

Advantech AE Technical Share Document

Date	2016/09/22	SR#	1-2568220072
Category	<input checked="" type="checkbox"/> FAQ <input type="checkbox"/> SOP	Related OS	N/A
Abstract	ADAM-4000&ADAM-6000, How to read DI or read/write DO by one word?		
Keyword	REST, HTTP		
Related Product	ADAM-6000, ADAM-4000		

■ **Problem Description:**

This document shows how to read DI or read/write DO by one word.

■ **Answer:**

According to the user manual, Some of Modules provides a Modbus address to read DI or read/write DO.

40301	All	DI Value	Read
40303	All	DO Value	R/W

However, some modules don't. In fact, the customer still can do that by the Modbus function code.

Please refer to Simply Modbus Website: <http://simplymodbus.ca/index.html>

The Function Code 01 can read the data at once and Function Code 15 can write data at one by one word. Because all number of DO/DI in ADAM-series module is not over 16, user can ask the value back by one word (2byte).

Read Coil Status (FC=01)

Request

This command is requesting the ON/OFF status of discrete coils # 20 to 56 from the slave device with address 17.

```
11 01 0013 0025 0E84
```

11: The Slave Address (11 hex = address17)

01: The Function Code 1 (read Coil Status)

0013: The Data Address of the first coil to read.

(0013 hex = 19 , + 1 offset = coil #20)

0025: The total number of coils requested. (25 hex = 37, inputs 20 to 56)

0E84: The CRC (cyclic redundancy check) for error checking.

Response

```
11 01 05 CD6BB20E1B 45E6
```

11: The Slave Address (11 hex = address17)

01: The Function Code 1 (read Coil Status)

05: The number of data bytes to follow (37 Coils / 8 bits per byte = 5 bytes)

CD: Coils 27 - 20 (1100 1101)

6B: Coils 35 - 28 (0110 1011)

B2: Coils 43 - 36 (1011 0010)

0E: Coils 51 - 44 (0000 1110)

1B: 3 space holders & Coils 56 - 52 (0001 1011)

45E6: The CRC (cyclic redundancy check).

Force Multiple Coils (FC=15)

Request

This command is writing the contents of a series of 10 discrete coils from #20 to #29 to the slave device with address 17.

```
11 0F 0013 000A 02 CD01 BF0B
```

11: The Slave Address (11 hex = address17)

0F: The Function Code 15 (Force Multiple Coils, 0F hex = 15)

0013: The Data Address of the first coil.

(0013 hex = 19 , + 1 offset = coil #20)

000A: The number of coils to written (0A hex = 10)

02: The number of data bytes to follow (10 Coils / 8 bits per byte = 2 bytes)

CD: Coils 27 - 20 (1100 1101)

01: 6 space holders & Coils 29 - 28 (0000 0001)

BF0B: The CRC (cyclic redundancy check) for error checking.

The more significant bits contain the higher coil variables. This shows that coil 20 is on (1) and 21 is off (0). Due to the number of coils requested, the last data field 01 contains the status of only 2 coils. The unused bits in the last data byte are filled in with zeroes.