UC300 IoT Controller

Communication Protocol
(for Cellular Version)

Revision History

Date	Doc Version	Description
Apr. 6, 2022	V 1.0	Initial version
May 25, 2023	V 1.1	1. Add DO control duration time 2. Add DI debounce time control command

Contents

1. Overview

UC300 supports transmission to Milesight IoT Cloud, AWS/MQTT server, TCP/UDP server and supports SMS report/control. This document is only for introduction and communication structure explanation.

Note: All explanations and examples in this document are based on HEX format except for initial uplinks to AWS/MQTT.

2. AWS/MQTT Topics

When UC300 is connected to AWS/MQTT server, the bi-directional communication uses different topics.

2.1 Uplink Topic

There are 2 kinds of uplink topics. Among them, dev topic only uploads status once after the device connects to server. [SN] means device serial number which can be found on the device label or check on ToolBox page. Besides, you can mark + in topic as a single-level wildcard to subscribe all topics: **uc/[SN]/ucp/14/+**

Topic types and corresponding content:

Topic	Content
uc/[SN]/ucp/14/status	Regular reports, status change, attributes, etc.
uc/[SN]/ucp/14/dev	“online”

2.2 Downlink Topic

It’s allowed for server to publish downlink commands to UC300 to get device info or control the device.

Purpose	Topic
Send Command	uc/[SN]/ucp/14/cmd/update

If you need to know whether the downlink commands work, please register below topics:

Topic	Description
uc/[SN]/ucp/14/+/update/accepted	Upload replies when commands are valid
uc/[SN]/ucp/14/+/update/rejected	Upload empty package when device receives invalid commands

3. Uplink Payload

All data are based on following format:

Start	Data Type	Packet Length	Data	End
7E	F2: Change Report F3: Attribute Report F4: Regular Report F6: RS232 DTU Report F7: Alarm Report	2 Bytes	Mutable	7E

3.1 Attribute Report (F3)

UC300 only reports attribute once after being connected to the server. The data part format is as below:

Parameter	Length (byte)	Description
Packet Version	1	Defined by Milesight IoT
UCP Version	1	Defined by Milesight IoT, 0.1 for resolution
SN	16	Device SN
Hardware Version	4	Hex to ASCII
Firmware Version	4	Hex to ASCII
IMEI	15	Module identifier
IMSI	15	SIM card identifier
ICCID	20	IC card identifier

Example:

7E F3 5100 0A 14 36 34 34 38 43 30 34 39 30 30 37 31 30 30 31 38 30313130 30313031 38 36 34 34 35 30 30 34 30 32 33 39 35 33 37 34 36 30 31 31 33 33 32 31 35 34 39 34 34 37 38 39 38 36 31 31 32 30 32 38 35 30 33 36 39 37 33 37 33 34 *7E*	
Start	7E
Data Type	F3: Attribute Report
Packet Length	51 00 => 00 51 = 81
Packet Version	0A => 10
UCP Version	14 = V1.4
SN	36 34 34 38 43 30 34 39 30 30 37 31 30 30 31 38 = 6448C04900710018
Hardware Version	30 31 31 30 => 0110 = V1.1

Firmware Version	30 31 30 31 => 0101 = V1.1
IMEI	38 36 34 34 35 30 30 34 30 32 33 39 35 33 37 = 864450040239537
IMSI	34 36 30 30 37 37 35 39 32 33 39 34 33 35 38 00 = 4600775923943580
ICCID	38 39 38 36 31 31 32 30 32 38 35 30 33 36 39 37 33 37 33 34 = 89861120285036973373
End	7E

3.2 Regular Report (F4)

UC300 only reports data collected from sensors according to reporting interval, default interval is 1800 s (30 minutes). UC300 only upload data which data interfaces are enabled. The data part format is as below:

<table>
<tr><th>Parameter</th><th>Length (byte)</th><th>Description</th></tr>
<tr><td>Packet Version</td><td>1</td><td>Defined by Milesight IoT</td></tr>
<tr><td>Timestamp</td><td>4</td><td>Unix timestamp</td></tr>
<tr><td>Signal Strength</td><td>1</td><td>Unit: asu; dBm = -113 + 2 * asu</td></tr>
<tr><td>Toggles of Digital Outputs</td><td>1</td><td>00: DO1 and DO2 disabled
01: DO1 enable, DO2 disabled
02: DO1 disable, DO2 enabled
03: DO1and DO2 enabled</td></tr>
<tr><td>Digital Output Status</td><td>0~1</td><td>00: DO1 and DO2 closed
01: DO1 open, DO2 closed
02: DO1 closed, DO2 open
03: DO1 and DO2 open</td></tr>
<tr><td>Toggles of Digital Inputs</td><td>1</td><td>8 bits for 4 statuses of DI, each DI uses 2 bits:
<table>
<tr><th>Bit</th><th>Interface</th><th>Description</th></tr>
<tr><td>7-6</td><td>DI4</td><td rowspan="4">00: disable
01: Digital Input mode
10: Counter mode-stop counting
11: Counter mode-pulse-start counting</td></tr>
<tr><td>5-4</td><td>DI3</td></tr>
<tr><td>3-2</td><td>DI2</td></tr>
<tr><td>1-0</td><td>DI1</td></tr>
</table></td></tr>
<tr><td>Digital Input Status</td><td>0~1</td><td>Every bit indicates one input status:
<table>
<tr><th>Bit</th><th>Interface</th><th>Description</th></tr>
<tr><td>7-4</td><td>Reversed</td><td rowspan="4">1: DI status is high
0: DI status is low</td></tr>
<tr><td>3</td><td>DI4</td></tr>
<tr><td>2</td><td>DI3</td></tr>
<tr><td>1</td><td>DI2</td></tr>
</table></td></tr>
</table>

<table>
<tr><td></td><td></td><td>
<table>
<tr><td>0</td><td>DI1</td><td></td></tr>
</table>
</td></tr>
<tr><td>Counter Value</td><td>0~16</td><td>Every pulse counter value length is 4 Bytes</td></tr>
<tr><td>Toggles of Analog Inputs</td><td>2</td><td>
Every 2 bits to indicate one input status:
Byte 1:
<table>
<tr><th>Bit</th><th>Interface</th><th>Description</th></tr>
<tr><td>6-7</td><td>0~10V_2</td><td rowspan="4">00: disable
01: collected successfully
10: collect failed</td></tr>
<tr><td>4-5</td><td>0~10V_1</td></tr>
<tr><td>2-3</td><td>4~20mA_2</td></tr>
<tr><td>0-1</td><td>4~20mA_1</td></tr>
</table>
Byte 2:
<table>
<tr><th>Bit</th><th>Interface</th><th>Description</th></tr>
<tr><td>6-7</td><td rowspan="2">Reserved</td><td rowspan="4">00: disabled
01: collected successfully
10: collect failed</td></tr>
<tr><td>4-5</td></tr>
<tr><td>2-3</td><td>PT100_2</td></tr>
<tr><td>0-1</td><td>PT100_1</td></tr>
</table>
</td></tr>
<tr><td>Analog Input Value</td><td>0~24</td><td>Every analog input’s data length is 4 bytes, data type: signed float</td></tr>
<tr><td>Modbus RS485</td><td>0~288
(Every Modbus channel 0~18)</td><td>
Every Modbus channel is consisted of:
Channel ID & Data Type (Byte 1) + Register Setting (Byte 2) + Modbus Data (Mutable)
Byte 1: Channel ID & Data Type
Bit 4-7: Channel ID
<table>
<tr><th>Code</th><th>Channel ID</th></tr>
<tr><td>0</td><td>Channel 1</td></tr>
<tr><td>1</td><td>Channel 2</td></tr>
<tr><td>2</td><td>Channel 3</td></tr>
<tr><td>3</td><td>Channel 4</td></tr>
<tr><td>4</td><td>Channel 5</td></tr>
<tr><td>5</td><td>Channel 6</td></tr>
<tr><td>6</td><td>Channel 7</td></tr>
<tr><td>7</td><td>Channel 8</td></tr>
<tr><td>8</td><td>Channel 9</td></tr>
<tr><td>9</td><td>Channel 10</td></tr>
<tr><td>A</td><td>Channel 11</td></tr>
<tr><td>B</td><td>Channel 12</td></tr>
<tr><td>C</td><td>Channel 13</td></tr>
<tr><td>D</td><td>Channel 14</td></tr>
<tr><td>E</td><td>Channel 15</td></tr>
<tr><td>F</td><td>Channel 16</td></tr>
</table>
Bit 0-3: Data Type
</td></tr>
</table>

Code	Data type
0	Coil
1	Discrete
2	Input16
3	Hold16
4	Hold32
5	Hold_float
6	Input32
7	Input_float
8	Input_int32_with upper 16 bits
9	Input_int32_with lower 16 bits
A	Hold_int32_with upper 16 bits
B	Hold_int32_with lower 16 bits

Byte 2: Register Setting

Bit	Description
7	0: unsigned, 1: signed
6-4	Decimal Place
3	0: collected successfully 1: collect failed
2-0	Quantity (1-4)

Example:

1. All data interfaces are disabled.

7E F4 0F00 0A 7A805762 14 00 00 0000 *7E*	
Start	7E
Data Type	F4: Regular Report
Packet Length	0F 00 => 00 0F = 15 Bytes
Packet Version	0A => 10
Timestamp	7A 80 57 62 => 62 57 80 7A = 1649901690 Time is 2022/04/14 10:01:30 (GMT+8)
Signal Strength	14 = 20 asu
Toggles of Digital Outputs	00: DO1 and DO2 disable
Toggles of Digital Inputs	00 => 00 00 00 00 4 digital inputs are disabled

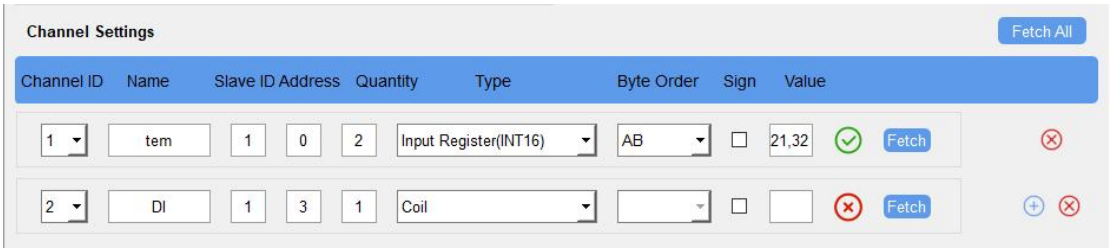
Toggles of Analog Inputs	00 00 => 00 00 00 00 6 analog inputs are disabled
End	7E

2. Data interfaces are set as below:
Digital outputs: both are enabled
Digital inputs: DI1 disable, DI2 sets as counter-stop mode, DI 3 sets as digital input mode, DI 4 sets as counter-start mode
Analog inputs: 4-20mA_1, PT100_1 and PT100_2 are enabled
RS485: disabled

7E F4 2500 0A 7A805762 11 0301 D8000000000015000000 0105000000009A99D94100000000 *7E*	
Start	7E
Data Type	F4: Regular Report
Packet Length	25 00 => 00 25 = 37 Bytes
Packet Version	0A=> 10
Timestamp	7A 80 57 62 => 62 57 80 7A = 1649901690 Time is 2022/04/14 10:01:30 (GMT+8)
Signal Strength	11 = 17 asu
Toggles of DigitalOutputs	03: DO1and DO2 enable
Digital Output Status	01: DO1 open, DO2 close
Toggles of Digital Inputs	D8 => 11 01 10 00 Bit 0-1: 00 => DI1 disable Bit 2-3: 10 => DI2 counter-stop mode Bit 4-5: 01 => DI 3 digital input mode Bit 6-7: 11 => DI 4 => counter-start mode
Digital Input Status	00 => 0000 0000 Bit2: 0 => DI 3 is low
Counter Value	00 00 00 00 => 0 (DI2 counter value) 15 00 00 00 => 00 00 00 15=21(DI 4 counter value)
Toggles of Analog Inputs	Byte 1: 01 => 00 00 00 01 4-20mA_1 is enabled and collected successfully Byte 2: 05 => 00 00 01 01 PT100_1 and PT100_2 are enabled and collected successfully
Analog Input Value	00 00 00 00 => 0 (4-20mA_1) 66 66 DE 41 => 41 DE 66 66 = 27.8 (PT100_1) 00 00 00 00 => 0 (PT100_2)

End	7E

3. Only RS485 is enabled and read Modbus data as below settings:



7E F4 1800 0A 7A805762 11 00 00 0000 022A15002000102100 *7E*	
Start	7E
Data Type	F4: Regular Report
Packet Length	18 00 => 00 18 = 24 Bytes
Packet Version	0A => 10
Timestamp	7A 80 57 62 => 62 57 80 7A = 1649901690 (Unix timestamp) Time is 2022/04/14 10:01:30 (GMT+8)
Signal Strength	11=17 asu
Toggles of Digital Outputs	00: DO1 and DO2 disable
Toggles of Digital Inputs	00 => 00 00 00 00 4 digital inputs are disabled
Toggles of Analog Inputs	00 00 => 00 00 00 00 6 analog inputs are disabled
Modbus RS485	**Channel 1: 022A15002000** Byte 1: 02 => Channel 1, input register (INT16) Byte 2: 2A => 0010 1010 Bit7 = 0 => unsigned, Bit3 = 1 => collected successfully, Bit2-0: 010 => 2 (Quantity) Data: 15 00 => 00 15 = 21, 20 00 => 00 20 = 32 **Channel 2: 102100** Byte 1: 10 => Channel 1, coil Byte 2: 21=> 0010 0001 Bit7 = 0 => unsigned, Bit3 = 0 => collect failed, Bit2-0: 001 => 1 (Quantity)
End	7E

Note: When data type is holding register or input register, ToolBox can set different byte order. Take below Modbus register response from RS485 sensors as example:

Register Address	Value (Hex)
0	00 15
1	00 20

When using different byte orders, you can use ToolBox to fetch different results and the device will upload data with little endian order.

Data Type	Byte Order	Fetch Result	Uplink (HEX)
Holding/Input Register (INT16)	AB	21 (0x15)	15 00 (BA)
	BA	5376 (0x1500)	00 15 (AB)
Holding/Input Register (INT32)	ABCD	1376288 (0x00150020)	20 00 15 00 (DCBA)
	CDAB	2097173 (0x00200015)	15 00 20 00 (BADC)
	BADC	352329728 (0x15002000)	00 20 00 15 (CDAB)
	DCBA	536876288 (0x20001500)	00 15 00 20 (ABCD)
Holding/Input Register (INT32 with upper 16 bits)	/	21 (0x15)	15 00 00 00
Holding/Input Register (INT32 with lower 16 bits)	/	32 (0x20)	20 00 00 00

3.3 Change Report (F2)

If any of digital input/output state is changed, UC300 will send this change report to server. The data part format is as below:

<table>
<tr><th>Parameter</th><th>Length (byte)</th><th>Description</th></tr>
<tr><td>Packet Version</td><td>1</td><td>Defined by Milesight IoT</td></tr>
<tr><td>Timestamp</td><td>4</td><td>Unix timestamp</td></tr>
<tr><td>Toggles of Digital Inputs</td><td>1</td><td>Every bit indicates one input status:
<table>
<tr><th>Bit</th><th>Interface</th><th>Description</th></tr>
<tr><td>7-4</td><td>Reversed</td><td rowspan="5">1: digital input mode enable
0: disable or pulse counter mode</td></tr>
<tr><td>3</td><td>DI4</td></tr>
<tr><td>2</td><td>DI3</td></tr>
<tr><td>1</td><td>DI2</td></tr>
<tr><td>0</td><td>DI1</td></tr>
</table></td></tr>
<tr><td>Digital Input Status</td><td>0~1</td><td>Every bit indicates one input status:
<table>
<tr><th>Bit</th><th>Interface</th><th>Description</th></tr>
<tr><td>7-4</td><td>Reversed</td><td rowspan="5">1: DI status is high
0: DI status is low</td></tr>
<tr><td>3</td><td>DI4</td></tr>
<tr><td>2</td><td>DI3</td></tr>
<tr><td>1</td><td>DI2</td></tr>
<tr><td>0</td><td>DI1</td></tr>
</table></td></tr>
<tr><td>Toggles of Digital Outputs</td><td>1</td><td>00: DO1 and DO2 disable
01: DO1 enable, DO2 disable</td></tr>
</table>

		02: DO1 disable, DO2 enable 03: DO1and DO2 enable
Digital Output Status	0~1	00: DO1 and DO2 close 01: DO1 open, DO2 close 02: DO1 close, DO2 open 03: DO1 and DO2 open

Example: DO2 changes to open.

7E F2 0E00 0A 7A805762 0500 0302 *7E*	
Start	7E
Data Type	F2: Change Report
Packet length	0E 00=>00 0E=15 Bytes
Protocol Version	0A => 10
Timestamp	7A 80 57 62=>62 57 80 7A = 1649901690 Time is 2022/04/14 10:01:30 (GMT+8)
Toggles of Digital Inputs	05 => 0101 DI 1 and DI 3 are enabled as digital inputs
Digital Input Status	00 => 0000 DI 1 and DI 3 are low
Toggles of Digital Outputs	03: DO1and DO2 enable
Digital Output Status	02: DO1 close, DO2 open
End	7E

3.4 RS232 DTU Report (F6)

When RS232 is enabled and connects to TCP/UDP server, UC300 will send DTU report with RS232 uplinks. Besides, if "Register String" in RS232 setting is not left blank, UC300 will send the strings first when connected to the server.

The data part format is as below:

Parameter	Length (byte)	Description
Packet Version	1	Defined by Milesight IoT
Server No.	1	01
Server Address Length	1	Unsigned number, the length of IP address or domain name
Server Address	8~128	IP address or domain name
Server Port	2	0-65535
Connection Status	1	00 for "disconnected", 01 for "connected"

Server No.	1	02
Server Length	1	Unsigned number, the length of IP address or domain name
Server Address	8~128	IP address or domain name
Server Port	2	Port number
Connection Status	1	00 for “disconnected”, 01 for “connected”

Example:

7E F6 2A00 0A 010D 3131322E34382E31392E313833 4B47 01 020D 3131322E34382E31392E313833 4A47 00 *7E*	
Start	7E
Data Type	F6: DTU Report
Packet Length	2A 00 => 00 2A = 42
Packet Version	0A => 10
Server No.	01
Server Address Length	0D = 13 Bytes
Server Address	31 31 32 2E 34 38 2E 31 39 2E 31 38 33 = 112.48.19.183
Server Port	4B 47 = 18251
Connection Status	01: connected
Server No.	02
Server Address Length	0D = 13 Bytes
Server Address	31 31 32 2E 34 38 2E 31 39 2E 31 38 33 = 112.48.19.183
Server Port	4A 47 = 18250
Connection Status	00: disconnected
End	7E

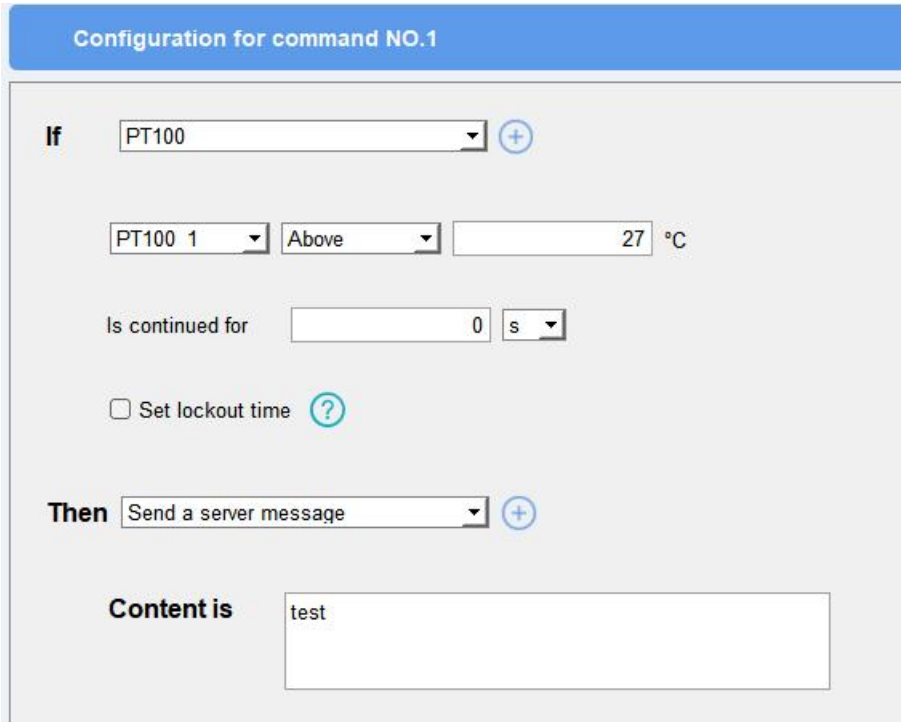
3.5 Alarm Report (F7)

When you add a IF-THEN command and set the THEN condition as “Send a server message”, UC300 will send the alarm report which include your custom content.

The data part format is as below:

Parameter	Length (byte)	Description
Packet Version	1	Defined by Milesight IoT
Timestamp	4	Unix timestamp
Custom Content	Mutable	Custom alert message

Example: when IF condition triggers, send a message “test”.



7E F7 0E00 0A 7A805762 74657374 *7E*	
Start	7E
Data Type	F2: Alarm Report
Packet Length	0E 00=>00 0E=14 Bytes
Packet version	0A=>10
Timestamp	7A 80 57 62=>62 57 80 7A= 1649901690 Time is 2022/04/14 10:01:30 (GMT+8)
Custom Content	74 65 73 74=”test”
End	7E

4. Downlink Command

Downlink command is used for controlling the UC300 via server remotely. If you use MQTT/AWS server, please subscribe corresponding downlink topics to send commands. The first command string should be password validation; if not, any of follow-up commands will not take effect. All commands are based on the following format:

Start	Type	Length	Command	End
7E	0x	2 Bytes	Mutable	7E

Reply format:

Start	Type	Length (2 Bytes)	Data	End
7E	8x	2 Bytes	Mutable	7E

4.1 Password Validation (01/81)

Password validation is necessary before sending other commands; if not, any of follow-up commands will not take effect.

Request format:

Start	Type	Length	Command	End
7E	01	0B 00	Device Password (6 digits) Default is 123456	7E

Reply format:

Start	Type	Length	Result	End
7E	81	06 00	00: password correct 01: password wrong	7E

Example:

7E 01 0B 00 31 32 33 34 35 36 *7E*	
Start	7E
Type	01: password validation
Packet Length	0B 00 => 00 0B = 11
Password	31 32 33 34 35 36 => 123456
End	7E

4.2 Configure the Device (05/85) Change Password (11)

You can use below command to change device password.

Request format:

Start	Type	Length	Command Type ID	Old Password	New Password	End
7E	05	12 00	11	6 Bytes	6 Bytes	7E

Reply format:

Start	Type	Length	Result	End
7E	85	06 00	00: changed successfully 01: change failed	7E

Example:

7E 05 1200 11 313233343536 353530383230 *7E*	
Start	7E
Type	05: control the device
Packet Length	12 00 => 00 12 = 18 Bytes
Command Type ID	11
Old Password	31 32 33 34 35 36 => 123456
New Password	35 35 30 38 32 30 => 550820
End	7E

Reply:

7E 85 0600 00 *7E*	
Start	7E
Data Type	85
Packet Length	06 00 => 00 06 = 6 Bytes
Result	00: change success
End	7E

4.3 Reboot UC300 (02/82)

The device will restart soon after it responds with this command. After reboot, the device will upload "online" status, attribute report and regular reports.

Request:

Start	Type	Length	End
7E	02	05 00	7E

4.4 Parameter Query (04/84)

You can use below commands to query device parameters.

Request format:

Start	Type	Length	Query ID	End
7E	04	06 00	0E: Network Signal 72: Device SN 73: Hardware Version 74: Software Version	7E

Reply format:

Start	Type	Length	Query Result	End
7E	84	2 Bytes	Mutable	7E

Example:

Parameter	Command	Reply	Description
Signal strength	*7E 04* 06 00 0E *7E*	*7E 84* 06 00 1E *7E*	1E=30asu
Device SN	*7E 04* 06 00 72 *7E*	*7E 84* 15 00 36 34 34 35 43 31 36 36 31 32 39 37 30 30 31 33 *7E*	36 34 34 35 43 31 36 36 31 32 39 37 30 30 31 33 => 6445C16612970013
Hardware version	*7E 04* 06 00 73 *7E*	*7E 84* 09 00 30 31 31 30 *7E*	30 31 31 30 => 0110 = V1.1
Software version	*7E 04* 06 00 74 *7E*	*7E 84* 09 00 30 31 30 31 *7E*	30 31 30 31=> 0101 = V1.1

4.5 Configure the Device (05/85) Control Digital Output (10)

You can use below command to control the digital output status. After change success, UC300 will also upload change report.

Request format:

Start	Type	Length	Command	End
7E	05	08 00	Byte 1: 10 Byte 2: 01=DO1, 02=DO2 Byte 3: 00: close; 01: open	7E

Start	Type	Length	Command	End
7E	05	0c 00	Byte 1: 10 Byte 2: 01=DO1, 02=DO2 Byte 3: 00: close; 01: open Byte 4-7: duration time (unit: ms)	7E

Reply format:

Start	Type	Length	Result	End
7E	85	06 00	00: controlled successfully 01: control failed	7E

Example:

Control DO1 to open continuously

7E 05 0800 100101 *7E*	
Start	7E
Data Type	05: control the device
Packet Length	08 00 => 00 08 = 8 Bytes
Command	10: control DO 01: DO1 01: open
End	7E

Control DO1 to open 6s (6000ms)

7E 05 0c00 10010170170000 *7E*	
Start	7E
Data Type	05: control the device
Packet Length	08 00 => 00 08 = 8 Bytes
Command	10: control DO 01: DO1 01: open 70 17 00 00=>00 00 17 70=6000ms
End	7E

Reply:

7E 85 0600 00 *7E*	
Start	7E
Data Type	85
Packet Length	06 00 => 00 06 = 6 Bytes
Result	00: control success
End	7E

4.6 Configure the Device (05/85) Control Debounce Time (C6)

DI/DO status or pulse counter value will not change within the debounce time. The default debounce time is 3s (3000ms).

Request format:

Start	Type	Length	Command	End
7E	05	0B 00	Byte 1: c6 Byte 2: 01=DI1, 02=DI2, 03=DI3, 04=DI4, 05=DO1, 06=DO2 Byte 3-6: debounce time (range: 0-6000 ms)	7E

Reply format:

Start	Type	Length	Result	End
7E	85	06 00	00: controlled successfully 01: control failed	7E

Example: Control DI3 debounce time as 6s (6000ms)

7E 05 0B00 C60370170000 *7E*	
Start	7E
Data Type	05: control the device
Packet Length	0B 00 => 00 0B = 11 Bytes
Command	03: DI3 70 17 00 00=>00 00 17 70=6000ms
End	7E

Reply:

7E 85 0600 00 *7E*	
Start	7E
Data Type	85
Packet Length	06 00 => 00 06 = 6 Bytes
Result	00: control success
End	7E

5. SMS

UC300 supports SMS report or control via UCP/General format SMS. Please go to **ToolBox > Application > SMS** to configure the SMS settings.

5.1 General Format

5.1.1 SMS Report

A typical format of SMS report divides every section with a semicolon (;) and each status in the section with a comma (,).

Example:

2022-4-18 10:24:55 Monday; 21aus; 4G; DO, ,Open; DI,De-Activate,12,Activate, ; 4-20mA, ,0.0; 0-10V,0.0,0.0; PT100,27.2,0.0; channel,{1,0},{0}	
Date & Time	2022-4-18 10:24:55 Monday
Network Signal	21 aus

Network Type	4G
DO Toggles and Status	DO1 is not enabled, DO2 is open
DI Toggles and Status/Readings	DI1 is input as low (De-Activate), DI2 is counter and the counting value is 12 pulses, DI3 is input as high (Activate), DI4 is not enabled
4-20mA Toggles and Readings	4~20mA_1 is not enabled, 4~20mA_2 read 0.0
0-10V Toggles and Readings	0~10V_1 read 0.0, 0~10V_2 read 0.0
PT100 Toggles and Readings	PT100_1 read 27.2 Celsius degree, PT100_2 read 0.0
RS485 Channels Readings	{1,0} = Channel 1 read 1 and 0 {0} = Channel 2 fails to read values

5.1.2 SMS Control

When sending SMS control command, ensure your phone number is control center number and add device password before command. It's suggested to enable "Success Confirmation " or "Failure Confirmation" via ToolBox to get a "Success" or "Failure" as acknowledge response from UC300.

- **Control DO**

508200;1,0,0	
Password Validation	508200 as the login password on ToolBox
DO	1 = DO1
Desired State	0 = Closed (1 for Open)
Continuous Time (s)	0 = Always

Confirmation after acknowledge response:

DO,Closed,Open; DI,De-Activate,De-Activate,De-Activate,De-Activate;	
DO,Closed,Open;	DO1 is closed, DO2 is open
DI,De-Activate,De-Activate,De-Activate,De-Activate;	4 DIs are low

- **Status Query**

UC300 responds with latest readings in format of regular report.

550820;status	
Password Validation	508200 as the login password on ToolBox
Queried Object	SMS regular report about data interfaces

- **Number Check**

Command	Description
[password];control number	Check device control number
[password];number	Check the device numbers to receive SMS regular reports

- **Number Modification**

Command	Description
[password];add control number,*[phone number]*	Add the phone number into Control Number list, one device can only set 2 numbers at most
[password];delete control number,*[phone number]*	Remove the phone number from Control Number list
[password];add number,*[phone number]*	Add the phone number to receive SMS regular reports, , one device can only set 6 numbers at most
[password];add number,*[phone number]*	Remove the phone number for receiving SMS reports

- **Reboot Device**

508200;restart	
Password Validation	508200 as the login password on ToolBox
Command	Restart device

5.2 UCP Format

When setting SMS messaging protocol as "UCP", you will receive UCP format SMS, please refer to chapter 3 to decode the SMS content. If you need to send SMS control command, please refer to chapter 4. When sending an SMS command to UC300, password validation is necessary in the front of command like **[password];MESSAGE** and the letter should be in capitals.

Example:

Command	Description
123456;7E0508001001017E	Control DO1 to open

-END-