P33 pH meter/redox meter

pH / Redox / Temp Analysator

Brief description

pH/ORP series transmitter, which possesses very high cost performance, is placed in a compact and high-efficient housing case. It can be reliable and safe operation in demanding environment. Simple to install and use. Provide four programmable alarm points and a programmable functional relay, two current output with isolation, two editable impulse, a RS232 or RS485 output, password.

Application fields

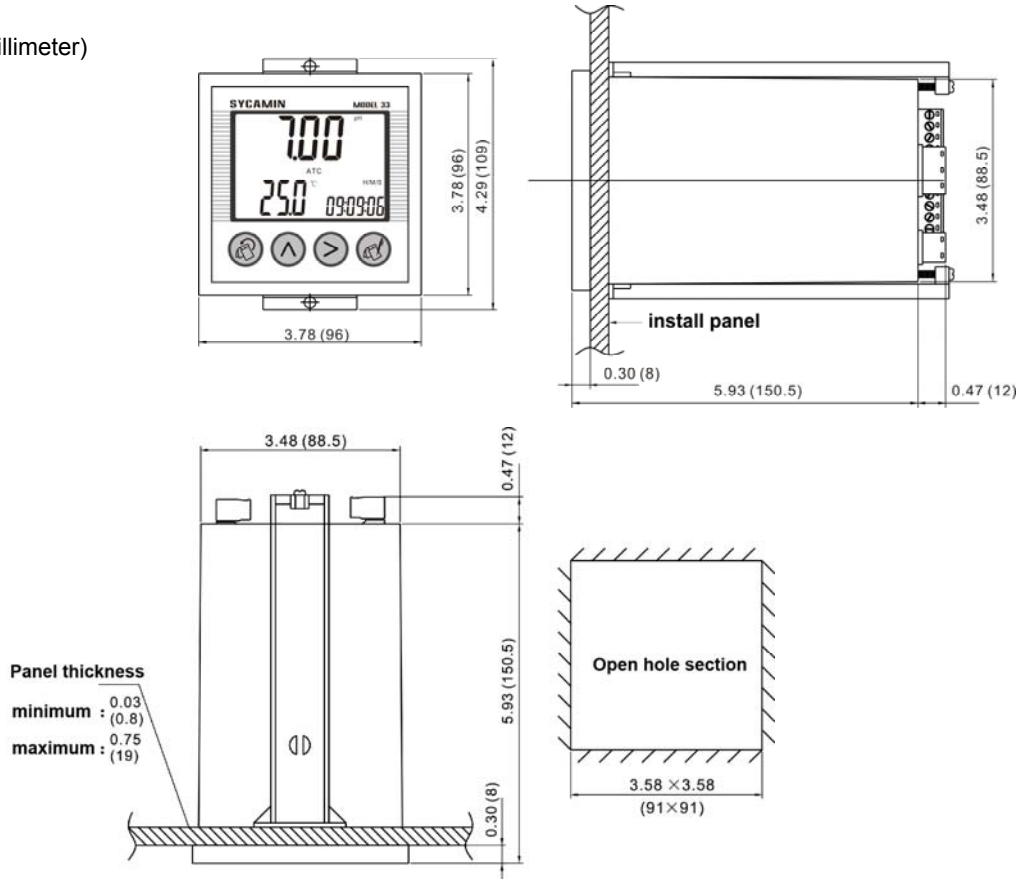
Generally conventional environment monitoring, sewage disposal, ultrapure water environment, metal plating and disposal, power station, petrochemical engineering, fermentation, washing industry, etc.

System description diagraph

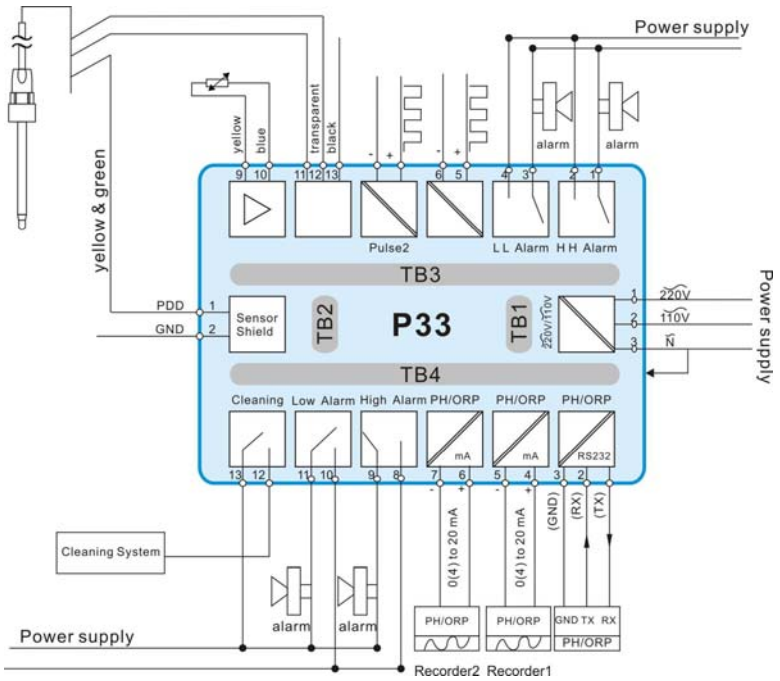
To produce this instrument can be based upon OEM instruction need

System description diagraph

Unit: inch (millimeter)



Electrical connection diagraph



System features

Diverse measurement	Measured pH (or ORP) value can be simultaneously displayed on screen with temperature. 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, which menu display screen designates user setting, calibration, operation, testing, 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.
Difference or conventional combined electrode	Be able to use any differential technological PH or ORP electrode or conventional combined electrode, be able to accept PT1000RTD, NTC10K temperature sensor.
Two paths of analogue output 0/4~20mA	The first analogue output terminal is designated as main measured value (pH or ORP); the second analogue output can select main measured value (pH or ORP) or measured temperature value
Password protection	For safety, please use password protection function to restrict instrument setting and set visit. Just allow authorized personnel calibrating.

Principle description

pH value is obtained from potential difference of measuring inter-electrode, usually adopting glass electrode as indicating electrode. Ag/AgCl electrode is reference electrode, potential difference between them satisfies nernst equation, thus solution's pH value is gotten.

Nernst equation: E=E0+（2.303RT/Zf）lgA

E——Electromotive force generated between indicating electrode and reference electrode in specimen;

E0— Standard electromotive force.

Its value is determined by category and structure of indicating electrode sensor membrane, category of reference electrode, and unrelated to activity of ion to be measured in specimen;

2.303RT/Zf—— Nernst constant, as named as electrode slope.

At 25 degree, 1 valence ion is 59.16mv, 2 valence ion is 29.58mv;

A——Ion activity (mol/l);

System characteristics

Input

Measured variable	PH	ORP	Temperature
Measuring range	-2.00~+16.00pH	-1999~+1999mV	-4.0~302.0℉ (-20~150.0℃)
Resolution	0.01 pH	1mV	0.1℃
Temperature compensation	NTC10kΩ or Pt1000 RTD Automatical temperature compensation, setting range: 32.0~140.0℉(0~60.0℃) Manually self-set certain temperature value to compensate Pure water can select extra temperature correction factor (ammonia water or morpholine), setting range: 32.0~122.0℉(0~50.0℃)		
Distance between sensor and transmitter	5-wire differential technological sensor, which maximum is 100 ft. (30m) Pre-amplifier of conventional combination sensor, which maximum is 985 ft. (300 m) Conventional combination sensor without pre-amplifier, which maximum is 100 ft. (30 m) Capacity of sensor cable is less than 30 pF/ft		
Calibration method	Automatical calibration	3 points of calibration (pH only): use standard buffer solution, and instrument automatically generates zero and two slopes 2 points of calibration: use standard buffer solution, and instrument automatically generates zero and one slope 1 point of calibration: use standard buffer solution, and instrument automatically generates zero	
	Manual calibration	Knowing sensor's zero and slope, which numerical value is modified manually	
	Standard buffer solution	4.01,6.86 and 9.18pH	

Output

Relay output	5 pieces of relay, SPST (C type), UL level, 10A/5A @120/250 VAC, 5A @ 24 VDC contact	High high, high alarm output and low low, low alarm output (corresponding to measuring pH/ORP) temperature alarm or washing output
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 pH/ORP #2 group can designates representing measurement pH/ORP or temperature
Impulse output	Possess two groups of impulse output	Respectively follow two groups of current output manufacture procedure
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: 0.1% of scale range Stability: each 24h is 0.05% of scale range (un-accumulation) Repeatability: less than 0.1% of scale range Temperature drift zero and scale range: less than 0.03% of each ℃ scale range	

System characteristics

Instrument parameter

Housing	Polyester +ABS
Protection degree	IP54
Display	LCD liquid crystal 75x45mm
Weight	About 1.1 pound（0.5kg）
Dimension (L×W×D)	96x96x150mm
Hole size	91x91mm
Electrical connection	AC190~240V 50Hz
Type	Terminal
Power requirement	90-130 VAC, 50/60 Hz or 190-260 VAC, 50/60 Hz
Power consumption	Maximum 10VA
Environmental conditions	-4~140℉ (-20~60℃); no magnetic field interference
When operating	-4~140℉ (-20~60℃); Relative humidity 0~95%, no condensation
When depositing	-22~158℉ (-30~70℃); Relative humidity 0~95%, no condensation

Function mode

Clock, calendar	Be able to display time in real time and store backup by date (when outage without loss)
Power down protection	All the data stores in a nonvolatile memory, data will not lose after outage
Overvoltage protection	Overvoltage protection of input and output, measured value input and galvanic isolation analyzer temperature monitoring of signal output
Temperature alarm	Programmable high low temperature alarm
2-way signal output (the second path is option)	Two way analogue output can be used for outputting measured value output or continuous control output Resolution: 0.004 mA (12digits) Output current: 0/4 ~ 20 mA Maximum load: 550Ω
Function mode	Control: high/low phase adjustment, fixed point, dead zone, open delay and closed delay. Alarm: lower order alarm point, dead zone of low order alarm point, high-order position alarm point, high alarm point dead zone, open and closed delay. State: normally open or closed, automatically recover setting before leaving factory when error appears.
Indication display	Instrumental indicator respectively indicates respective relay state.
Control function	Relay or current output can be programmable as one or two impulse pumps or magnetic value or electric pump Programmable P, PI, PID or PD controls parameter RS232 serial port RS232: be able to use IBM compatible personal computer or SYCAMIN Selectable software toolkit realizes measured data configuration of analyzer and call HART protocol (selectable)

More information **www.sycamin.de**