

DR304 Signal Transmitter User Manual



A si-
ncere



B si-
ncere

preface

Thank you very much for choosing our company's products! This manual includes the product performance specifications, packaging appearance, operating instructions, communication instructions, function descriptions, parameter tables, frequently asked questions, and warranty information. To ensure that this product remains in optimal working condition over the long term, please read the user manual carefully before use and store it properly for easy reference at any time.

The contents of this manual shall not be reproduced without the permission of the company.



- Exceeding the requirements of the operating environment will affect the measurement index and life of the instrument, and in serious cases, it will cause permanent damage to the instrument!
- The installation, commissioning and maintenance of this product shall be carried out by qualified engineers and technicians.
- The Company shall not be liable for any direct or indirect loss other than the product itself.
- The company reserves the right to change the product specification without notice.



- Please do not use it on equipment such as atomic energy equipment and medical devices related to life.
- For all input and output signal lines of this product, please set up appropriate surge suppression circuit to prevent surge occurrence.
- Please do not mix metal pieces or wire debris into this product, otherwise it may cause electric shock, fire and failure.
- Make sure to tighten the terminal screws. If not fully tightened, it may cause electric shock and fire.
- Be sure to clean after turning off the power.
- When cleaning, please wipe off the dirt of this product with a dry soft cloth. Please do not use absorbent agent. Otherwise, it may lead to deformation and discoloration.
- Please do not use hard objects to rub or knock the display part.
- The installation, commissioning and maintenance of this product shall be carried out by qualified engineers.
- The instrument is calibrated before leaving the factory. If it is not used properly, it may produce errors. Customers should calibrate it in time according to the situation.

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1. summary

D. The R304A is a signal transmitter that accompanies multi-component sensors, responsible for amplifying, filtering, digital conversion, software decoupling, and secondary correction of the mv signals output by the sensors. Data can be uploaded to a host computer or PLC via the RS485 serial port or Ethernet port.

D. R304B is based on the functions of D. R304A, eliminating Ethernet communication while retaining 485 communication. It adds six sensor inputs converted into -10 to +10V analog voltage outputs. The hardware requires two circuit boards, R304 and R302, to implement this. D. R304B can read and modify parameters through the 485 serial port 2, with specific addresses referenced from the 8.0 communication parameter table.

2. major function

2.1 Data acquisition and processing (including filtering, decoupling and secondary correction) can be synchronized for each channel, and the acquisition speed can be set to 6.25-800 times/s.

2.2 The measurement values can be read via the RS485 serial port (modbus-RTU protocol, 485 protocol 1) or through the Ethernet port (modbus-TCP, Ethernet protocol 1). The 485 port also supports real-time data upload (6 channels ASC code, 485 protocol 2). The Ethernet port supports scheduled real-time data upload (Ethernet protocol 2, D.AS_TCP) or full real-time data packet upload (Ethernet protocol D.ARS_TCP).

2.2 Internal parameter modification, zeroing, data saving, range calibration, digital calibration and other operations can be performed through 485 or Ethernet.

485 Communication support includes the modbus-RTU protocol and custom active transmission protocols. The Ethernet interface supports the modbus-TCP protocol and TCP custom protocols (Protocols 2 and 3). D.AS_TCP (Protocol 2) can upload measurement values, units, decimal points, and system status information at set intervals. D.ARS_TCP (Protocol 3), on the other hand, uploads all current collected data in a single package. Protocols 2 and 3 also feature interactive functions such as reading and writing parameters, zeroing, calibration, and saving data.

2.4 Decoupled data can be corrected twice.

2.5 The 6 sensor inputs are converted into -10 ~ +10v analog voltage output (only model B supports)

3. technical parameter

3.1 Measurement performance:

Six-channel acquisition, input signal range -30mv ~ 30mv, sensor power supply 5V/200 mA, measurement scale 20 bits, acquisition speed can be set 6.25-800 times/s.

3.2 RS485 Communication interface:

The modbus-RTU protocol and custom active send protocols are implemented. Multiple baud rates, ranging from 4800 to 115200, are selectable.

3.3 Ethernet port communication:

The modbus-TCP protocol, D.AS_TCP protocol and D.ARS_TCP protocol are implemented. D.ARS_TCP can automatically upload all real-time data, and each packet is less than 4000 bytes (only supports A).

3.4 supply electricity:

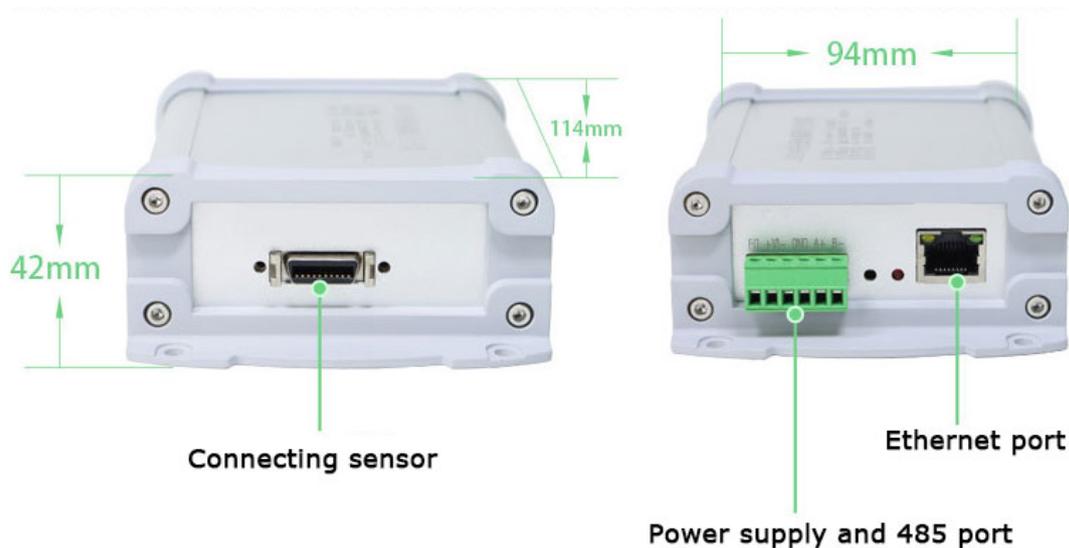
24VDC, less than 50mA (no sensor connected).

4. D. R304A Product appearance and terminal definition

4.1 Product main view



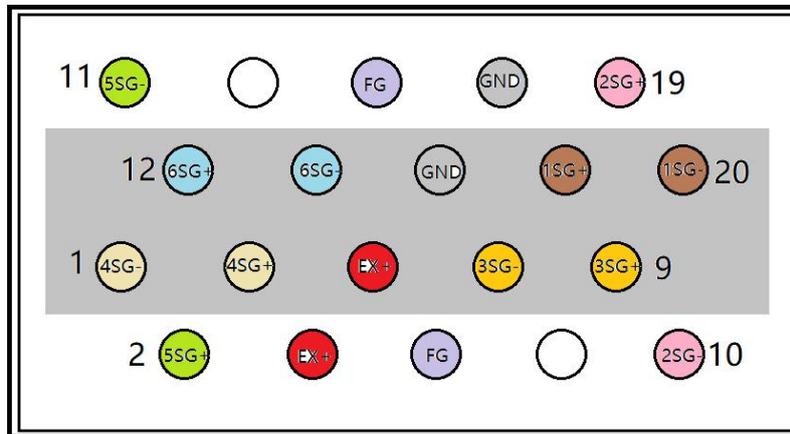
4.2 Product size and interface



4.3 Terminal definition



4.4 Definition of sensor plug pins



5. function declaration

5.1 Zeroing function:

The instrument features automatic reset upon power-on and manual reset via communication. The automatic reset occurs automatically 2-3 seconds after power-on, with the reset range limited by the parameter "Automatic Reset Range Limit." Additionally, the automatic reset is also influenced by the parameter "Reset Mode"; when this parameter is set to 0, the automatic reset is disabled (default setting at factory). Manual reset involves resetting through a communication command, with no restrictions on the reset range. For details on communication reset, see sections 6 and 7 of the subsequent communication instructions.

5.2 decoupling:

The sensor has a decoupled coefficient table when it is manufactured. The measurement value can be calculated by inputting the table into the signal processor, including the decoupling operation.

5.3 Second revision:

After the customer installs the sensor, if the measurement value does not match the actual value, the function can be used for a secondary correction. Before the secondary correction, reset to zero, then multiply the ratio of the actual value to the measurement value by 10000, and input it into the processor as the correction factor. Zero point and correction factor are set for each channel in one group.

5.4 filtering:

The software digital filter is set up inside the collector, and the parameter "Digital Filter Depth" can be adjusted. The larger this parameter, the more stable the measurement value becomes, but with greater lag. Additionally, the instrument has a stabilization filter to ensure that the displayed measurement values are more stable under steady conditions. When the thousandth digit of the "Digital Filter Depth" parameter is 1, the stabilization filter is effective. It is set to 8 at factory release; if changed to 1008, the stabilization filter function is activated. For rapid measurements, the stabilization filter may affect the measurement results. For specific settings, please consult our after-sales service personnel.

The format of the returned data is the same as above, one data per four bytes, but this data is in the format of a floating point number and is sent in the standard floating point number format. The high word of the floating point number is at the front and the low word is at the back when it leaves the factory. The low word can be set to the front by setting a parameter.

- Modify the zero mode:

The communication address of parameter reset mode is 0x606 (long type) or 6 (float type). The communication command to turn off power on reset and zero tracking (parameter value =0) is as follows:

transmit by radio: 01 10 06 06 00 02 04 00 00 00 00 41 45

return: 01 10 06 06 00 02 a0 f9

01 To collect the machine code, 10 (decimal 16) is the write instruction, 0606 is the parameter address, 00 02 is the number of data to be written, 2 bytes correspond to one parameter, 04 indicates that the following 4 bytes are the data to be written, i.e., 00 00 00 00 (corresponding to decimal 0), and the following 41 45 are the check code.

- Manual reset:

Refer to the attached table. Write 1-6 to address 0xa20 to complete the zeroing of channels 1-6, and write 7 to complete the zeroing of all channels.

transmit by radio: 01 10 0a 20 00 02 04 00 00 00 01 4e d7

return: 01 10 0a 20 00 02 40 8a

- Hardware calibration:

The processor must be calibrated before leaving the factory. First, add 0mv/v and 2mv/v signals to each channel respectively, and then send the following commands:

- Enter 0mv and then send the command: 01 10 0a 20 00 02 04 00 00 00 33 n1 n2

return: 01 10 0a 20 00 02 40 8a

00 00 00 33 (corresponding to decimal 51) completes the zero calibration of channel 1. Send 52-56 to complete the zero calibration of channels 2-6. n1 n2 is the check code.

- Enter 2mv/v and send calibration command: 01 10 0a 20 00 02 04 00 00 00 3d 4e c6

return: 01 10 0a 20 00 02 40 8a

00 00 00 3d (corresponding to decimal 61) completes channel 1 full calibration, with six channels written to 61-66 respectively.

- Send the save command, see the example below.

- Data preservation:

After all parameters of the collector are modified (including direct modification, reset, calibration, recovery to factory, etc.), data saving instructions need to be executed, otherwise the data will be lost after power on.

Send command: 01 10 0a 20 00 02 04 00 00 00 28 8f 09

return: 01 10 0a 20 00 02 40 8a

Write 00 00 00 28 (decimal 40) to the address 0xa20 to complete data saving. During data saving, the CPU will stop all operations, and the communication return will have a delay of more than 100ms.

6.2 Active sending of ASC data protocol:

When the collector communication 485 protocol is modified to 2, it is in active transmission mode. The collector will automatically upload the asc code value of the measurement value according to the "packet interval" time, and the format is as follows:

+1111.1+2222.2+3333.3-4444.4-5555.5+6666.6 (enter 0xd)

If active transmission is set up, the communication will not be executed. In this case, you can modify the communication protocol again with the Ethernet port or restore it to the modbus-RTU protocol by restoring the factory Settings.

7. Ethernet communication (this function is only supported in model A)

7.1 communicating protocol:

The collector supports the modbus-TCP protocol, D.AS_TCP protocol, and D.ARS_TCP protocol. The initial IP address for the Ethernet port is 192.168.1.100, with a port of 502. The client's IP address is 192.168.1.110, with a port of 8000. These addresses must be reset according to the client device, and it is required that the collector's IP address and the client's IP address must be on the same subnet.

7.2 Modbus-TCP protocol:

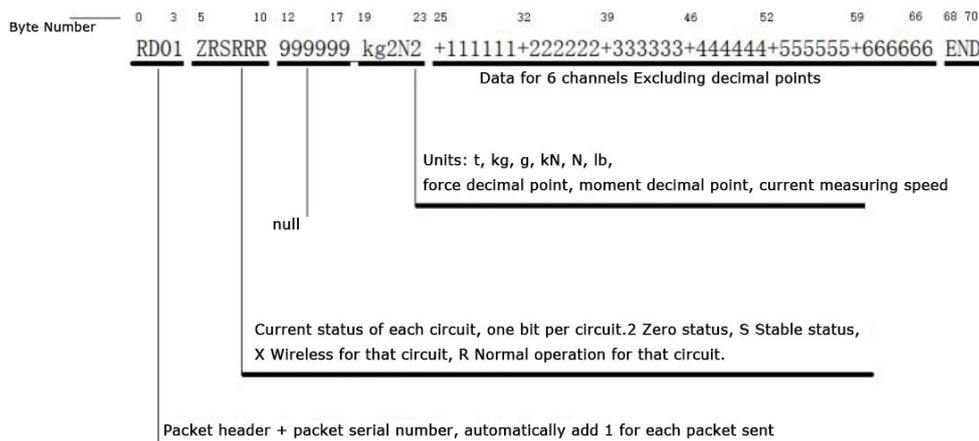
The communication parameters, addresses and commands are consistent with the 485 communication and can be used by referring to section 6. The communication test of the Ethernet port can be performed using the general test software (which can be obtained from our customer service).



7.3 Ethernet protocol 2(D.AS_TCP):

According to the "data transmission interval" (parameter 39), the protocol actively uploads information such as measurement values and system status (see the attached figure below). At the same time, it can receive the customer's ASC operation instructions to complete parameter modification, measurement value calibration and zeroing operations.

- The data format in which the data is automatically uploaded



➤ Interaction command format

The interactive command is in asc format and has a fixed length of 20byte

COMD[space 32]nnnn[space]sddddddd[space][CR 13]

COMD is the command: READ reads data from the nnnn address (Table 1 serial number)

WRIT writes dddddddd to the nnnn address

ZERO, the force value is cleared to zero, nnnn=1-6 clears the 1-6 channels, nnnn=7 clears all SEST and allows TCP to be actively sent

The SESP shuts down active sending

Save, save the data

The format of ANSW reply command is also fixed at 20bytes

The meaning of the address and data remains the same when reading and writing replies

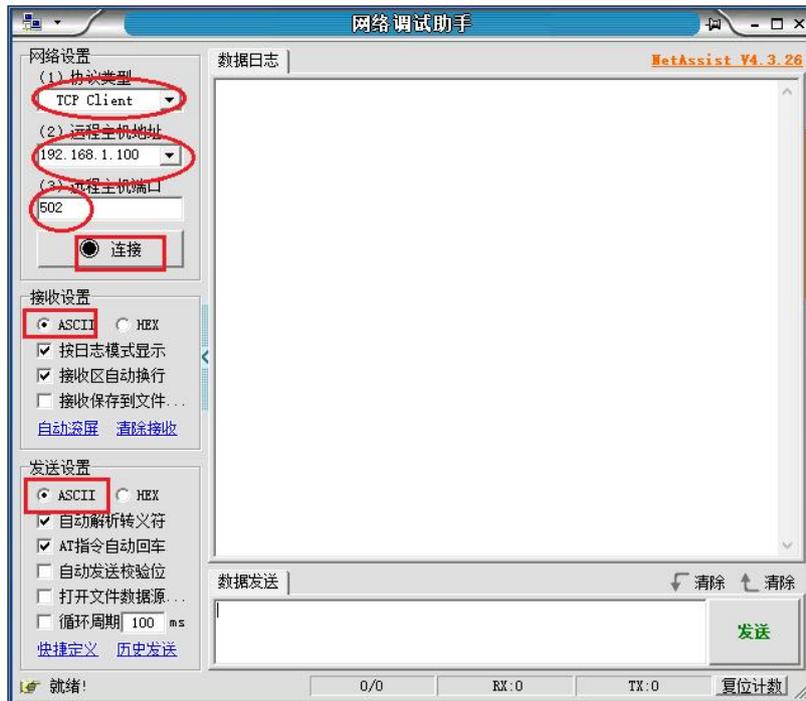
ANnn aaaa sddddddd[CR 13]

nnnn Unsigned numbers 0-9999

s="+" or "-"

ddddddd A number without a decimal point

➤ testing software



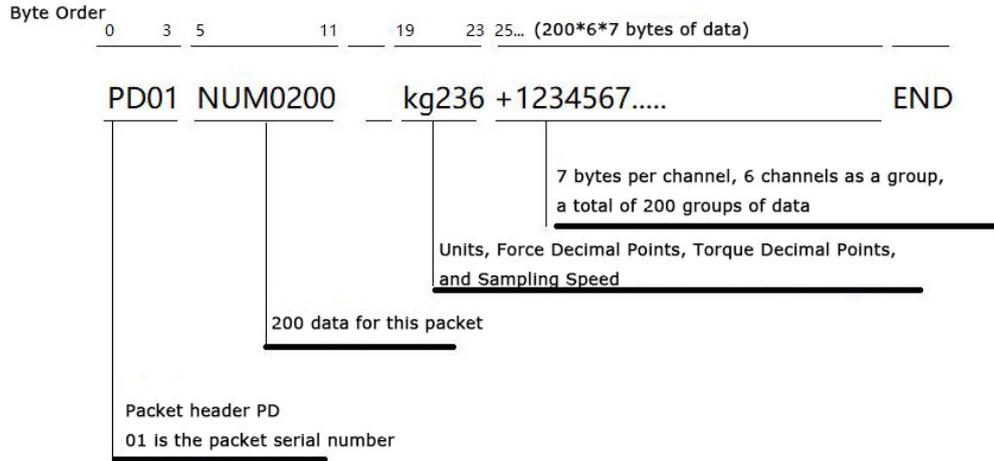
➤ IP address Settings:

When using the D.AS_TCP protocol, the computer acts as a client and only needs to set the remote server address (the IP of the collector) and port number. The computer and the collector should be on the same network segment.

7.4 Ethernet protocol 3(D.ARS_TCP):

After all real-time measurement values are packaged, they are automatically uploaded according to the "data transmission interval" (parameter 39), and the number of data uploaded each time

All measurements are sent within the interval between two transmissions. If the data collection speed is too fast and the total amount of data exceeds 4000 bytes, the excess will be discarded. The modified protocol uniformly supports ASC interactive operations, and the command format is the same as protocol 2. The format of the data packet to be packaged and sent is as follows:



7.5 other

8. General parameter table

The parameter table is arranged in the order of 485 communication addresses. The communication address is a long type data, and if it is a floating point number, it is subtracted from the address

0x600 (hexadecimal). The serial number corresponds to the Ethernet read/write address. Both 304A and 304B products can read the following parameters through 485 communication.

parameter list

Order number	Mailing address	Parameter name	Range of values (default value)	Read-write	Remarks	Parameter usage permissions
1	0x602	Manual reset range	0-500000d(500000)	R/W		Be in common use
2	0x604	Automatic tracking range	0-5000d(50)	R/W		Be in common use
3	0x606	Zeroing mode	Power on and reset is valid if the unit is 1 Ten is 1 zero tracking valid (00)	R/W		Be in common use
4	0x608	Determine the conditions for stability	0-1000d(50)	R/W		Be in common use
6	0x60c	Digital filter depth	0-1200(8) A thousand is allowed for stable filtering	R/W	The maximum for 100 is 2	Be in common use
10	0x614	Unit	1-t 2-kg 3-g 4-kN 5-N6-1b (5)	R/W		Be in common use
11	0x616	Radix point	0-5(2)	R/W		Be in common use
12	0x618	Torque is decimal	0-5(2)	R/W		Be in common use
13	0x61a	Picking rate	0-7=6.25 12.5 25	R/W		Be in common use

			50 100 200 400 800 (4)			use
16	0x620	Decoupling coefficient multiplier	0-10 (5)			Be in common use
26	0x634	458 protocol	0-invalid 1- <u>modbus</u> 2-AutoSend (1)	R/W		Be in common use

Order number	Mailing address	Parameter name	Range of values (default value)	Read-write	Remarks	Parameter usage permissions
27	0x636	Communication baud rate	0-6 =2400 4800 9600 19200 38400 57600 115200 (6)	R/W		Be in common use
28	0x638	Data format	0-15= n81 n82 e81 e82 o81 o82, when the tenth digit is 1, the high word of data is at the back (00)	R/W		Be in common use
29	0x63a	Package spacing	0-0.1s (0.01)	R/W		Be in common use
30	0x63c	Address	0-255 (1)	R/W		A sincere
31	0x63e	IPH	0-255255 (192168)	R/W		A sincere
32	0x640	IPL	0-255255 (1100)	R/W		A sincere
33	0x642	port	0-59999 (502)	R/W		A sincere
34	0x644	Ethernet protocol	0-Invalid 1-MB_TCP 2-DAS_TCP 3-D. ARS_TCP (1)	R/W		A sincere
35	0x646	Remote IPH UDP destination IP	0-255255 (192168)	R/W		A sincere
36	0x648	Far-end IPL	0-255255 (1110)	R/W		A sincere
37	0x64a	Far-end port	0-59999 (8000)	R/W		A sincere
38	0x64c	Ethernet address	0-255	R/W		A sincere
39	0x64e	Data transmission interval	0-60.000s (0.025)	R/W		A sincere
40	0x650	Relationship matrix A01 (FX)	-999999~999999 (100000)	R/W		Be in common use

41	0x652	Relationship matrix A02 (FX)	-999999~999999 (100000)	R/W		Be in common use
42	0x654	Relationship matrix A03 (FX)	-999999~999999 (100000)	R/W		Be in common use
43	0x656	Relationship matrix A04 (FX)	-999999~999999 (100000)	R/W		Be in common use
44	0x658	Relationship matrix A05 (FX)	-999999~999999 (100000)	R/W		Be in common use
45	0x65a	Relationship matrix A06 (FX)	-999999~999999 (100000)	R/W		Be in common use
46	0x65c	Secondary correction factor K1	-99999~999999 (10000)	R/W		Be in common use
47	0x65e	Decouple the zero point Z1	-999999~999999 (0)	R/W		Be in common use
48	0x660	Channel 1 hardware zero point	-99999~999999 (0)	R/W		Be in common use
49	0x662	Channel 1 hardware fullness	1000-999999 (134000)	R/W		Be in common use

50	0x664	Relationship matrix B01 (FY)	-999999~999999 (100000)	R/W		Be in common use
51	0x666	Relationship matrix B02 (FY)	-999999~999999 (100000)	R/W		Be in common use
52	0x668	Relationship matrix B03 (FY)	-999999~999999 (100000)	R/W		Be in common use
53	0x66a	Relationship matrix B04 (FY)	-999999~999999 (100000)	R/W		Be in common use
54	0x66c	Relationship matrix B05 (FY)	-999999~999999 (100000)	R/W		Be in common use
55	0x66e	Relationship matrix B06 (FY)	-999999~999999 (100000)	R/W		Be in common use
56	0x670	Secondary correction factor K2	-99999~999999 (10000)	R/W		Be in common use
57	0x672	Decouple the zero point Z2	-999999~999999 (0)	R/W		Be in common use
58	0x674	Channel 2 hardware zero point	-99999~999999 (0)	R/W		Be in common use
59	0x676	Channel 2 hardware fullness	1000-999999 (134000)	R/W		Be in common use
60	0x678	Relationship matrix C01 (FZ)	-999999~999999 (100000)	R/W		Be in common use
61	0x67a	Relationship matrix C02 (FZ)	-999999~999999 (100000)	R/W		Be in common use

Order number	Mailing address	Parameter name	Range of values (default value)	Read-write	Remarks	Parameter usage permissions
62	0x67c	Relationship matrix C03 (FZ)	-999999~999999 (100000)	R/W		Be in common use
63	0x67e	Relationship matrix C04 (FZ)	-999999~999999 (100000)	R/W		Be in common use
64	0x680	Relationship matrix C05 (FZ)	-999999~999999 (100000)	R/W		Be in common use
65	0x682	Relationship matrix C06 (FZ)	-999999~999999 (100000)	R/W		Be in common use
66	0x684	Secondary correction factor K3	-99999~999999 (10000)	R/W		Be in common use
67	0x686	Decouple the zero point Z3	-999999~999999 (0)	R/W		Be in common use
68	0x688	Channel 3 hardware zero point	-99999~999999 (0)	R/W		Be in common use
69	0x68a	Channel 3 hardware fullness	1000-999999 (134000)	R/W		Be in common use
70	0x68c	Relationship matrix D01 (MX)	-999999~999999 (100000)	R/W		Be in common use
71	0x68e	Relationship matrix D02 (MX)	-999999~999999 (100000)	R/W		Be in common use
72	0x690	Relationship matrix D03 (MX)	-999999~999999 (100000)	R/W		Be in common use
73	0x692	Relationship matrix D04 (MX)	-999999~999999 (100000)	R/W		Be in common use
74	0x694	Relationship matrix D05 (MX)	-999999~999999 (100000)	R/W		Be in common use
75	0x696	Relationship matrix D06 (MX)	-999999~999999 (100000)	R/W		Be in common use
76	0x698	Secondary correction factor K4	-99999~999999 (10000)	R/W		Be in common use
77	0x69a	Decouple the zero point Z4	-999999~999999 (0)	R/W		Be in common use
78	0x69c	Channel 4 hardware zero point	-99999~999999 (0)	R/W		Be in common use
79	0x69e	Channel 4 hardware fullness	1000-999999 (134000)	R/W		Be in common use
80	0x6a0	Relationship matrix E01 (MY)	-999999~999999 (100000)	R/W		Be in common use
81	0x6a2	Relationship matrix E02 (MY)	-999999~999999 (100000)	R/W		Be in common use
82	0x6a4	Relationship matrix E03 (MY)	-999999~999999 (100000)	R/W		Be in common use
83	0x6a6	Relationship matrix E04 (MY)	-999999~999999 (100000)	R/W		Be in common use
84	0x6a8	Relationship matrix E05 (MY)	-999999~999999 (100000)	R/W		Be in common use
85	0x6aa	Relationship matrix E06 (MY)	-999999~999999 (100000)	R/W		Be in common use
86	0x6ac	Secondary correction factor K5	-99999~999999 (10000)	R/W		Be in common use
87	0x6ae	Decouple the	-99999~99999 (0)	R/W		Be in Com-

		zero point Z5				mon use
88	0x6b0	Channel 5 hardware zero point	-99999~999999 (0)	R/W		Be in common use
89	0x6b2	Channel 5 hardware fullness	1000-999999 (134000)	R/W		Be in common use
90	0x6b4	Relationship matrix F01 (MZ)	-999999~999999 (100000)	R/W		Be in common use
91	0x6b6	Relationship matrix F02 (MZ)	-999999~999999 (100000)	R/W		Be in common use
92	0x6b8	Relationship matrix F03 (MZ)	-999999~999999 (100000)	R/W		Be in common use
93	0x6ba	Relationship matrix F04 (MZ)	-999999~999999 (100000)	R/W		Be in common use
94	0x6bc	Relationship matrix F05 (MZ)	-999999~999999 (100000)	R/W		Be in common use
95	0x6be	Relationship matrix F06 (MZ)	-999999~999999 (100000)	R/W		Be in common use
96	0x6c0	Secondary correction factor K6	-99999~999999 (10000)	R/W		Be in common use
97	0x6c2	Decouple the zero point Z6	-999999~999999 (0)	R/W		Be in common use
98	0x6c4	Channel 6 hardware zero point	-99999~999999 (0)	R/W		Be in common use
99	0x6c6	Channel 6 hardware fullness	1000-999999 (134000)	R/W		Be in common use
500	0xa00	1-6 Channel measurement results (Channel 1 measurement value)	Each channel occupies two addresses	R		Be in common use
501	0xa02	(Channel 2 measurement value)	Each channel occupies two addresses	R		Be in common use
502	0xa04	(Channel 3 measurement value)	Each channel occupies 2 addresses	R		Be in common use

Order number	Mailing address	Parameter name	Range of values (default value)	Read-write	Remarks	Parameter usage permissions
503	0xa06	(Channel 4 measurement value)	Each channel occupies two addresses	R		Be in common use
504	0xa08	(Channel 5 measurement value)	Each channel occupies two addresses	R		Be in common use
505	0xa0a	(Channel 6 measurement value)	Each channel occupies two addresses	R		Be in common use
506	0xa0c	Status flag	See note 1	R		Be in common use
516	0xa20	Communication commands	See note 2	R/W		Be in common use
540	0xa50	Channels 1-6 mv/v signals (channels 1 mv/v signals)	Each channel occupies two addresses	R		Be in common use
541	0xa52	(Channel 2mv/v signal)	Each channel occupies two addresses	R		Be in common use
542	0xa54	(Channel 3mv/v signal)	Each channel occupies 2 addresses	R		Be in common use
543	0xa56	(Channel 4mv/v signal)	Each channel occupies two addresses	R		Be in common use
544	0xa58	(Channel 5mv/v signal)	Each channel occupies two addresses	R		Be in common use
545	0xa5a	(Channel 6mv/v signal)	Each channel occupies 2 addresses	R		Be in common use
550	0xa64	Measurements of channel 1 before the second correction	Each channel occupies two addresses	R		Be in common use
551	0xa66	Measurements of the two channels before the second correction	Each channel occupies two addresses	R		Be in common use
552	0xa68	Measurements of the three channels before the second correction	Each channel occupies two addresses	R		Be in common use
553	0xa6a	Measurements of the four channels before the second correction	Each channel occupies two addresses	R		Be in common use
554	0x6c	Measurements of	Each channel occupies two	R		Be in com-

		the five channels before the second correction	addresses			mon use
555	0xa6e	Measurements of the six channels before the second correction	Each channel occupies two addresses	R		Be in common use

Note 1: Each bit (binary) of this parameter corresponds to a state, d0...d5 is the stable mark of 1-6 paths, and d8...13 is the zero state of 1-6 paths,

d16 (d9) = memory exception, d28= Ethernet active send shutdown (read and write), d29= 485 active send shutdown, d31= power on initial flag note 2: Communication command means that writing the corresponding data to this address can achieve certain functions.

=1-6 Clear zero 7 Clear all

=30, restore factory

(Note! Manual factory recovery: In the case of power failure, press the K key and then power on. Wait for the red signal to flash 3

After pressing the button, power on again. After 3 seconds, it will be normal. In addition, model B supports restoring the factory output to analog output. Use K1 key for operation, and K2 key for regular factory restoration. The method for factory restoration is the same.)

=40 Save data to memory (any modification of parameters requires a save command, which takes effect when power is reconnected)

= 51-56 Hardware zero correction

=61-66 Hardware fullness correction

D. R304B Product overview

9. Function change

D. R304B is based on the functions of D. R304A, eliminating Ethernet communication while retaining 485 communication. It adds six sensor inputs converted into analog voltage outputs ranging from -10V to +10V. The hardware requires two circuit boards, R304 and R302, to implement this. D. R304B can read and modify parameters through 485 and two serial ports, with specific addresses referenced in the 8.0 Communication Parameter Table.

10. Add parameters

Order number	Mailing address	Parameter name	Span (default value)	Read-write	Remarks	Communication operation object
1	0x622	Extended functionality is allowed	0-off 1-allow	R/W	You need to connect 485 communication 2 separately and enable the extended function	(485, communication serial port 2)
2	0x624	Inter-board communication interval	1-2 (2ms)	R/W	You need to write separately to 485 communication 2	(485, communication serial port 2)
3	0x630	302 Board machine code address	0-255 (2)	R/W	You need to connect 485 communication 1 write separately, and it must be different from 485 communication 2 machine code	(485, communication serial port 1)
4	0x600	Transmitter zero point 1	0-16383	R/W	Channel 1 transmitter zero point	(485, communication serial port 1)
5	0x602	Transmitter fullness 1	0-16383	R/W	Channel 1 is full	(485, communication serial port 1)
6	0x604	Transmitter zero point 2	0-16383	R/W	Channel 2 transmitter zero point	(485, communication serial port 1)
7	0x606	Transmitter fullness 2	0-16383	R/W	Channel 2 is transmitting full range	(485, communication serial port 1)
8	0x608	Transmitter zero point 3	0-16383	R/W	Channel 3 transmitter zero point	(485, communication serial port 1)
9	0x60a	Transmitter fullness 3	0-16383	R/W	Channel 3 is transmitting full range	(485, communication serial port 1)
10	0x60c	The transmitter zero is 4	0-16383	R/W	Channel 4 transmitter zero point	(485, communication serial port 1)
11	0x60e	The transmitter is full at 4	0-16383	R/W	Channel 4 is transmitting full range	(485, communication serial port 1)
12	0x610	Transmitter zero point 5	0-16383	R/W	Channel 5 transmitter zero point	(485, communication serial port 1)
13	0x612	The transmitter is full at 5	0-16383	R/W	Channel 5 is set to full scale	(485, communication serial port 1)
14	0x614	Transmitter zero point 6	0-16383	R/W	Channel 6 transmitter zero point	(485, communication serial port 1)
		The transmitter			Channel 6 is trans-	(485, communication

15	0x616	is full at 6	0-16383	R/W	mitting full range	serial port 1)
16	0x618	Rated capacity 1	0-999999	R/W	Channel 1 rated range	(485, communication serial port 1)
17	0x61a	Rated capacity 2	0-999999	R/W	Channel 2 rated capacity	(485, communication serial port 1)
18	0x61c	Rated capacity 3	0-999999	R/W	Channel 3 rated capacity	(485, communication serial port 1)
19	0x61e	The capacity is 4	0-999999	R/W	Channel 4 rated capacity	(485, communication serial port 1)
20	0x620	Rated capacity 5	0-999999	R/W	Channel 5 rated capacity	(485, communication serial port 1)
21	0x622	Rated capacity 6	0-999999	R/W	Channel 6 rated capacity	(485, communication serial port 1)
22	0xa14	Analog output 1	0-16383	R/W	Channel 1 simulates the output value	(485, communication serial port 1)
23	0xa16	Analog output 2	0-16383	R/W	Channel 2 simulates the output value	(485, communication serial port 1)

Order number	Mailing address	Parameter name	Span (default value)	Read-write	Remarks	Communication operation object
24	0xa18	Analog output 3	0-16383	R/W	Channel 3 simulates output values	(485, communication serial port 1)
25	0xa1a	Analog output 4	0-16383	R/W	Channel 4 simulates the output value	(485, communication serial port 1)
26	0xa1c	Analog output 5	0-16383	R/W	Channel 4 simulates the output value	(485, communication serial port 1)
27	0xa1e	Analog output 6	0-16383	R/W	Channel 6 simulates the output value	(485, communication serial port 1)
28	0x626	Communication control	0-Close 1-Open	R/W	485 Communicate 1 switch	(485, communication serial port 1)
500	0xa00	1-6 Channel measurement results (Channel 1 measurement value)	Each channel takes up Use two addresses	R		(485, communication serial port 2)
501	0xa02	(Channel 2 measurement value)	Each channel takes up Use 2 addresses	R		(485, communication serial port 2)
502	0xa04	(Channel 3 measurement value)	Each channel takes up Use two addresses	R		(485, communication serial port 2)
503	0xa06	(Channel 4 measurement value)	Each channel takes up Use two addresses	R		(485, communication serial port 2)
504	0xa08	(Channel 5 measurement value)	Each channel takes up Use two addresses	R		(485, communication serial port 2)
505	0xa0a	(Channel 6 measurement value)	Each channel takes up Use two addresses	R		(485, communication serial port 2)
516	0xa20	Communication commands	See note 3	R/W	304 A set of general-purpose commands	General (485 communication serial port 1, 2)

Note 3: Communication commands can be used to write data to the address to perform certain functions. Finally, send a save command (write to the address of the communication command 40) Power is reconnected and effective.

If == 10-15, channels 1-6 are stored as zero; if 16, all are stored as zero

If the channels 1-6 are full, it is equal to 20-25; if all the channels are full, it is equal to 26

For more parameter details, please refer to the parameter table 8 above.

All parameter addresses in the above table should not be modified without authorization by non-internal professionals. The simulation output and calibration functions have been completed at the factory. When using, you only need to use D, R304 debugging software to debug and calibrate the multidimensional force sensor.

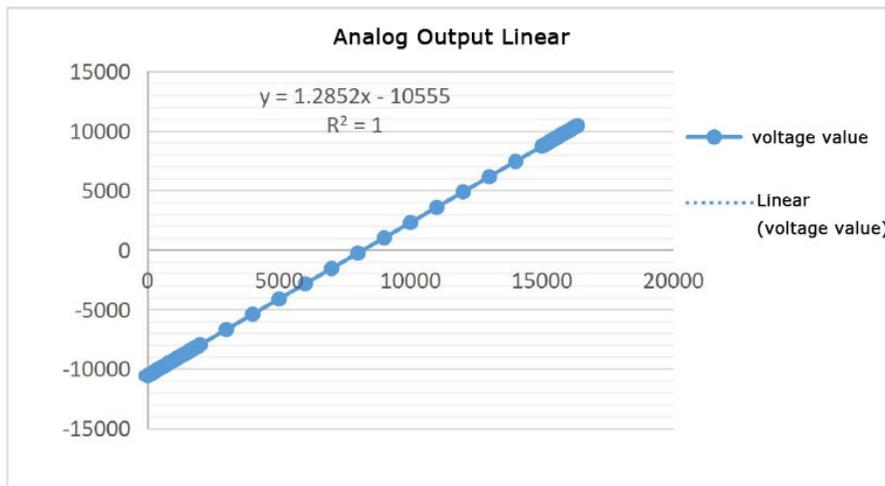
11. Related technical parameters



11.1 Ripple (noise <30 mv)



11.2 The channel response time is 10.9ms (the sampling rate is 800 times/s, the filtering is 1, and the stability is judged 0 Under the condition that)



11.3 Simulate the output voltage curve

12. D.R304B Main picture of product appearance and definition of terminal block

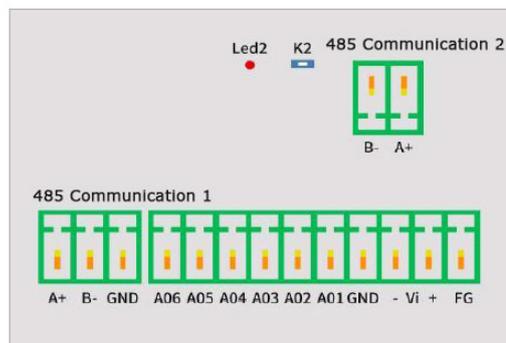
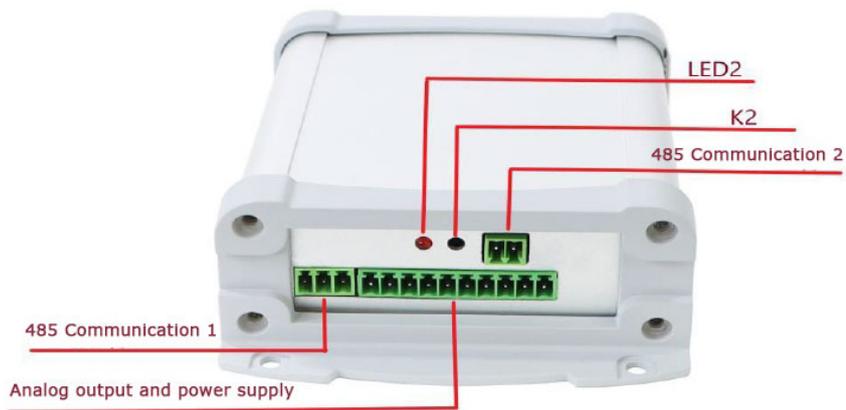


Figure 1

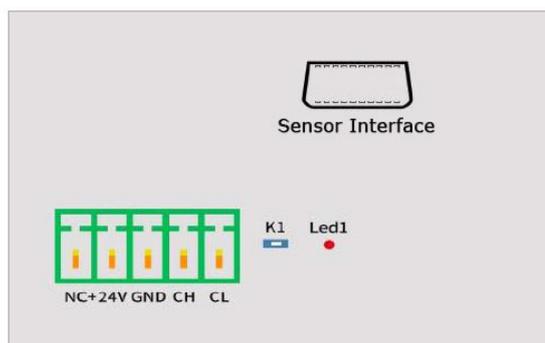


Figure 2

The terminal is defined as follows:



Front cover subjective and terminal wiring diagram 3



Back cover subjective and terminal wiring diagram 4

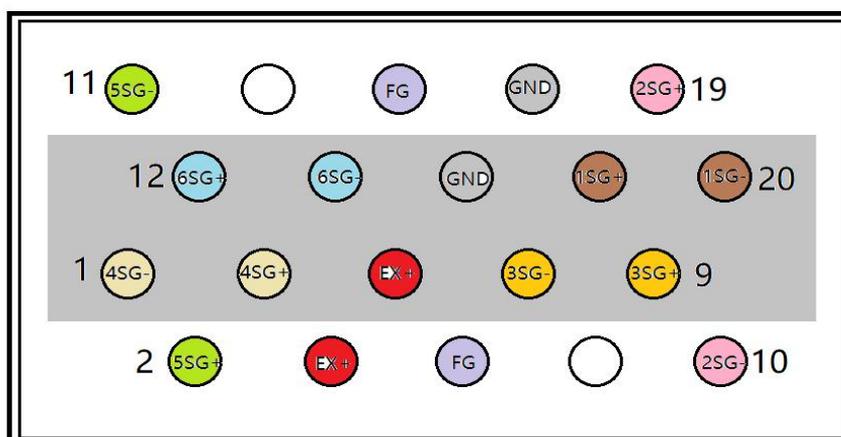


Figure 5 shows the definition of sensor interface pins

13. frequently asked questions

Q: The instrument shows erratic values?

A: Please confirm whether the sensor wiring is normal. In order to improve sampling performance, the force value will not be fixed at 0 when the sensor is not connected;

The large display value is usually due to the absence of a sensor.

14. Warranty statement

- The whole machine is guaranteed for one year from the date of sale. If any product fault is found during the warranty period, please contact us in time. Do not disassemble it by yourself, otherwise our company has the right to refuse warranty.
- In any of the following cases, a fee will be charged for repair:
 1. Products whose warranty period has expired.
 2. Damaged due to improper transportation or storage, or not operated as required by the instructions.
 3. Products that have been disassembled by themselves or repaired at a non-company warranty point.
 4. Products without product number or product number on warranty card that do not match the product number of the repaired product or have been altered.
 5. Damage caused by reasons other than product quality during the warranty period.

15. product types choosing

Model	Performance index	Outline dimension	Remarks
D.R304A	RS485 Communication, Ethernet communication	114*94*42	The maximum collection rate is 800 times
D.R304B	RS485 Communication, +-10V output	114*94*42	The maximum collection rate is 800 times
D.R304C	RS485, etherCAT (under development)		