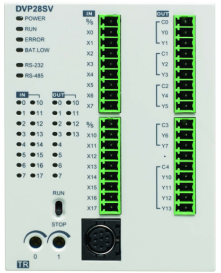
How to communicate with ACS550 of ABB brand via MODBUS

Configuration:

Scenario_1: HMI(DOP) ←→ACS550

(Modbus)

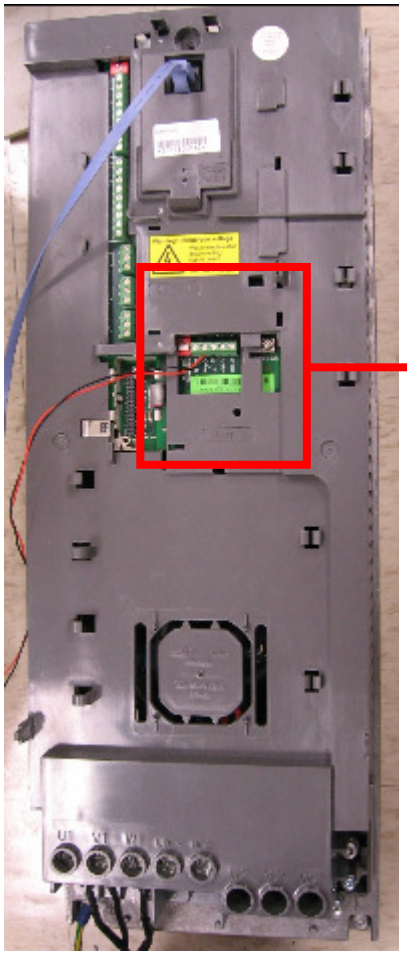
Scenario_2: PLC (DVP) ← → ACS550

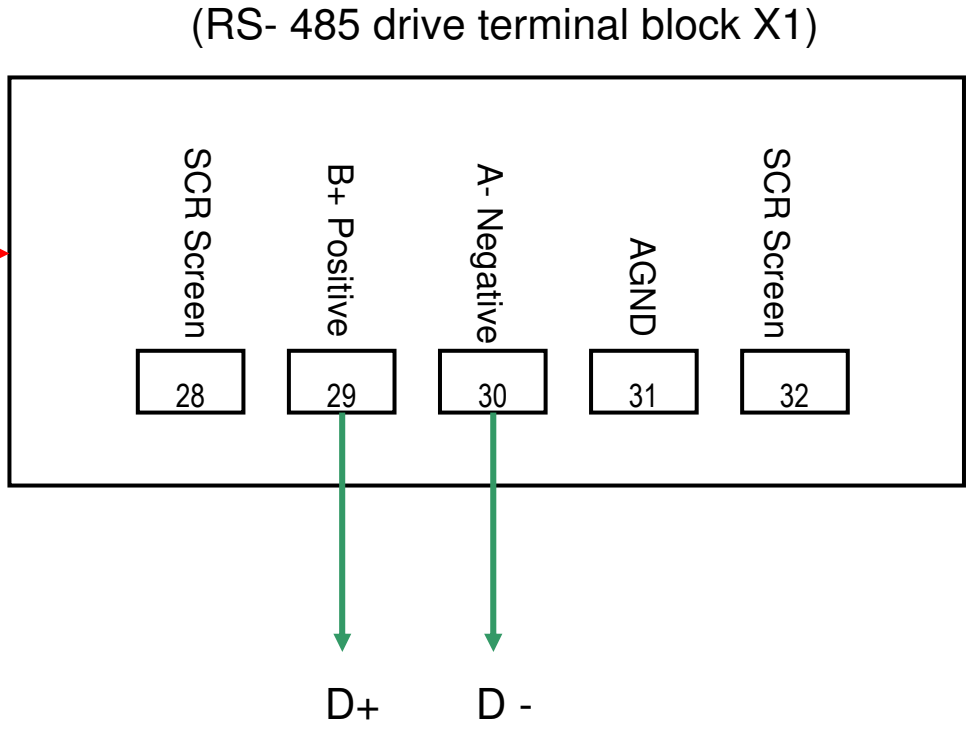


(Modbus)

The communication setup for ACS550 motor drive via Modbus:

- Hardware setup:





➢ Parameter setup: Please to check the manual of ACS550 for more detailed.

Code	Description
9802	To activate the serial communication, set parameter 9802 COMM PROT SEL = 1 (STD MODBUS)
5302	EFB STATION ID: Defines the node address of the RS485 link.
5303	EFB BAUD RATE Defines the communication speed of the RS485 link in kbits per second (kbits/s)
5304	EFB PARITY Defines the data length, parity and stop bits to be used with the RS485 communication
5305	EFB CTRL PROFILE Selects the communication profile used by the EFB protocol.

PS : (1) The Modbus specification defines two distinct transmission modes: ASCII and RTU. The ACS550 supports RTU only.

(2) The following Modbus function codes are supported by the ACS550

➔ 0x01,0x02,0x03,0x04,0x05,0x06,0x08,0x0F,0x10,0x17

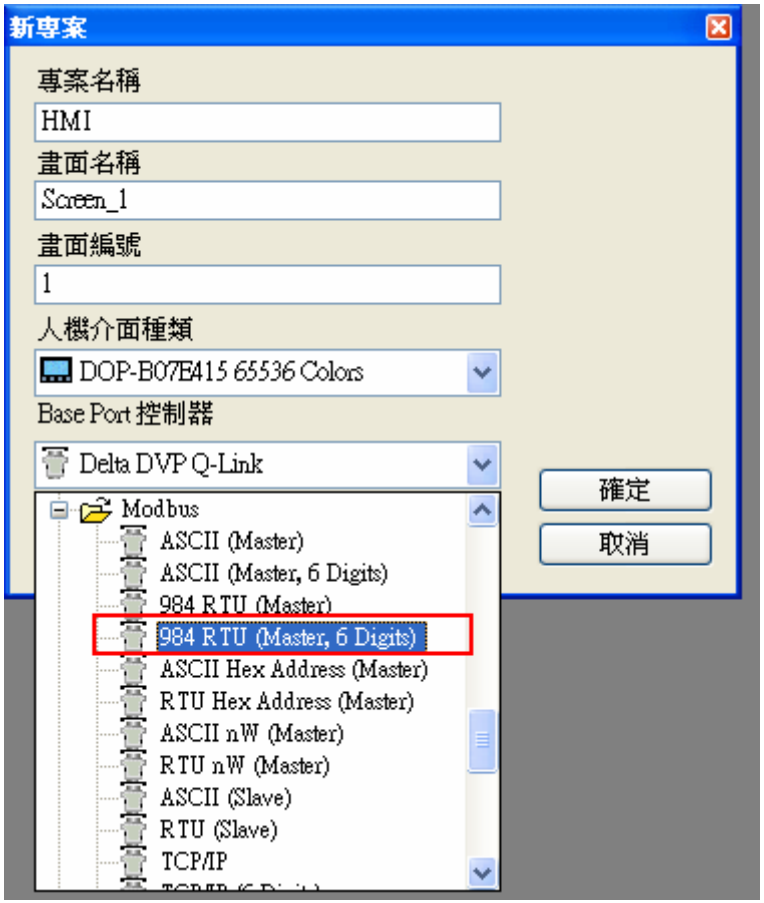
Reading/Writing parameters:

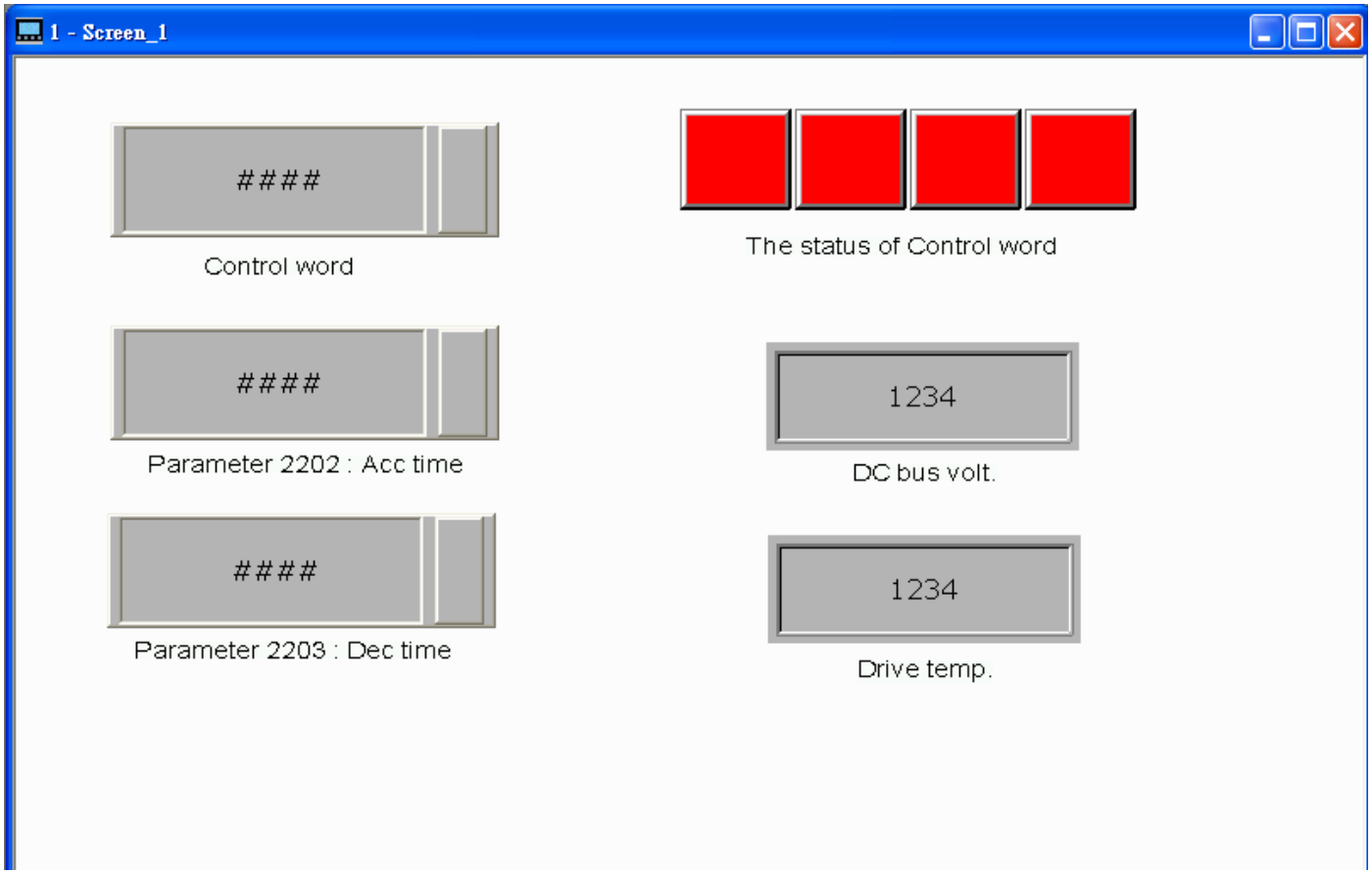
Modbus address	Category	Description
40001	R/W	The CONTROL WORD is the principal means for controlling the drive from a fieldbus system.
42202	R/W	Sets the acceleration time for zero to maximum frequency for ramp pair 1.
42203	R/W	Sets the deceleration time for maximum frequency to zero for ramp pair 1.
40107	R	The DC bus voltage in V DC, as measured by the ACS550.
40110	R	The temperature of the drive power transistors in degrees Celsius.

Scenario_1: HMI(DOP) ←→ACS550

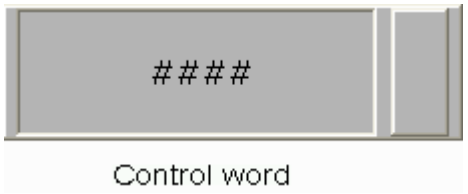
(Modbus)

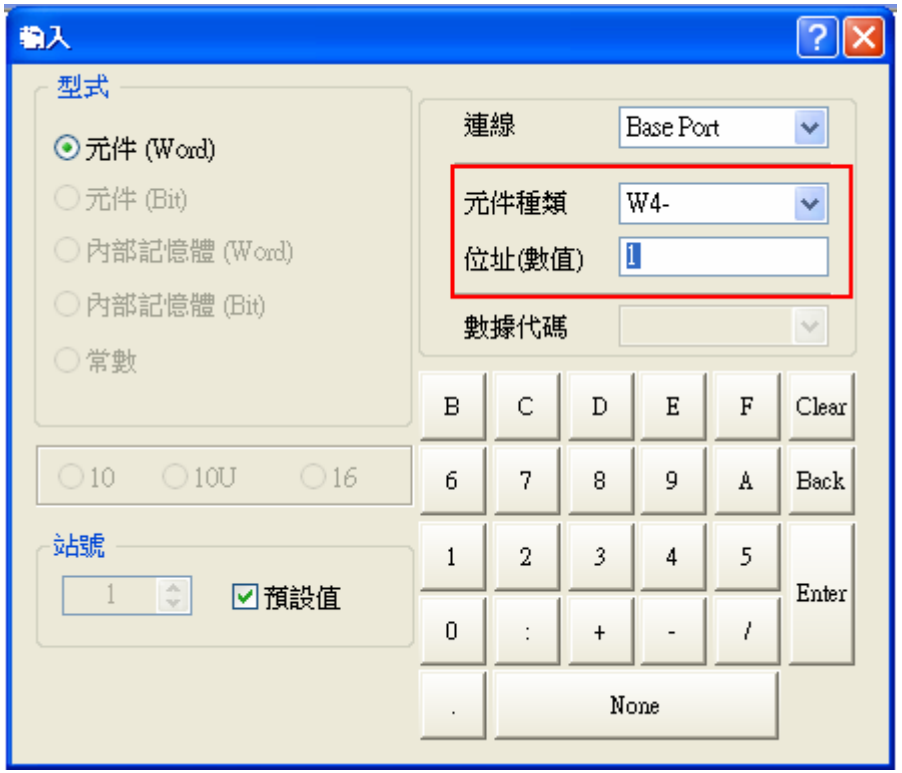
HMI parameter setup(1) :





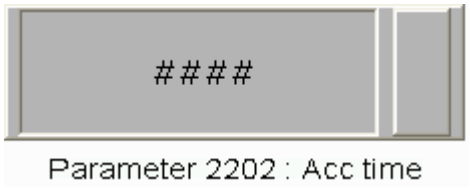
HMI parameter setup(2) :

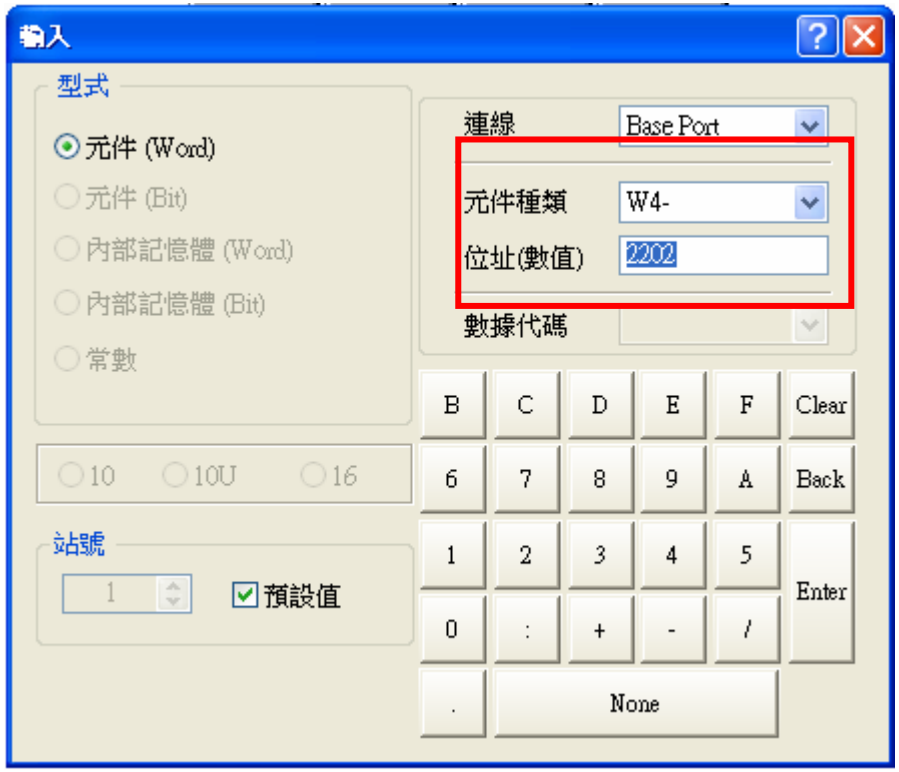




PS: The ACS550 supports the zero-based addressing of the Modbus specification. Holding register 40002 is addressed as 0001 in a Modbus message. Similarly, coil 33 is addressed as 0032 in a Modbus message.

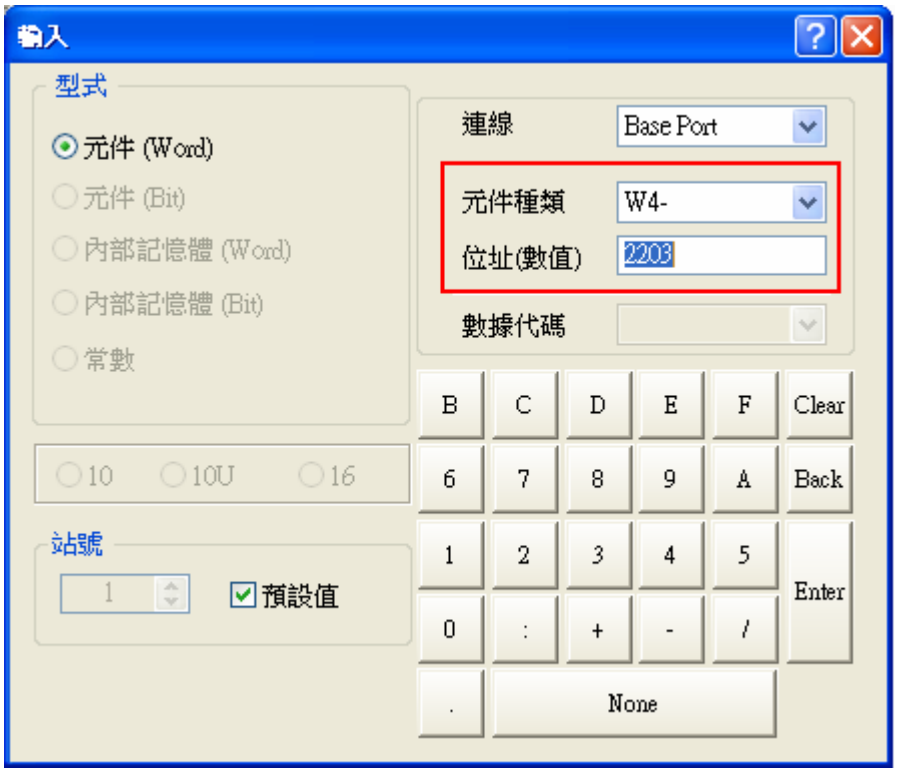
HMI parameter setup(3) :

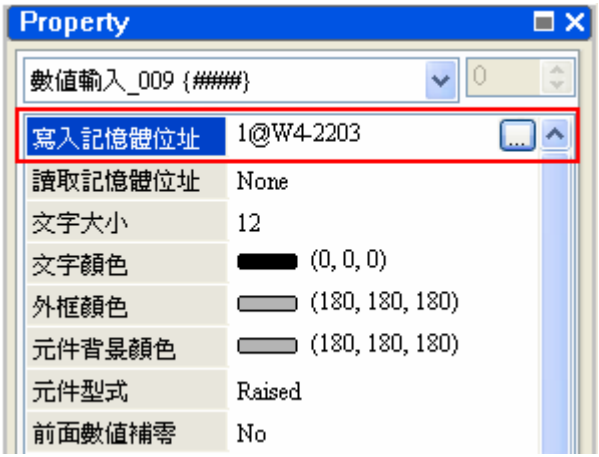




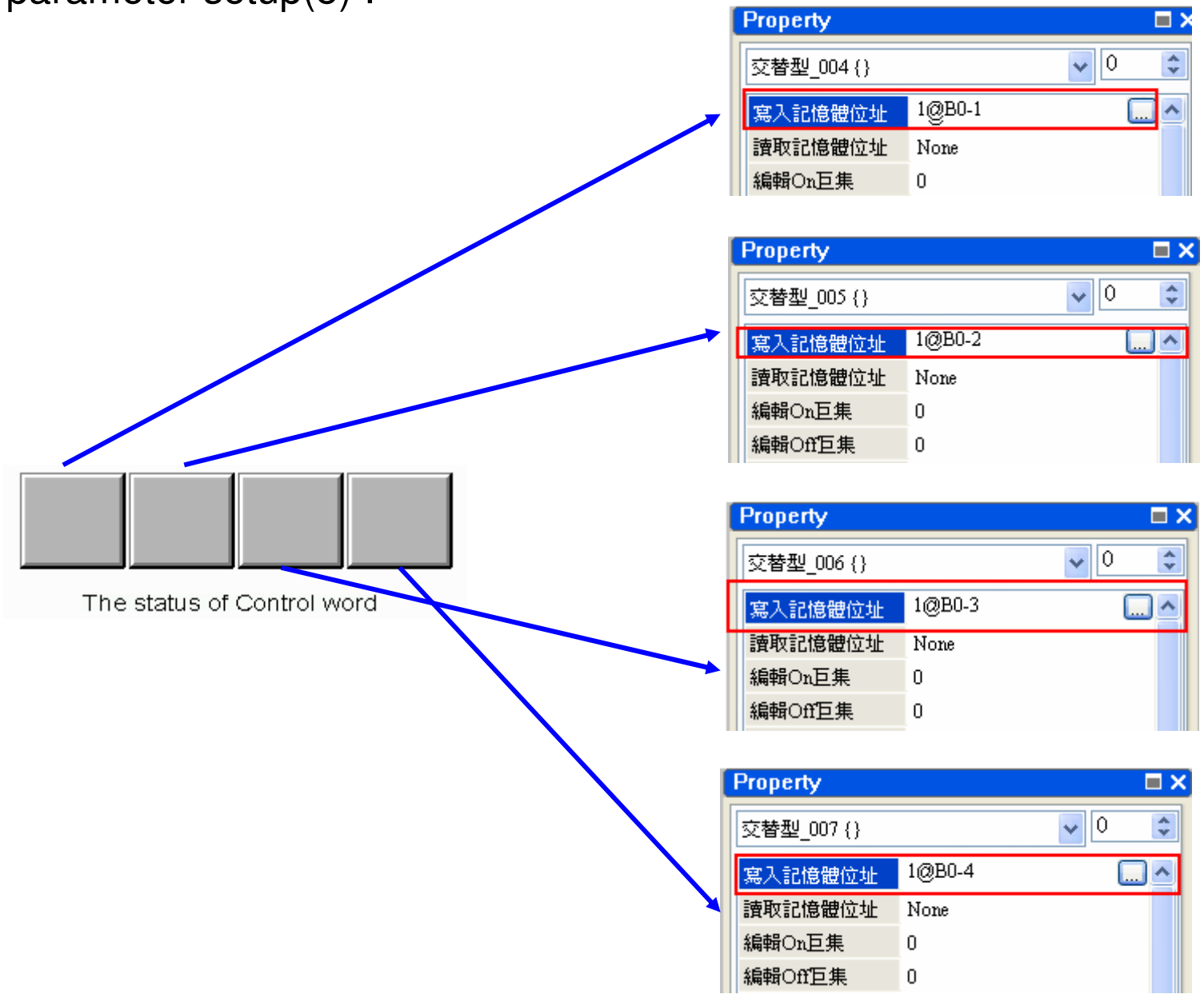
PS: For Modbus address, any parameter can be accessed using the format: “4” followed by the parameter number.

HMI parameter setup(4) :

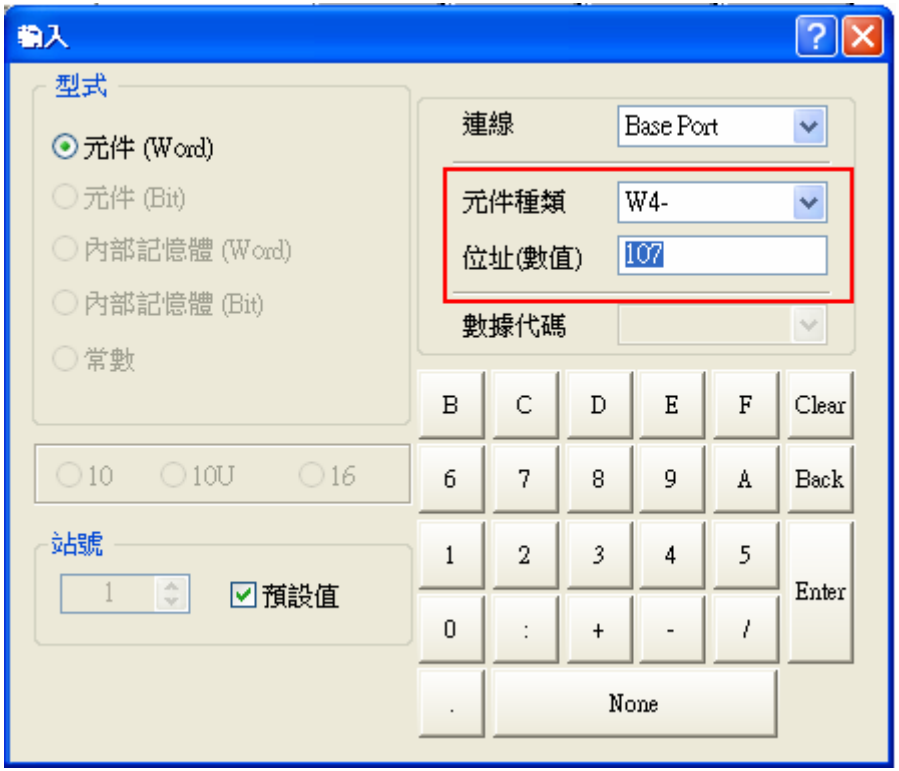




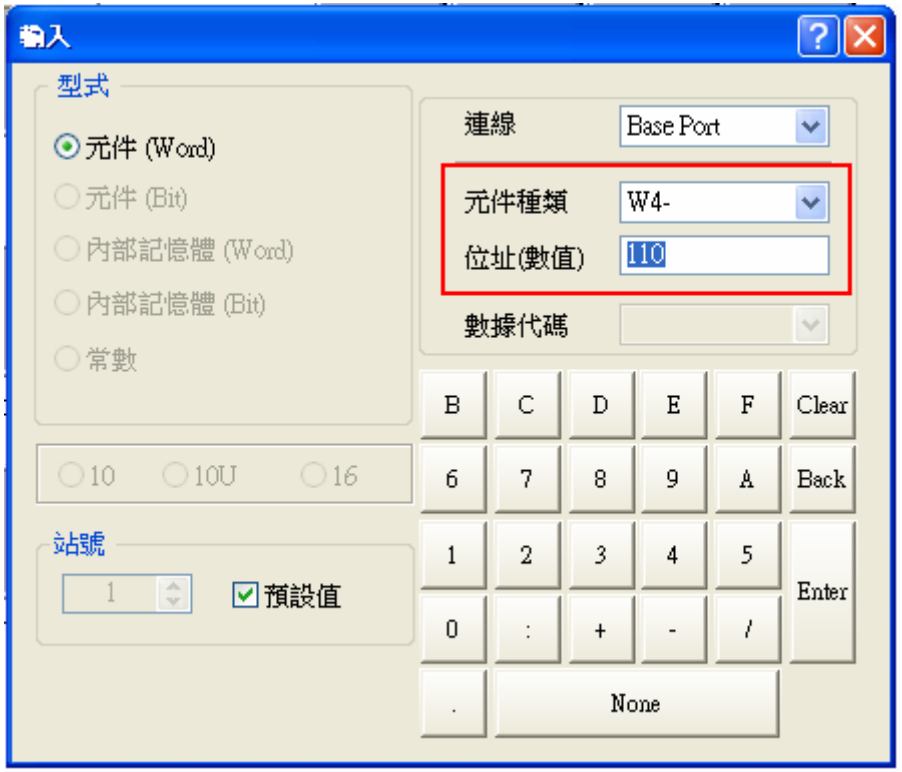
HMI parameter setup(5) :

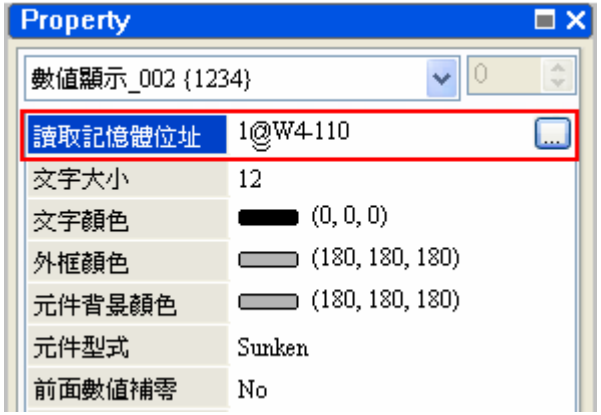


HMI parameter setup(6) :

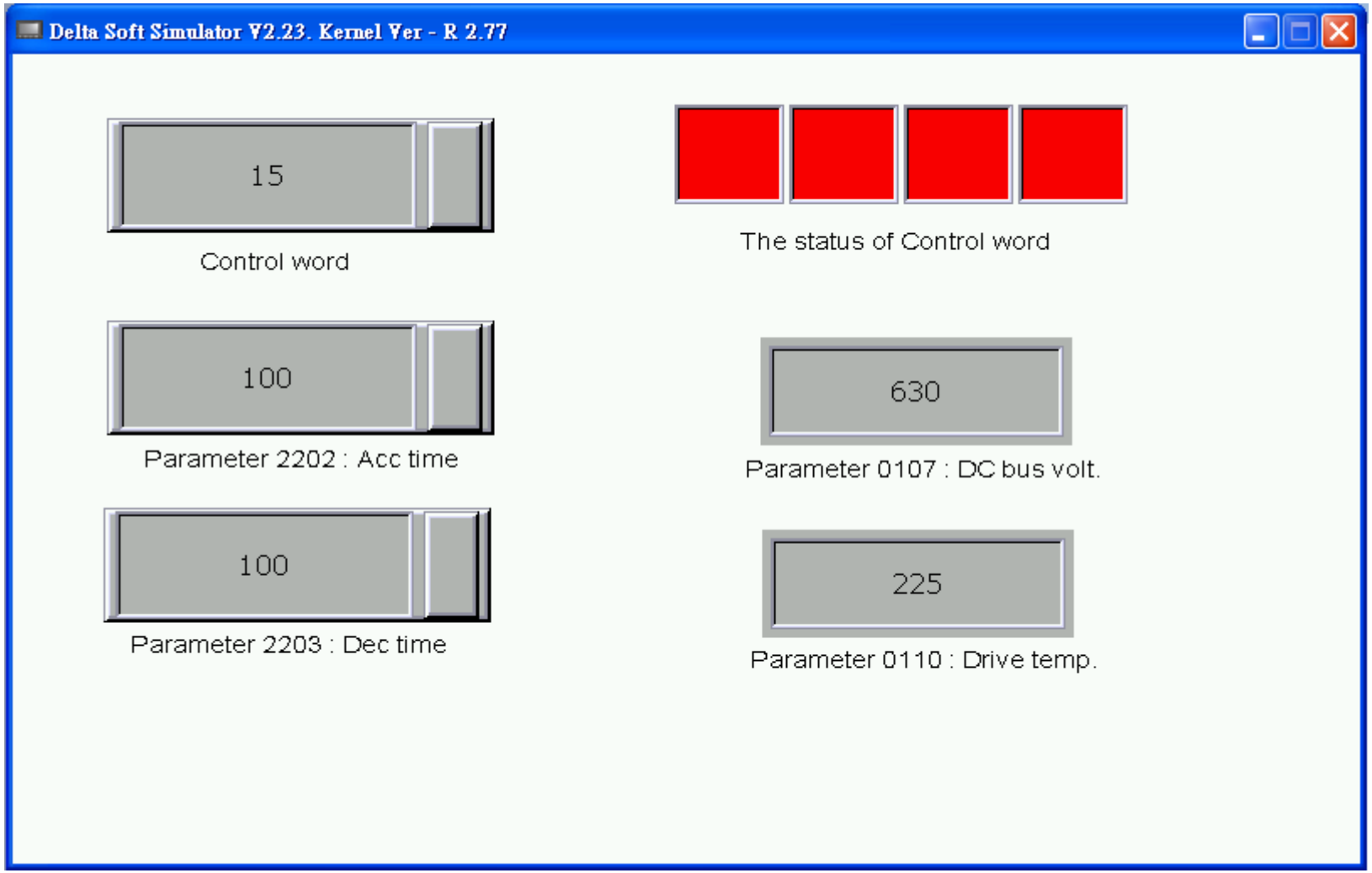


HMI parameter setup(7) :

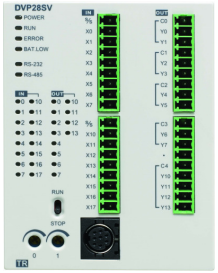




➢The result from HMI connection:

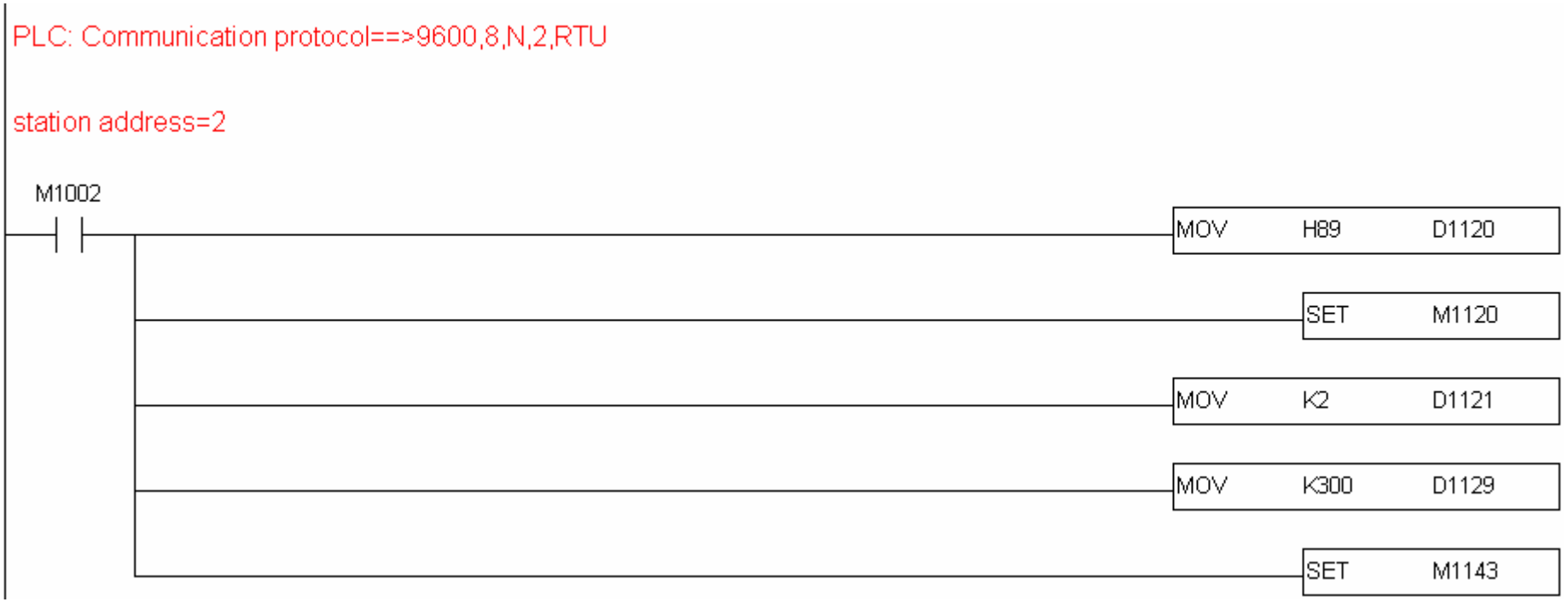


Scenario_2: PLC(DVP) ←→ACS550

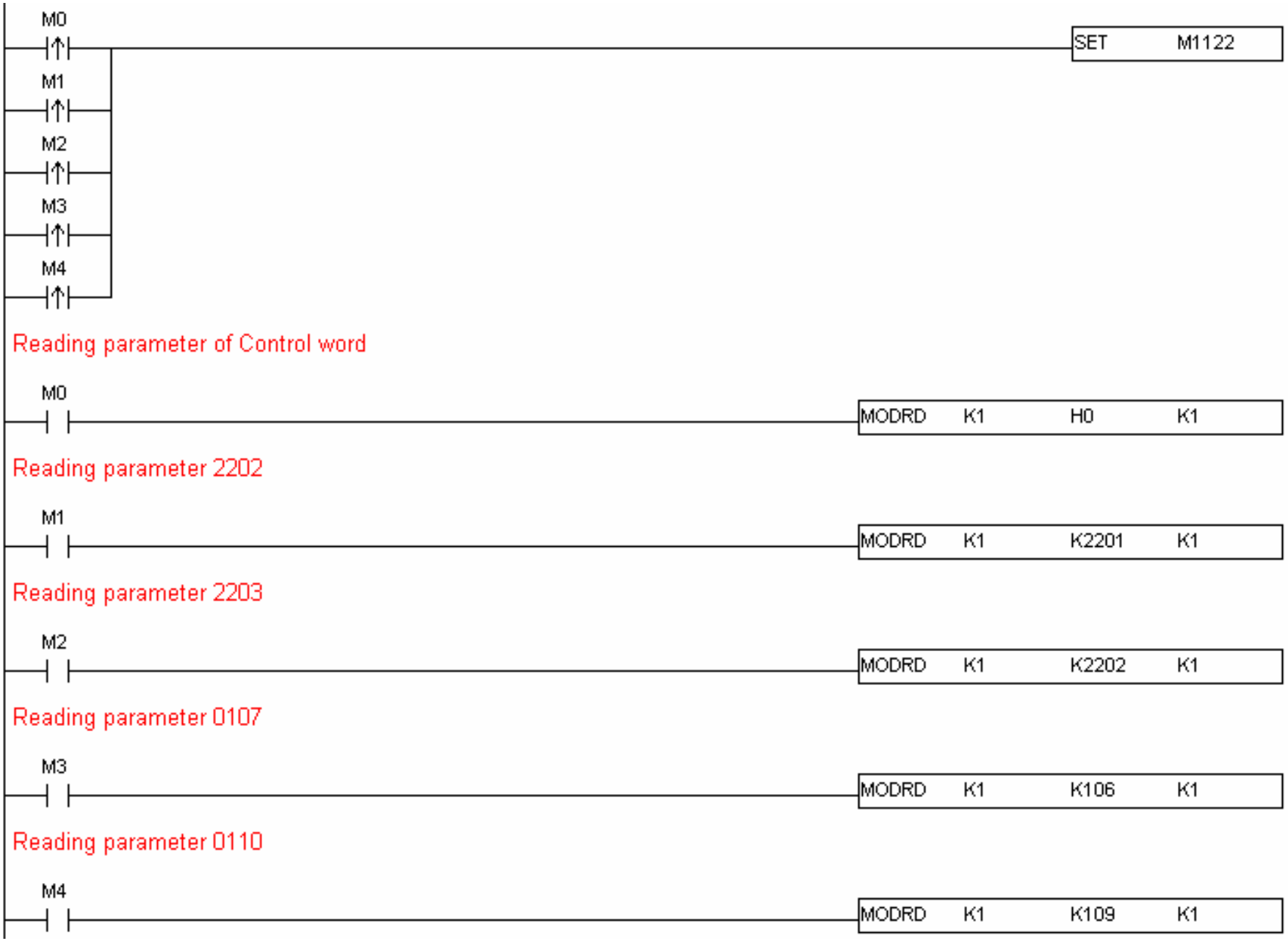


(Modbus)

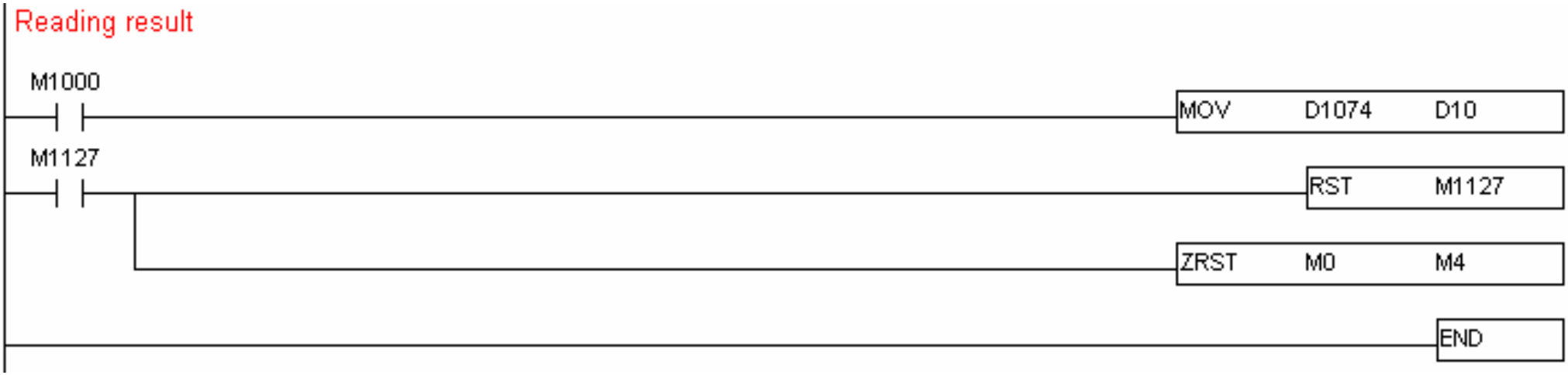
◆Start writing the PLC ladder program(1):



Start writing the PLC ladder program(2):

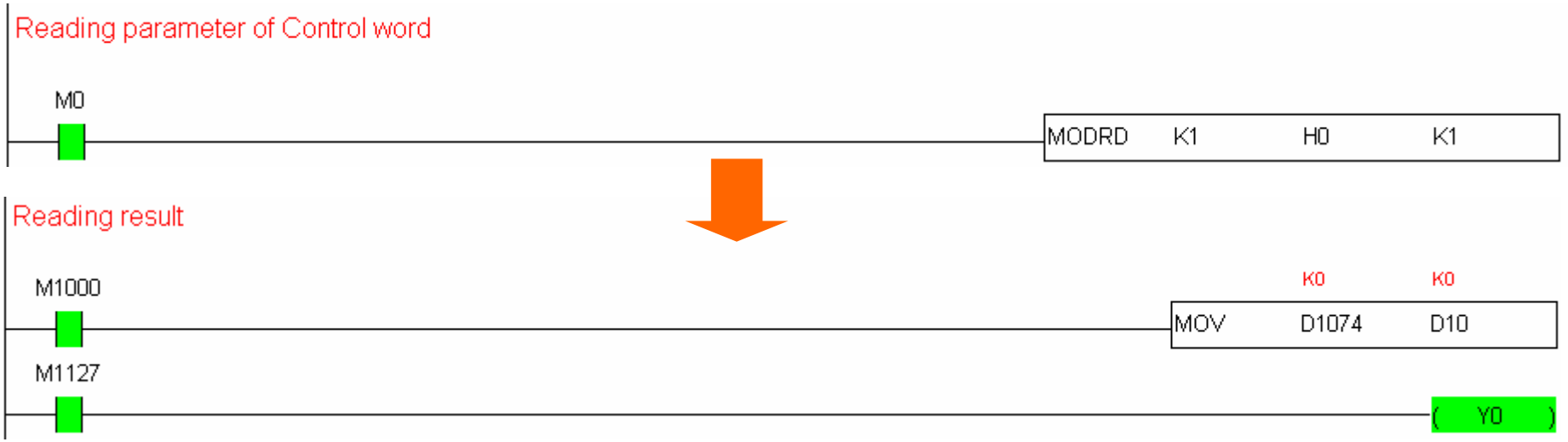


◆Start writing the PLC ladder program(3):

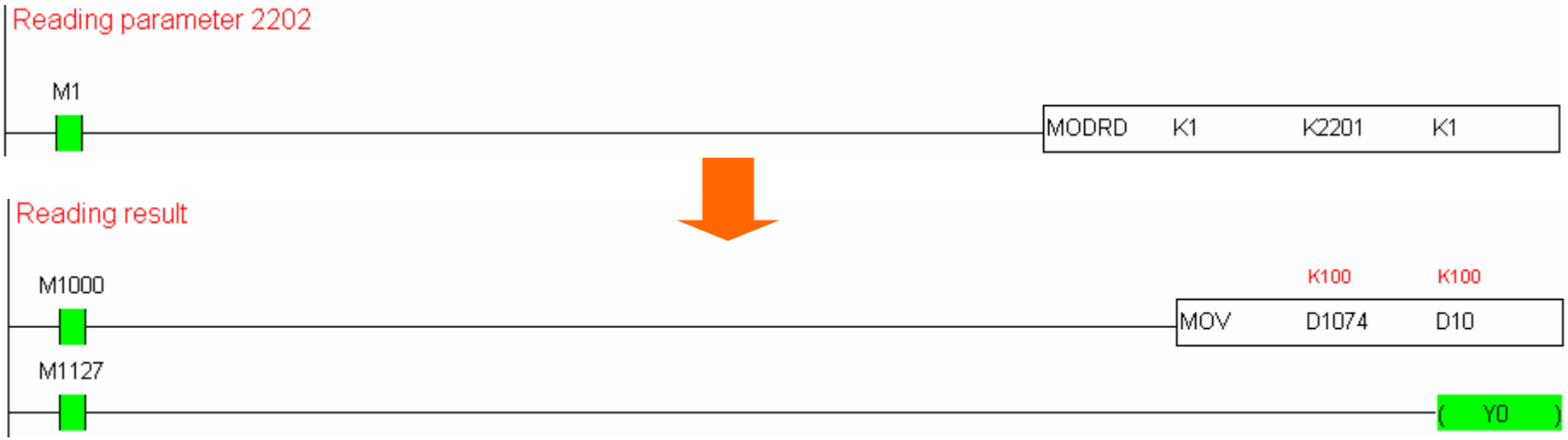


The result from PLC connection:

(1)

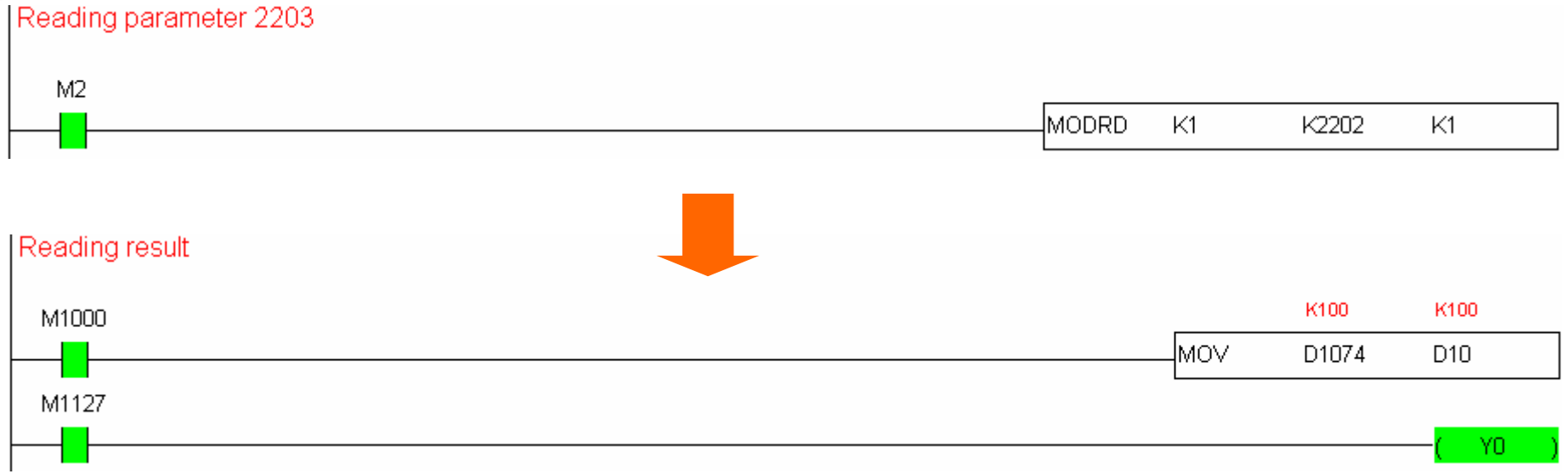


(2)

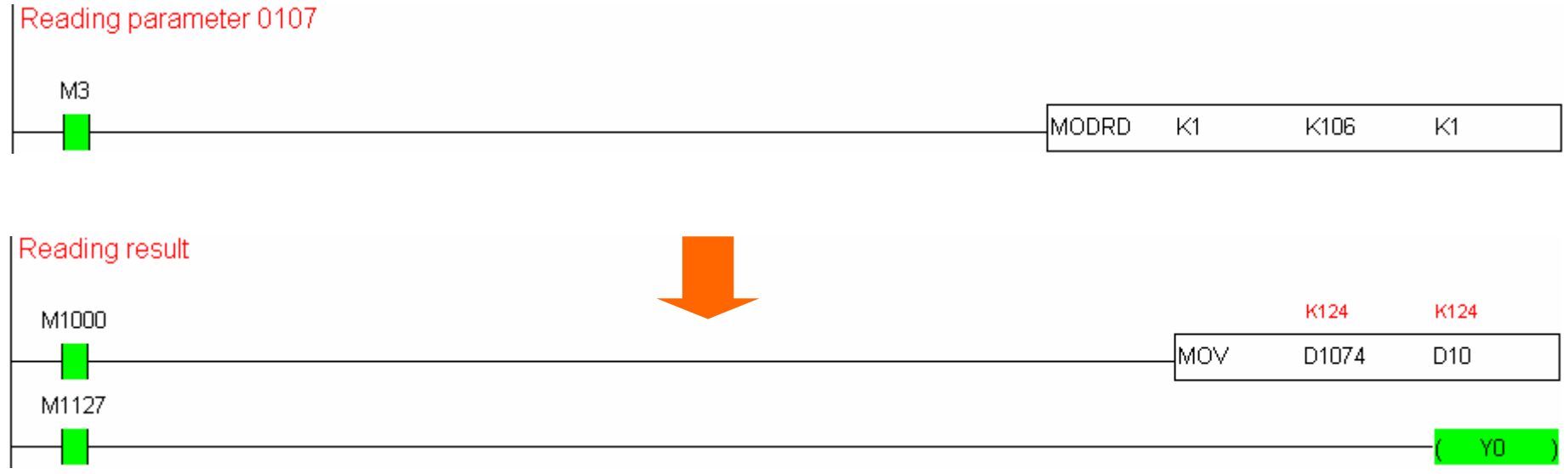


The result from PLC connection:

(3)

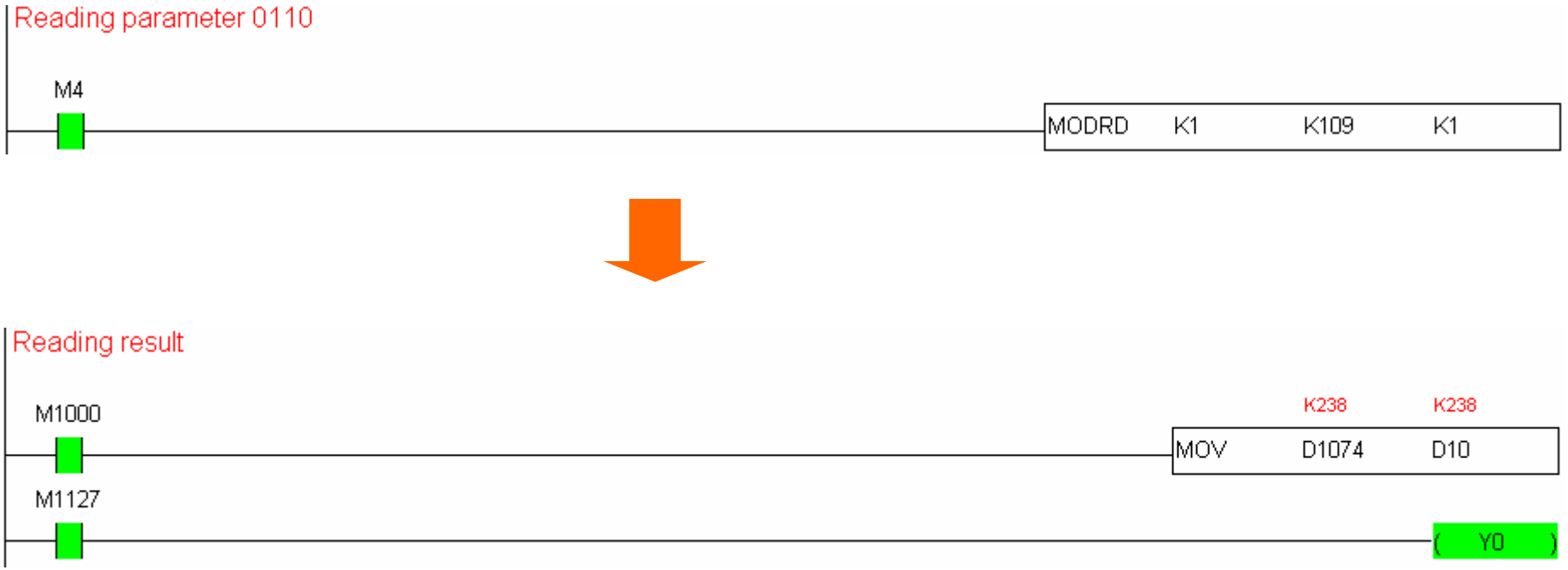


(4)



- The result from PLC connection:

(5)



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