C33 conductivity (resistivity), salinity, temperature analyzer

Conductivity, PPT, TEMP Analysator

Brief description

C33 type conductivity analyzer supplied by SYCAMIN company can measure full measuring of measurement range from the low to the high. Accepting various kinds of 3400 series contact-type conductivity sensor. Analyzer adopts three groups of four characters' backlight liquid crystal display (LCD). Supplying four programmable alarm point and one programmable function relay, two isolated electric current output, one editable pulse, one RS232 or RS485 output, password protection.

Application fields

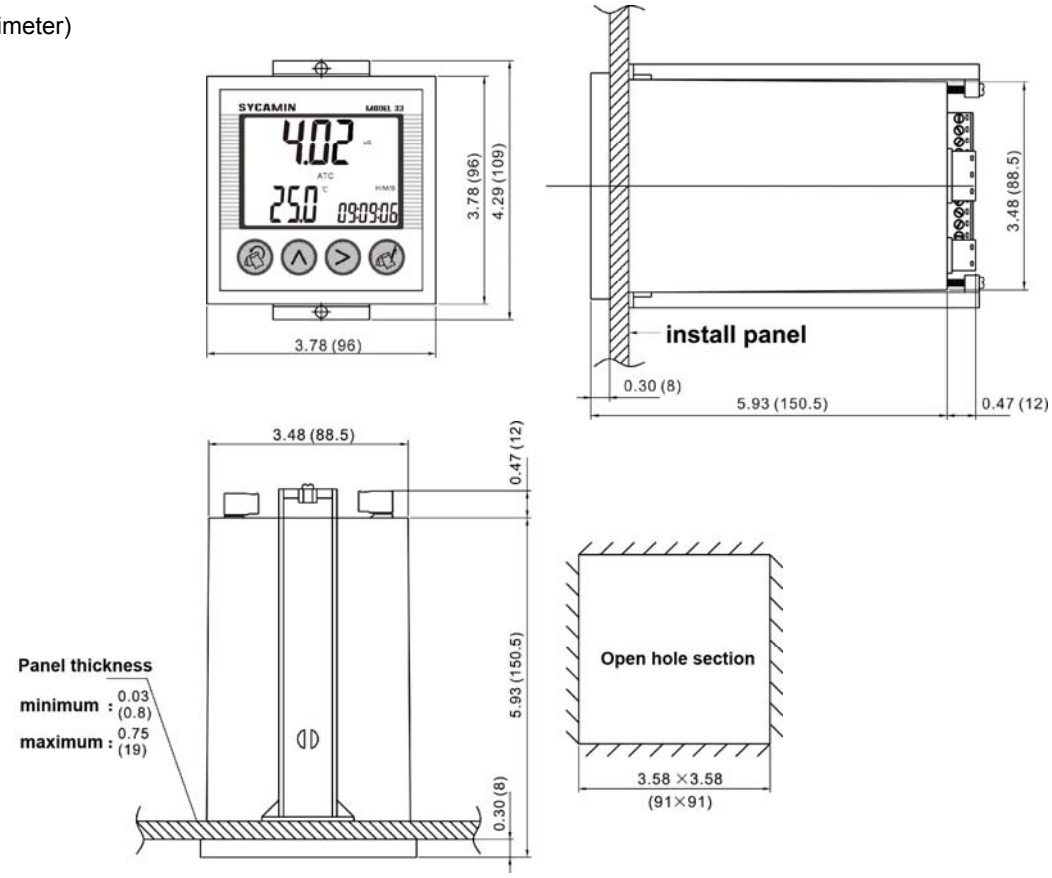
Being widely used in oiliness, power generation, brewing, pharmacy, chemical industry, water treatment, semiconductor fabrication industry and so on.

System description diagraph

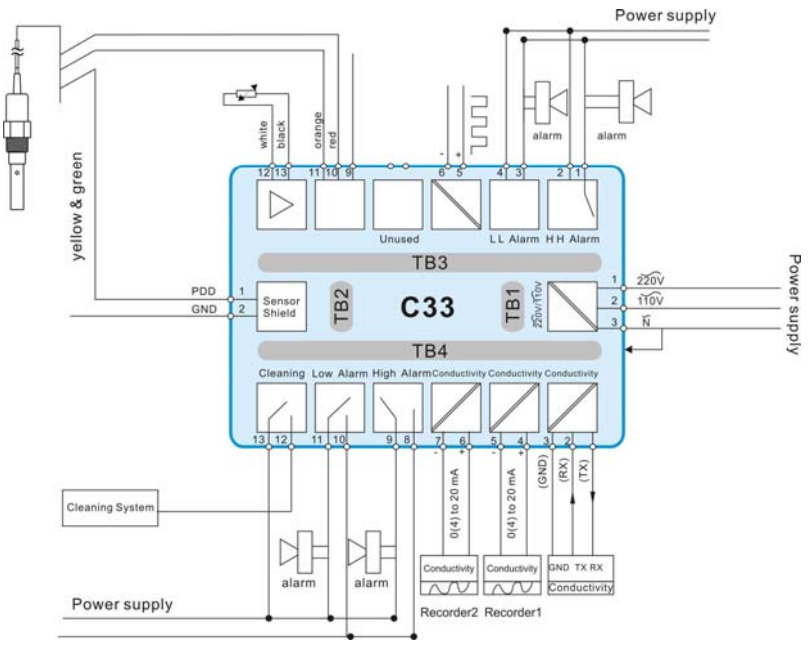
Order reference number (33.10.0101)

System description diagraph

Unit: inch (millimeter)



Electrical connection diagraph



Features description

Diverse measurement	Being able to measure conductivity (μS/cm), resistivity (MΩ·cm) or salinity (ppt) independently. Current temperature and alarm state can be simultaneously displayed on one screen. Screen displays date and time.
Backlight LCD reading	Three groups of four-characters backlight LCD provides prominent view screen effect under any light condition. Senior blue screen display technology.
Panel mounting 1/4DIN housing	Instrument is placed in plastic housing of 1/4 DIN and IP54, suiting panel mounting.
Menu guide operation	Simple key field, reasonable menu structure, this analyzer is easy to be used, whose menu display screen designates user setting, calibration, operation, test, maintenance function and so on.
Magnetic performance	This analyzer reaches to European EMI and RFI criterion, meeting American criterion.
Simple interactive diagnosis function	Built-in diagnosis function continuously tests instrument and sensor's operation.
Two paths of analogue output 0/4~20mA	The first analogue output terminal is designated as main measured value (conductivity or salinity); the second analogue output terminal can select main measured value (conductivity or salinity) or measured temperature value.
Password protection	For safety, please use password protection function to restrict instrument -al setting visit. Just allow authorized personnel to be calibrating.
OEM version available	To produce this kind of instrument by OEM instruction need.

Principle description

Liquid's resistance reduces along with adding of temperature and dissolved ion concentration; conductivity is reciprocal of resistivity. When conductivity sensor electrode is inserted into solution, which can measure out resistance R between two electrodes. According to ohm law, when temperature pressure is fixed, interval L (cm) between resistance and electrode is proportional, sectional area A(cm^2) between them is Inversely proportional. Namely: because L and A of electrode is fixed and changeless, that is to say, which is one constant, called electrode constant, using Q to be expressing. Its proportional constant P is resistivity, reciprocal of P is conductivity, using K to be expressing.

$$K = Q/R$$

In formula: Q——electrode constant, cm^{-1}; R——resistance, Ω; K——conductivity, μS/cm

When having known electrode constant Q, and after measuring out resistance value R of sample, therefore, conductivity can be worked out.

Technical parameters

Input

Measured variable	Conductivity	resistivity	Salinity	Temperature
Measuring range	0~20.00 μS / cm 0~200.0 μS / cm 0~2000 μS / cm 0~20.00 mS / cm	0~18.25MΩ· cm	0~70 ppt	-4.0~302.0℉ (-20~150.0℃)
Resolution	0.01μS / cm 0.1μS / cm 1μS / cm 0.01mS / cm	0.01MΩ· cm	0.1 ppt	0.1℃
Temperature compensation	NTC10kΩ or Pt1000 RTD automatically or user manually inputs one temperature value to do compensation by himself Setting range: 32.0~140.0℉(0~60.0℃)			
Distance between sensor and instrument	The longest is 30m			
Calibration method	Inputting “K” value and “T” factor of conductance cell constant authenticated by SYCAMIN to sensor.			

Attention:

Measured value selected (conductivity, resistivity or salinity) determines which temperature compensation method in the following will be adopted:

- **% slope of linearity each ℃ of;**
- **Natural water nature list built-in;**
- **Nature list of ultrapure water;**
- **User-defined temperature compensation coefficient;**
- **Or don’t do compensating.**

Technical parameter

Output

Relay output	5 pieces of electromechanical relay, SPST (C type), UL level, 10A/5A @120/250 VAC, 5A @ 28 VDC contact	High high, high alarm output and low low, low alarm output (corresponding to measuring conductivity, resistivity or salinity).Temperature alarm or washing output.
Electric current output	Two groups of independent analogue output (#1 and #2) each group can be set as 0~20mA or 4~20mA Resolution: 0.004mA(12 digits) Maximum driving load: 550Ω	#1 group designates representing measurement conductivity/salinity #2 group can designates representing measurement conductivity/salinity or temperature
Pulse output	One group of pulse output	Following the first group of electric current output manufacture procedure value
Communication way	RS-232	Be able to use IBM compatible computer and realize measured data communication of determinator
Storage backup	All the user settings are saved in EEPROM, and data will not be lost after outage.	
Measuring performance	Accuracy	0.5% of full measurement range
	Stability	each 24h is 0.05% of full measurement range (un-accumulation)
	Repeatability	0.1% of full measurement range
	Temperature drift	Zero and full measurement range: less than 0.03% of each ℃ full measurement range

Mechanical parameter

Housing	Polyester +ABS
Protection degree	IP54
Display	LCD liquid crystal 75x45mm
Weight	Approximately 1.1 pounds (0.5 kg)
Dimension (L×W×D)	96x96x150mm
Hole size	91x91mm

Electrical connection

Type	Terminal	
Power requirement	90-130 VAC, 50/60 Hz or 190-260 VAC, 50/60 Hz	
Power consumption	Maximum 10VA	
Environmental conditions		
When operating	-4~140℉ (-20~60℃);	relative humidity 0~95%, no condensation
When depositing	-22~158℉ (-30~70℃);	relative humidity 0~95%, no condensation

Electrode configuration

Sensor instruction	Model	Component material	Lectotype serial number
Installing conductivity sensor of 3422 series screwing type	ECS3422	TI+POM	ECS=3422=001
		TI+POM	ECS=3422=010
		TI+POM	ECS=3422=100
		TI+POM	ECS=3422=000
Conductivity sensor of 3433 series graphite	ECS3433	GP+PVC	ECS=3433=050
		GP+PVC	ECS=3433=500
Conductivity sensor of 3444 series boiler/condensate water	ECS3444	TI+316	ECS=3444=001
		TI+316	ECS=3444=010
		TI+316	ECS=3444=100
Flange form conductivity sensor of 3455 series hygiene type	ECS3455	TI+316	ECS=3455=001
		TI+316	ECS=3455=100
		TI+316	ECS=3455=010

More information **www.sycamin.de**