Laser Diameter Measurement
DDC-5 Display Controller

instruction

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Contents

Product Manual

Preface

★Introduction of the product's instruction manual with the Display Controller DDC-5 can be applied to LDM series diameter measuring instrument, the combination can complete the conventional measurement of the diameter, can also output the alarm and control signal .

The performance indicators:

Measurement: Laser scanning
Laser: Visible red semiconductor laser
Laser output power: <2mW
Operating voltage: ~ 220V±15%   50 - 60Hz
Operating temperature: -10~40 °C
Humidity: <85% RH
Work mode: continuous
Power consumption: <30W

I. Check product:

The box should contain the following items:
1. LDM measuring head.
2. DDC-5 display controller.
3. Communication cable(that is DDC-5 connect to the measuring head)with 5 core plugs, the standard length of 2m).
4. Two piece of the power cord.
5. Product brochures.
6. Certificate.
If the item does not, please contact the manufacturer or contact agents.

II. Installation and wiring

（I）. Installation：

DDC-5 Controller should be installed in the control cabinet, because it has

220v power on its back.

The hole Size: 90mm × 90mm

（II）. Connection: Terminals

DDC-5 wiring terminal table

|		
1.　AC220V L	10. RS485-	19. Alarm relay No.1 NC contact
2.　Empty	11. RS485+	20. Empty
3.　AC220V N	12. 500 ohm Resistance loaded	21. Extended RS485 +
4.　Grounding protection	13. AGND	22. Alarm relay No.2 NO contacts
5.　Empty	14.±10mA　current　output feedback	23. Alarm relay No.2 Middle contact
6.　Empty	15. AGND	24. Alarm relay No.2 NC contact
7.　DC24V output +	16.±5V　output　voltage feedback	25. Empty
8.　DC24V output -	17. Alarm relay No.1　NO　contacts	26. Extended RS485 -
9.　DGND	18. Alarm relay No.1　Middle contact	

i. the cable with screw plug connect to communications socket of measuring unit, the other side of cable to the display unit DDC-5,the Red Line on the 11th terminal, the blue line on the 10th terminal;

ii. the measuring unit and display unit DDC-5 will be connected to the power cord;

iii. use the feedback voltage output will be 14 terminals and 12 terminals short, the voltage is to end on the 14th terminal, negative voltage terminal for 13 terminals; use current feedback output, the disconnect terminal on the 14th and 12th Terminal, the current side is on the 14th for the terminal, the current negative side for 13 terminals.

(III) There are two ways the feedback control wiring
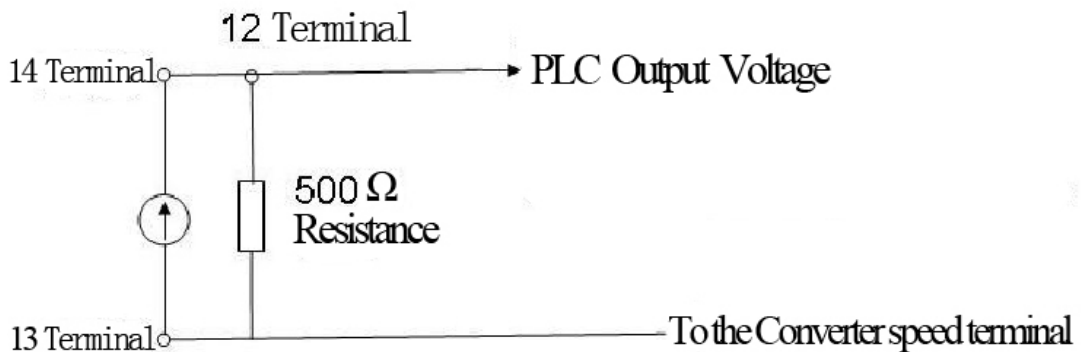
i. Voltage feedback using series connection
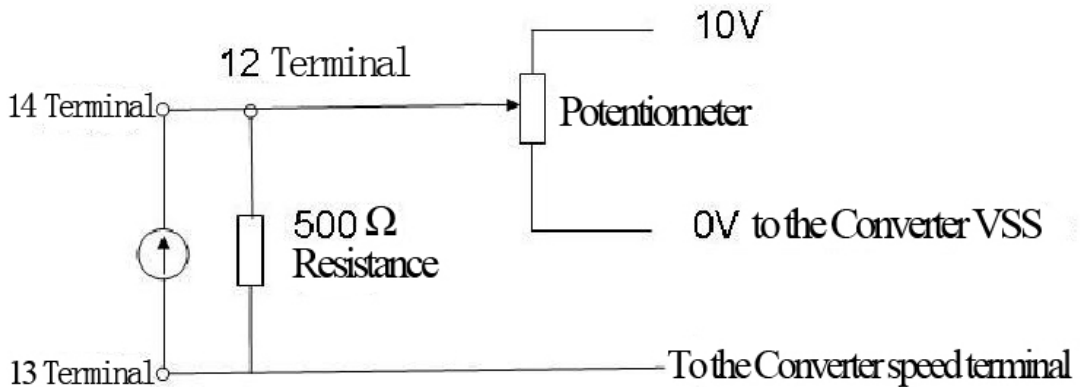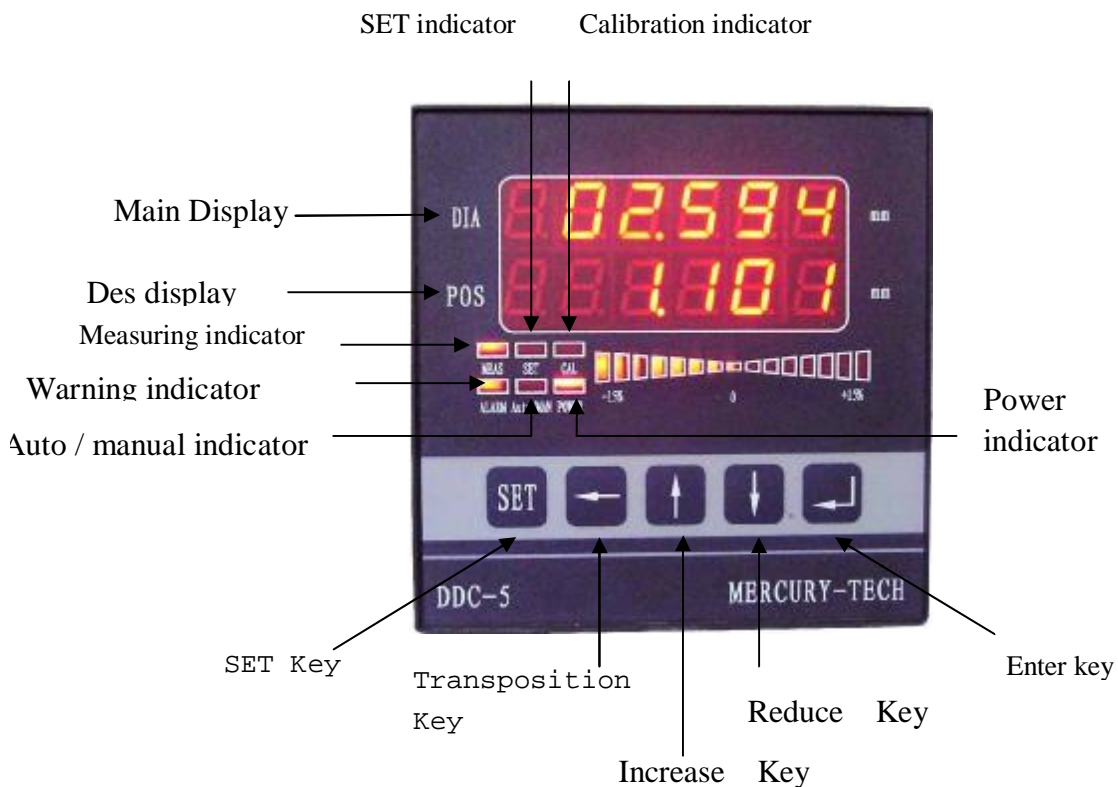

ii. Current Feedback using Parallel connection
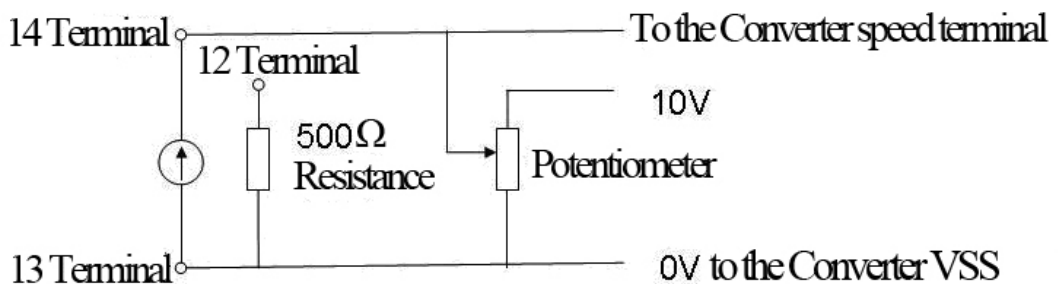
iii. Voltage Feedback for PLC

III. To set the parameters and correction

(I). Panel ministries introduced

Name	Function
Main Display	And measurements show that the parameters set.
Des display	show the position of the EUT. (0.000 is the middle of the laser beam)
Power indicator	Direct access to the normal power supply
Measuring indicator	Instructions are measuring
Lighter of calibration	Instructions are calibrating
Warning indicator light	Direct measurements of more than setting minimum or maximum
Automatic / manual indicator light	When bright for the automatic, dark for the manual
SET	To enter or exit parameters setting
Transposition Key	Dual function: in the parameters setting. to move the flashing position; in the measurements, push this key ,it can output control voltage. Auto indicator light
Increase in the key	In the parameters setting, the flashing digit plus 1;
Reduce the key	In the parameters setting ,the flashing digit cut 1;
Enter key	Dual function: to choose parameters of the state, into the revised parameters; in the revised parameters, and save the end of the revised parameters

(II). introduced the feature parameters

Push 'set' key, you can set the following parameters

Cd01: Setting value, unit: mm
Cd02: Upper Tolerance: mm
Cd03: Down Tolerance: mm
Cd04: Alarm model
  Tens digit is to select the output relay
  0 - relay not output;
  '1' the ultra-upper tolerance alarm.
     ultra-down tolerance alarm.
     Relay No.1 work.
  '2' the ultra-upper tolerance alarm.
     ultra- down tolerance alarm.
     Relay No.1 and No.2 work simultaneously.
  '3' the ultra-upper tolerance alarm relay No.1 work.
     ultra-down tolerance alarm relay No.2 work

'4' the ultra-upper tolerance alarm relay No.2 work.

ultra-down tolerance alarm relay No.1 work.

Unit digit is Alarm Model.

0- Not Alarm.

'1' the ultra-upper tolerance alarm.

'2' ultra-down tolerance alarm.

'3' the ultra-upper and ultra-down tolerance alarm.

'4' Ultra-down tolerance alarm .When display is '0', do not alarm.

'5' The ultra-upper and ultra-down tolerance alarm .When display is '0', do not alarm.

Cd05: Alarm time, from 0 to 9.9 seconds

Cd06: Display and control output model, two digits.

Tens digit is Select the display

"0" connect to single dimensional laser diameter gauge, the upper display the diameter, the lower is the cable position.

"1" connect to single dimensional laser diameter gauge, the upper display the diameter, the lower is the tolerance(That is the difference between the measured value and the setting value).

"2" connect to Two-dimensional laser diameter gauge, the upper display the X-axis diameter, the lower diaplay the Y-axis diameter.

"3" connect to Two-dimensional laser diameter gauge, the upper display the average diameter of the XY axis, the lower diaplay the Ellipticity(That is the Absolute value of XY-axis diameter difference).

"4" connect to Two-dimensional laser diameter gauge, the upper display the average diameter of the XY axis, the lower diaplay the error (That is the difference between Average diameter value and Setting value).

Unit digit is Select output

0 - not output

1 - PID adjustment, Positive error Positive output;

2 - PID adjustment, Positive error Negative output;

3 - Proportional output, Output voltage and Reference deviation is Direct proportion.

Cd07: Value ratio (each mm corresponding to the percentage of output regulation XXX.X%) 0 ~ 999.9%

Cd08: P= 0 ~ 999.9%

Cd09: I= 0 ~ 999.9%
Cd10: D= 0 ~ 999.9%
Cd11: Communication format
Thousands digit: receive data format 0 = BCD code
Hundred digit: receive baud rate 0 = 2400,1 = 4800,2 = 9600,3 = 19200,4= 38400.
Tens digit: to send data format, 0 = BCD format code; 1 = LED screen for the agreement of the BCD Format
Unit digit: send baud rate; 2400,1 = 0 = 4800,2 = 9600,3 = 19200
Cd12: password to enter the calibration
  Input **277802** to enter the static correction of   X axis.
Input **277803** to enter the dynamic correction of X axis.
Input **277804** to enter the static correction of Y axis.
Input **277805** to enter the dynamic correction of Y axis.

Cd13: Input Standard value for the the static correction of X axis
Cd14: Input Standard value for the the dynamic correction of X axis.
Cd15: Input Standard value for the the static correction of Y axis
Cd16: Input Standard value for the the dynamic correction of Y axis.

Before Calibration, You must put a standard bar on the measuring unit.

IV.   RS-485 communication

Serial port settings: Baud rate 2400 ~ 19200bps, 8 data bits, 1 stop bit, even check.
Automatically upload data, 9 bytes per frame
; B0 ----- A7H, The starting point of the frame
; B1 ----- P65, the off-center position of object in the scanning beam and ten digit (BCD code)
            Higher than the center is 0.   Lower than the center is 8.
; B2 ----- P43, Unit digit and tenth (BCD code)
; B3 ----- P21, hundredth and thousandth (BCD code)
; B4 ----- D65, hundreds digit and tens digit of diamter (BCD code)
; B5 ----- D43, unit digit and tenth of diameter (BCD code)
; B6 ----- D21, hundredth and thousandth of diameter (BCD code)
; B7 ----- parity bit = Mantissa that is the sum of the BCD code from B1 to B6
; B8 ----- A8H, the end of the frame

Example 1,
B0   B1   B2   B3   B4   B5   B6   B7   B8
A7   00   10   20   00   31   04   64   A8
Center = 1.020mm   Measuring diameter = 3.004mm
B7 = B1 + B2 + B3 + B4 + B5 + B6 = 00 +10 +20 +00 +30 +04 = 64

Example 2,
A7   80   10   20   00   31   04   44   A8
Center = -1.020mm   Measuring diameter = 3.004mm
B7=B1+B2+B3+B4+B5+B6=80+10+20+00+30+04=144

V. The maintenance and Notes

i. The glass window of measuring head should be maintain   clean, When it dirty,you can wipe with the camera paper or a soft cloth with alcohol.

ii. Various parameters of the instrument affect the normal use, can not be tamper with.

Note: In order to ensure personal safety, equipment must be reliable

grounding metal !

If you have any questions, please connect to us:

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