

Iron Chip Sensor **LWTX-07** Modbus protocols

1 communication method

Both sides of the communication use 485 interface communication mode, using the standard Modbus protocol, baud rate of 115200, parity bit is no parity, data bit is 8 bits, stop bit is 1 bit.

2. Data frame format

Sensor Description:

The default factory-set 485 address of the sensor can be queried from the PN number of the sensor itself, e.g. PN: 20191209001, the default factory-set 485 address is 01, and so on.

The sensor has a total of the following commands:

1、The command to read the full segment interval granular data is as follows:

01 03 00 00 00 1C 44 06

Sensor Response:

[illegible]

address	function code	byte count	Iron particle number information	Non-Ferrous Particle Number Information	CRC
0x01	0x03	0x38	0x00 0x00	0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00 0x00	0x8F 0x02

There are 56 bytes of particle number information, and the specific particle intervals are assigned as shown in the table below:

Particle Information Data Sheet

NO.	variable name	Variable type	address offset	clarification	Range (in um)
1	Fe0	32-bit unsigned	1	Iron pellets 1st gear	50~100
2	Fe1	32-bit unsigned	3	Iron pellets 2st gear	100~150
3	Fe2	32-bit unsigned	5	Iron pellets 3st gear	150~200
4	Fe3	32-bit unsigned	7	Iron pellets 4st gear	200~250
5	Fe4	32-bit unsigned	9	Iron pellets 5st gear	250~300
6	Fe5	32-bit unsigned	11	Iron pellets 6st gear	300~350
7	Fe6	32-bit unsigned	13	Iron pellets 7st gear	350~400
8	Fe7	32-bit unsigned	15	Iron pellets 8st gear	400~450
9	Fe8	32-bit unsigned	17	Iron pellets 9st gear	>450
10	Fe_v	single precision floating point	19	Iron particle volume	体积
11	NFe0	32-bit unsigned	21	Non ferrous particles 1st stage	300~400
12	NFe1	32-bit unsigned	23	Non ferrous particles 2st stage	400~500
13	NFe2	32-bit unsigned	25	Non ferrous particles 3st stage	>500
14	NFe_v	single precision floating point	27	Volume of non-ferrous particles	volumetric

2、The commands to query single-channel particle information are as follows:

```

01 03 00 00 00 02 C4 0B    //FE0
01 03 00 02 00 02 65 CB    //FE1
01 03 00 04 00 02 85 CA    //FE2
01 03 00 06 00 02 24 0A    //FE3
01 03 00 08 00 02 45 C9    //FE4
01 03 00 0A 00 02 E4 09    //FE5
01 03 00 0C 00 02 04 08    //FE6
01 03 00 0E 00 02 A5 C8    //FE7

```

01 03 00 10 00 02 C5 CE //FE8
 01 03 00 12 00 02 64 0E // FE_V
 01 03 00 14 00 02 84 0F // NFE0
 01 03 00 16 00 02 25 CF //NFE1
 01 03 00 18 00 02 44 0C //NFE2
 01 03 00 1A 00 02 E5 CC //NFE_V

For example, send: 01 03 00 00 00 02 C4 0B

Sensor Response:

01 03 04 00 00 00 00 FA 33

address	function code	byte count	Particle Number Information	CRC
0x01	0x03	0x04	0x00 0x00 0x00 0x00	0x FA 0x33

3、The Clear Accumulated Records command is as follows:

01 06 00 00 00 00 89 CA

The Clear Accumulated Data command has no return value.

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