

# ENDA EDP141 DIGITAL POTENTIOMETER

## MODBUS ADDRESS MAP

### 1.1 Memory map for Holding Registers

Holding Register addresses Decimal (Hex)	Data type	Data content	Parameter Name	Read / Write permission
0000d (0000h)	Byte	Decimal point.	<i>d.Pnt.</i>	Readable / Writable
0001d (0001h)	Byte	User option menu access code (0 = Invisible, 1= Modification can be done 2 or 3 = Only visible).	<i>U.o.SC.</i>	Readable / Writable
0002d (0002h)	Byte	Device option menu access code (0 = Invisible, 1= Modification can be done 2 or 3 = Only visible).	<i>d.o.SC.</i>	Readable / Writable
0003d (0003h)	Byte	Calibration menu access code (0 = Invisible, 1= Modification can be done 2 or 3 = Only visible).	<i>d.C.R.S.</i>	Readable / Writable
0004d (0004h)	Byte	Control parameter when first energized. 0= <i>oFF</i> , 1= <i>oN</i> , 2 = <i>5.5tr</i> (See user manual for detailed information)	<i>P.on.C.</i>	Readable / Writable
0005d (0005h)	Byte	Adjusted type of the output to preset value with increment key. 0= <i>d5RB</i> , 1= <i>Enb.</i> , 2 = <i>5.or</i> (See user manual for detailed information)	<i>o.E.t.Y.</i>	Readable / Writable
0006d (0006h)	Byte	Adjusted type of the output to lower limit with decrement key. 0= <i>d5RB</i> , 1= <i>Enb.</i> , 2 = <i>5.oFF</i> (See user manual for detailed information)	<i>o.d.t.Y.</i>	Readable / Writable
0007d (0007h)	Byte	Time for increasing output (See user manual for detailed information).	<i>r.t.i.</i>	Readable / Writable
0008d (0008h)	Byte	Time for decreasing output (See user manual for detailed information).	<i>d.t.i.</i>	Readable / Writable
0009d (0009h)	Byte	Increasing and decreasing speed of preset value. (See user manual for detailed information).	<i>P.idt.</i>	Readable / Writable
0010d (000Ah)	Byte	Device address for RS485 (Adjustable between 1 and 247) If "0" is selected, the device becomes master potentiometer.	<i>d.Adr.</i>	Readable / Writable
0011d (000Bh)	Byte	Baud rate ( 0= None; 1=1200bps ; 2=2400bps ; 3=4800bps ; 4=9600bps; 5=19200bps)	<i>bAud.</i>	Readable / Writable
0012d (000Ch)	Word	Lower value of the scale	<i>L.SCL.</i>	Readable / Writable
0013d (000Dh)	Word	Upper value of the scale	<i>H.SCL.</i>	Readable / Writable
0014d (000Eh)	Word	Lower limit for preset value	<i>Lo.L.i.</i>	Readable / Writable
0015d (000Fh)	Word	Lower limit for preset value	<i>Hi.L.i.</i>	Readable / Writable
0016d (0010h)	Word	Preset value		Readable / Writable
0017d (0011h)	Word	Active preset value		Readable / Writable

### 1.2 Memory map for Discrete input

Discrete input addresses	Data type	Data content	Parameter Name	Read / Write permission
(0000)h...(0002)h	Bit	Don't use.	--	Only Readable
(0003)h	Bit	State of external upwards button (0 = OFF ,1 = ON)	--	Only Readable
(0004)h	Bit	State of external downwards button (0 = OFF ,1 = ON)	--	Only Readable

## 2. MODBUS ERROR MESSAGE

Modbus protocol has two types error, communication error and operating error. Reason of the communication error is data corruption in transmission. Parity and CRC control should be done to prevent communication error. Receiver side checks parity and CRC of the data. If they are wrong, the message will be ignored. If format of the data is true but function doesn't perform for any reason, operating error occurs. Slave realizes error and sends error message. Most significant bit of function is changed '1' to indicate error in error message by slave. Error code is sent in data section. Master realizes error type via this message.

### Modbus Error Codes

Error Code	Name	Explanation
{01}	Wrong function	When the function code which is not supported by slave is sent, this error code is sent.
{02}	Wrong data address	When the data which is required becomes outside of address map of slave, this error code is sent.
{03}	Wrong data value	When the data which is sent is outside the boundary of modbus protocol, this error code is sent.

#### Message example

##### Structure of command message (Byte Format)

Device Address		(0A)h
Function Code		(01)h
Beginning address of coils.	MSB	(04)h
	LSB	(A1)h
Number of coils (N)	MSB	(00)h
	LSB	(01)h
CRC DATA	MSB	(AC)h
	LSB	(63)h

##### Structure of response message (Byte Format)

Device Address		(0A)h
Function Code		(81)h
Error Code		(02)h
CRC DATA	MSB	(B0)h
	LSB	(53)h

As you see in command message, coil information of (4A1)h = 1185 is required but there isn't any coil with 1185 address.

Therefore number (02) error code (wrong data address) sends.