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## ES Meter Digital Water Meter

ES810 series - Ultrasonic Digital Water Meter

### RS485 Modbus\_RTU Mapping Protocol

NYKK ENGINEERING GROUP SDN BHD

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## ES810 Series Ultrasonic Digital Water Meter

### RS485 Modbus\_RTU Mapping Protocol

1. The information contained in this manual provides general guidelines for the implementation of Modbus\_RTU communication with the ES-Meter ES810 Ultrasonic Digital Water Meter. All Modbus\_RTU networks are implemented utilizing a master-slave arrangement where all water meter are slaves and the master is a Building Management System capable of communicating over a RS-485 serial connection.

#### 2. Wiring :

<u>Wire Color</u>	<u>Connection</u>
RED	12VDC (+)
BLACK	GND (-)
YELLOW	RS485 (DATA+)
Green	RS485 (DATA-)

#### 3. Data Format:

Serial COM port setting	
Baud Rate	9600bps
Bit Length	8 bit
Stop Bit	1 bit
Parity Bit	None

Water Meter addressing	
Water Meter address	Address setting : 1 to 247

#### 4. Modbus\_RTU mapping address

Register Address	Read Value	Remark
0x0000	16bit High byte value	Meter reading Lower 2 bytes
0x0010	16bit Low byte value	Meter reading higher 2 bytes

Modbus Function Code	Function
03	Read value from holding register

#### *Example 1: Water meter reading*

Command from Building Management System (in HEX):

Meter Address No.	Function	Start Register	#of register
01	03	00 09	00 02

Response from water meter (in HEX):

Meter Address No.	Function	Byte Count	Register content
01	03	00 04	00 12 D6 87

Meter reading value:

D6 87 = Lower 16 bit  
00 12 = Higher 16 Bit

Meter Reading Value = 0012D687 (HEX) convert to Decimal  
= 001234567 (Decimal)

The meter consumption value = 001234567x **0.01** (m<sup>3</sup>)  
= **12345.67m<sup>3</sup>**