



Datasheet

Dual Channel Universal Controller

GDH-UC2



Committed to process automation solutions

Dual Channel Universal Controller GDH-UC2

The Global Data Harvest GDH-UC2 is a versatile, high-performance multi-parameter controller designed for dual-channel monitoring and maximum flexibility. Its intelligent design features a hybrid first channel supporting both analog and digital sensors, alongside a dedicated digital second channel, giving users greater adaptability in one compact unit.

The GDH-UC2 measures a wide range of parameters - including pH, ORP, conductivity, dissolved oxygen, turbidity, sludge concentration, residual chlorine, ammonia, nitrate, COD, and more - delivering reliable, real-time process insight.

With 4–20 mA outputs, Modbus RTU (RS485) communication, and built-in control for trade waste and other control systems, it integrates seamlessly into existing systems.

Applications

- Thermal power
- Chemical fertilizers
- Metallurgy
- Environmental protection
- Pharmaceuticals
- Biochemistry
- Food
- Sewage
- Semiconductors
- Tap water

Features

- Dual-channel design allows connection of one or two sensors, reducing user costs and providing a cost-effective solution for adding a second sensor in the future.
- IP66 ingress protection, suitable for more complex working conditions.
- Features manual and automatic temperature compensation.



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- Power ground and signal ground design enhances anti-interference capabilities.
- 4.3-inch full-view color screen, with quick switching between digital display and real-time curve modes.
- High precision output circuit design.
- Optoelectronic isolated RS485 communication.
- Storage for up to 500,000 data records.
- High and low alarm functions, hysteresis amount and hysteresis time are adjustable.

Principle

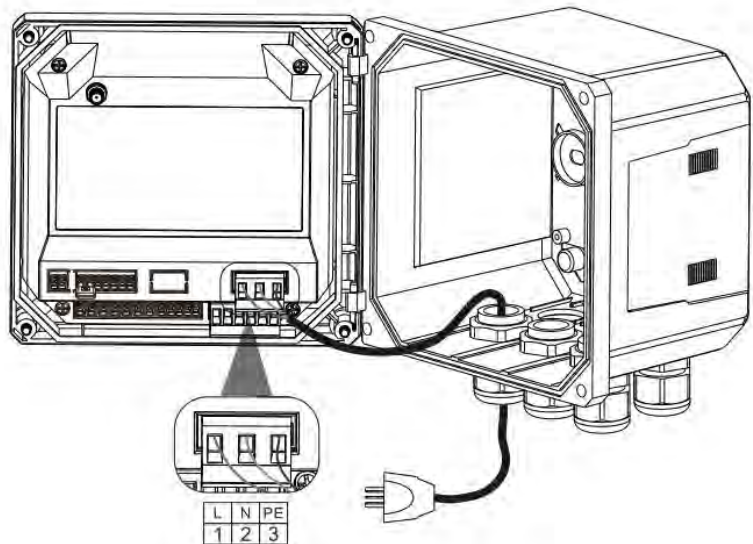
The controller collects process parameters such as temperature, pressure, flow rate, etc. from the site through sensors, transmitters and other devices, which are used as input signals to the controller. The acquired signals are processed and converted into digital signals for operation and processing by the controller. The controller analyzes and calculates the input signals according to the pre-set control algorithm to derive the control quantity. The controller outputs the calculated control quantities to the actuators, such as electric control valves, frequency converters, etc., to realize precise control of the control objects.

Parameters

Measured variables	pH / ORP / Antimony
Measuring ranges	pH/Antimony: (-2.00 ~ 16.00) pH ORP: (-2000 ~ 2000) mV
Input impedance	$\geq 10^{12}\Omega$
Temperature types	NTC10K, Pt1000, Pt100
Temperature range	(-10~130)°C
Accuracy	pH: $\pm 0.02\text{pH}$ Antimony: $\pm 0.2\text{pH}$ ORP: $\pm 2\text{mV}$ NTC10K: (-10~60)°C, accuracy: $\pm 0.3^\circ\text{C}$ (60~130)°C, accuracy: $\pm 2^\circ\text{C}$ Pt1000 accuracy: $\pm 0.3^\circ\text{C}$ Pt100 accuracy: $\pm 0.3^\circ\text{C}$
Resolution	pH/Antimony: 0.01pH; ORP: 1mV
Repeatability	pH: 0.02pH ORP: 1mV
Temperature compensation	Manual compensation; Automatic compensation: Linear, Acid, Base, Pure

Measured variables	pH/ORP/Conductivity/Dissolved Oxygen/Turbidity/Sludge Concentration/Inductive Conductivity/Residual Chlorine/Ammonia nitrogen/Nitrate nitrogen/COD, etc.
Measuring ranges	pH: (0.00 ~ 14.00) pH ORP: (-2000 ~ 2000) mV Dissolved oxygen: (0~40) mg/L Saturation: (0~200)% Conductivity: (0~500) mS/cm Turbidity: (0~4000) NTU Sludge concentration: (0~120000) mg/L Inductive conductivity: (0~2000) mS/cm Residual chlorine: (0~100) mg/L Ammonia nitrogen: (0~1000) mg/L Nitrate nitrogen: (0~1000) mg/L COD: (0~1500) mg/L Note: Actual measurement ranges should refer to the technical data of the connected sensors.
Current output	Isolated, 2-channel (0/4~20) mA configurable to corresponding measurement ranges, load capacity 750Ω, output accuracy ±0.1%FS, compliant with NAMUR NE 43 standards.
Communication output	Isolated, RS485 interface, Modbus-RTU communication protocol.
Alarm output	3-channel SPST (2 alarms + 1 cleaning), NO/NC type, capacity 250VAC, 5A.
Alarm relay delay	0~9999 seconds, adjustable.
Power supply	AC: (85~265)V, 50/60Hz DC: (21.6~26.4) V
Power consumption	≤28W
Cable entries	M20*1.5 cable gland
Cable specification	Spring terminals: suitable for AWG16~AWG24 (0.2mm²~1.5mm²) cables; Plug-in terminals: suitable for AWG12~AWG28 (1mm²~2.5mm²) cables;
Operating environment	Temperature: (0 ~ 60)°C Relative Humidity: 10 %~85% (non-condensing)
Storage environment	Temperature: (-15~65)°C Relative Humidity: 5%~95% (non-condensing) Altitude: <2000m
Ingress protection	IP66
Flame Retardancy	UL94V-0

Wiring



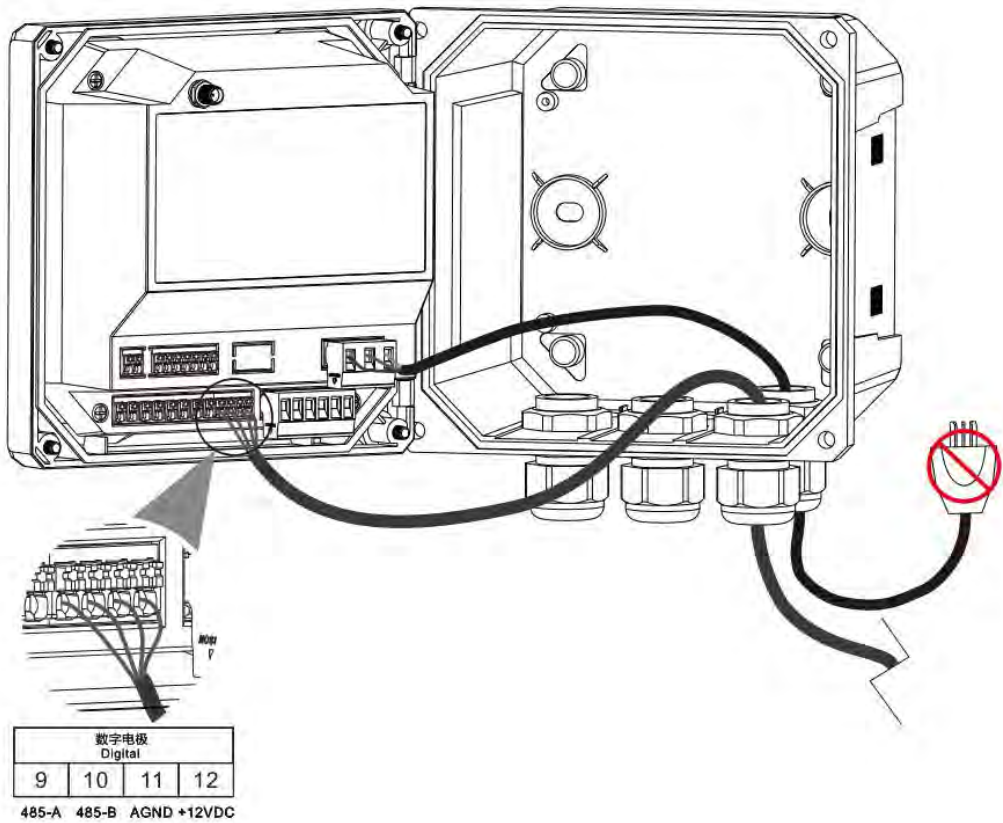
Power wiring schematic

3-wire: Sensor with SG	2-wire: Sensor without SG

Analog sensor wiring instructions

NTC TEMP.electrode	2-wire TEMP.electrode (Pt1000、Pt100)	2-wire TEMP.electrode (Pt1000、Pt100)																											
模拟电极 Analog <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr></table> Temp.A Temp.B	1	2	3	4	5	6	7	8	9	模拟电极 Analog <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr></table> Temp.A Temp.B	1	2	3	4	5	6	7	8	9	模拟电极 Analog <table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr></table> Temp.A Temp.B Temp.C	1	2	3	4	5	6	7	8	9
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	2-wire TEMP.electrodes need to short terminals 7 and 8 (the controller comes with a short-wire, or users can use a wire to connect them)																												

Temperature electrode wiring



Digital sensor wiring schematic

Ordering code

GDH-UC2-7-D-5-5-6-E-P1								Description
GDH-UC2	-	-	-	-	-	-	-	
Input	7							Analog pH/Analog ORP/RS485+RS485
Output		D						2 channels 4-20mA+RS485
		F						2 channels 4-20mA +RS485
Alarm Output			5					2 channels SPST+1 channel time relay
Electrical Interface				5				M20×1.5 cable gland
Protection Level					6			IP66
Power Supply						E		220VAC
						C		24VDC
Accessories							P1	304SS back panel mounting bracket