Electric product is available at no charge in any of the following ways:

- Visit the Schneider Electric website to access documents in the Schneider Electric Knowledge Base and to submit customer support requests.
  - **www.apc.com** (Corporate Headquarters)
    Connect to localized Schneider Electric websites for specific countries, each of which provides customer support information.
  - **www.apc.com/support/**
    Global support searching Schneider Electric Knowledge Base and using e-support.
- Contact the Schneider Electric Customer Support Center by telephone or e-mail.
  - Local, country specific centers: go to **www.apc.com/support/contact**
    for contact information.

For information on how to obtain local customer support, contact the Schneider Electric representative or other distributor from whom you purchased your Schneider Electric product.