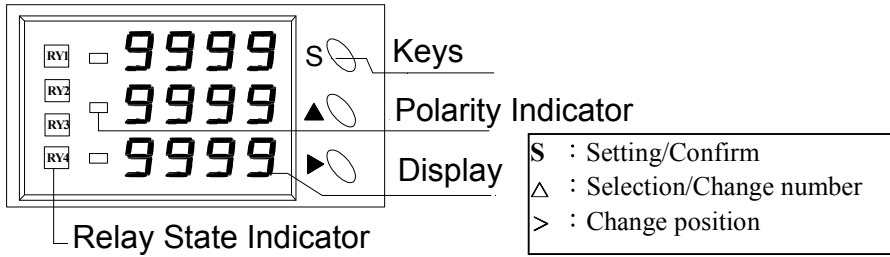


# DM3V Manual

## 1. Panel and Keys



## 2. Parameter Setting

### 2-1 Basic Setting \*In below Display section, P means Press.

Press "S" to enter **7ENU-0 1-02-03-04-05-06-07-08-09** Press "Δ" to set.

Display	Display	Display
7ENU	(MENU)	
01	Mode	Press > to select 3P3W or 3P4W . Press S to enter 02
02	PT Ratio	Press > and Δ to set : 0-9.999 EX:161KV/110V ratio=1464 Set 02 as 1.464 .Press S to enter 03
03	No Function	No need to set. Press S to enter 04.
04	No Function	No need to set. Press S to enter 05.
05	Decimal Point	Press > to set decimal point for display 1. Press Δ. Press > to set decimal point for display 2. Press Δ. Press > to set decimal point for display 3. Press S to 06.
06	O/P Signal and Corresponding to :	Press Δ to select 4-20ma/0-20ma/0-5V/1-5V/0-10V Press > and Δ to set ZERO :0-9999Count Press > and Δ to set SPAN :0-9999Count Press S to select corresponding channel : CH1-CH2-CH3 Press S to enter 07
07	Baud rate Address Format	press Δ to select :9600-19200-38400-2400-4800 Press > and Δ to select :1-99 Press > and Δ to select :8N1-8N2-8E1-8E2-8O1-8O2 Press S to enter 08
08	No Function	No need to set. Press S to enter 09
09	Save	Press S to enter <b>no/YES</b> Press > to select <b>YES</b> Press S to finish setting.

## 2-2 Relay Setting (Alarm)

\*In below Display section, P means Press.

Press "S" to enter **7ENU**. Press ">" to enter **rY 1-rY2-rY3-rY4-dELAY-SAVE**

Display	Function	Instruction
7ENU	(MENU)	
H-L	HI or LOW Correspond to	Press Δ and > to select HI_Alarm / LO_Alarm Press Δ and > to select corresponding channel: CH1-CH2-CH3
rY-1	Relay 1 Deadband Delay Time	Press > and Δ to set action point :0-9999 Press > and Δ to set Deadband : 0-9999Count Press > and Δ to set Delay Time : 0-999 sec
rY-2	Relay 2 Deadband Delay Time	Press > and Δ to set action point :0-9999 Press > and Δ to set Deadband : 0-9999Count Press > and Δ to set Delay Time : 0-999 sec
rY-3	Relay 3 Deadband Delay Time	Press > and Δ to set action point :0-9999 Press > and Δ to set Deadband : 0-9999Count Press > and Δ to set Delay Time : 0-999 sec
rY-4	Relay 4 Deadband Delay Time	Press > and Δ to set action point :0-9999 Press > and Δ to set Deadband : 0-9999Count Press > and Δ to set Delay Time : 0-999 sec
dELAY	Start delay time (1-999 sec)	Press > and Δ to set start delay time 0-999 sec
SAVE	Save	Press S to enter <b>no/YES</b> Press > to select <b>YES</b> Press S to finish setting.

## 3. Meter setting example:

EX1. Input: 22KV/110V (3Units) Mode : 3P4W PT ratio= 22/110=0.2 Display=22.00KV  
 Setting:

01	3P4W	05	Decimal point:A8.88 / B8.88 / C8.88
02	PT ratio = 0.200	06	No need to set
03	No need to set	07	No need to set
04	No need to set	08	No need to set

EX2. Input:161KV/110V(3Units) Mode : 3P4W PT ratio =161/110=1.464 Display=161.0KV  
 Output:4-20ma corresponding to R phase value (0- 161.0KV)

Setting:

01	3P4W	05	Decimal point:A88.8 / B88.8 / C88.8
02	PT ratio =1.464	06	O/P signal: DC 4-20 mA
03	No need to set		ZERO=1610
04	No need to set		SPAN =0000
			CH 1 (R phase)

## 4. Communication Protocol

### MODBUS – RTU MODE

#### Data Format

(ID Number) 1Byte	(Function Code) 1Byte	(Data) N Byte	CRC 2 Byte
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#### Function Code

03 ( 03H )	Read parameters of the meter
06 ( 06H )	Set parameter.

#### Ex1. Read the Voltage display value

<b>Master sends message TX : 01 03 00 01 00 01 D5 CA</b>				
ID Number 1Byte ( 01H )	Function 1Byte ( 03H )	Address 2Byte ( 00 01H )	DATA number 2Byte ( 00 01H )	CRC 2Byte ( D5 CAH )

**Instruction:** Master calls meter ID No.1 to read address 0002.Data number 0001

#### If the meter displays 1000

<b>Meter responses to Master RX : 01 03 02 03 E8 B8 FA</b>				
ID Number ( 01H )	Function ( 03H )	Byte ( 02H )	Data ( 03E8H )	CRC ( B8 FAH )

#### Ex2. Read parameters of the Meter

<b>Master sends message to Meter</b>				
ID Number 1Byte ( 01H )	Function 1Byte ( 03H )	Address 2Byte ( 00 02H )	DATA number 2Byte ( xxH,xxH = N )	CRC 2Byte ( xxH,xxH )

#### Meter responses to Master

ID Number ( 01H )	Function ( 03H )	Byte ( XXH = N )	Data ( N*2Byte) XxH,xxH.xxH.....	CRC ( xxH,xxH )
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#### Parameter/Address Cross-reference(Refer to ModScan32)

Address (Dec)	Length	Name	Instruction	(Read/Write)
01 (40002)	2Byte	Display 1	Range 0-9999	R
02 (40003)	2Byte	Display 2	Range 0-9999	R
03 (40004)	2Byte	Display 3	Range 0-9999	R
08 (40009)	2Byte	Decimal Point	0000 0000 0000 0000 DS3 DS2 DS1	R
09 (40010)	2Byte	Relay State	Bit0=RY1 0001 ON Bit1=RY2 0010 ON Bit2=RY3 0100 ON Bit3=RY4 1000 ON	R
10 (40011)	2Byte	PT ratio	Range 0-9999	R
13 (40014)	2Byte	OP_HI	Range 0-9999	R
14 (40015)	2Byte	OP_LO	Range 0-9999	R
15 (40016)	2Byte	RY1 setting value	Range 0-9999	R
16 (40017)	2Byte	RY2 setting value	Range 0-9999	R
17 (40018)	2Byte	RY3 setting value	0-65535	R

## 5. Buffer Size (The number of measurements for RMS sliding averaging)

1. High speed (8 entries)
2. Medium speed (16 entries)
3. Low speed (32 entries)

Preset as medium:(**ri d**)

Setting : In 09-00,key in 11 and press S to set. Press  $\Delta$  to select High(**HI 9H**) Medium(**ri d**) Low(**LO!**)  
Key in 99 to confirm and save.

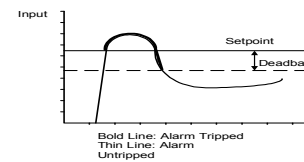
## 6. Error

Display	Problem
<b>FULL</b>	Display range is over 9999 Incorrect PT ratio / Wrong input signal

## 7. Alarm Function Illustration

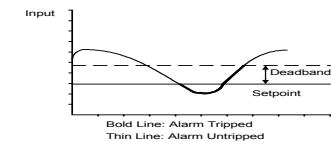
### 1.HIGH ALARM : (Deadband)

When input signal is over setpoint, Relay is activated until signal is under Deadband



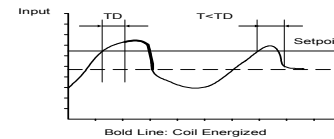
### 2.LOW ALARM : (Deadband)

When Input signal is under setpoint, Relay is activated until signal is over Deadband



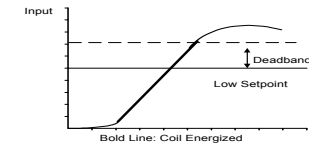
### 3.ON DELAYTIME :

When input signal is over setpoint, relay will be activated after the set time.



### 4.ZERO NO ALARM :

When input signal is under 0.3%,no low alarm function  
Set 58 >0 to activate this function.



### 5.START DELAY TIME :

Input signal starts from 0. No alarm function within TS.

