Agrinovo

AGRINOVO-CHL-100

Digital Chlorophyll Sensor

1. Overview

The AGRINOVO-CHL-100 is a digital chlorophyll sensor for water quality monitoring. It measures chlorophyll concentration and temperature using fluorescence detection, with an integrated self-cleaning brush for low-maintenance operation.

Key Features

- Chlorophyll: 0–500 µg/L
- Temperature: 0–50°C
- Accuracy: ±3% FS
- Self-cleaning brush
- RS485 Modbus-RTU
- 32-bit float (IEEE-754)
- Little-endian byte order
- 9–36 VDC power

Applications

- Algae monitoring
- Water quality assessment
- Aquaculture
- Environmental monitoring

2. Specifications

Parameter	Specification
Chlorophyll Range	0–500 µg/L
Temperature Range	0–50°C
Accuracy	±3% FS
Supply Voltage	9–36 VDC
Submersion Depth	Max 2 meters
Maintenance	Clean every 4–8 weeks

3. Wiring

Core	Color	Function	Description
1	**Brown**	V+	Power Supply (9–36V DC)
2	**Black**	AGND	Power Ground
3	**Blue**	RS485-A	Data+
4	**White**	RS485-B	Data-

4. Communication Settings

Parameter	Value
Protocol	Modbus-RTU
Baud Rate	9600 bps
Data Bits	8
Parity	None
Stop Bits	1
Default Address	0x01

Data Format

- **Type**: 32-bit Single Precision Float (IEEE-754)
- **Byte Order**: Little-endian (parse sequence: 4321)

5. Register Map

Measurement Registers (Function 0x03)

Address (Hex)	Address (Dec)	Description	Range
0x2600	9728–9729	Temperature	0–100°C (float32)
0x2602	9730–9731	Chlorophyll	0–500 µg/L (float32)
0x260A	9738–9739	Signal Value	0–2000 (float32)

Configuration Registers

Address (Hex)	Description	Function	Notes
0x3000	Slave ID	0x03/0x10	Modify address
0x3100	Manual Brush	0x10	Write 0x0000 to trigger
0x3200	Brush Interval	0x10	Default: 60 min (0x3C00)
0x00C8	Factory Reset	0x06	Restore defaults

6. Reading Data

Read Chlorophyll + Temperature

Read 4 registers from 0x2600:

```
Request:  01 03 26 00 00 04 [CRC]
Response: 01 03 08 3F 03 DE 41 71 EB C3 3F [CRC]
```

Decoding (Little-endian float32):

Value	Bytes Received	Reordered	Result
Temperature	3F 03 DE 41	41 DE 03 3F	**27.8°C**
Chlorophyll	71 EB C3 3F	3F C3 EB 71	**1.53 µg/L**

7. Address Configuration

Change Address (0x01 → 0x0A)

Write to register 0x3000:

```
01 10 30 00 00 01 02 0A 00 [CRC]
```

> **Note:** Communication will be lost until reconnecting with the new address.

Broadcast Discovery

Use address 255 (0xFF) to discover unknown device address.

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8. Self-Cleaning Brush

Trigger Manual Clean

Write 0x0000 to register 0x3100:

```
01 10 31 00 00 01 02 00 00 [CRC]
```

Set Cleaning Interval

Write interval (minutes) to register 0x3200. Default: 60 min (0x3C00)

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9. Installation Notes

Placement

- Max depth: 2 meters
- Avoid high-flow areas
- Avoid air bubbles

Maintenance

- Clean every 4–8 weeks
- Depends on water quality
- Use integrated brush