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this issue

CERLIC CBX IS THE ONLY ANSWER TO YOUR SLUDGE BLANKET NEEDS.

When visiting many facilities the first response is, yes we have automatic Sludge Blanket analyzers but they never worked.

The second response is we will put you on the bidders list.

What I can tell you is the Cerlic CBX is the only IR intrusive sensor designed in the industry that will go into the suspension and measure the blanket interface.

It is the only analyzer on the market that will work year after year with out making an incorrect measurement.

It is impossible to compare it to another manufacture that claims they can provide a Sludge Blanket measurement because it is a totally different technology.

If you have issues and want to automate your Clarifier Control look at Cerlic and Contact Hydroflo for more details.

CITY OF TORONTO HARRIS WATER TREATMENT PLANT SELECTS THE CERLIC CBX SLUDGE BLANKET ANALYZER TO PROPER CONTROL THEIR CLARAFIERS

In the Spring of 2012 Hydroflo Controls was approached by City of Toronto's Engineering group at the Harris Water treatment facility to discuss a solution to better control their sludge blanket controls. At the Harris facility they have four clarifiers that require control so that they can pump the solids before the levels get to high and thick.

Initially when the new SCADA system was installed each clarifier was equipped with and ultrasonic sludge level transmitter. These were set up in the control strategy to be full automated.

The problem is the ultrasonic units never really worked correctly. They would give false readings and even floaters would send false readings. Because of the lack of trust for many years they have done manual sludge judge tests. When we first started to discuss the Cerlic units we had do discuss the difference in technology.

In the early fall of 2012 we installed two Cerlic units on two of the four clarifiers. In the case of the Cerlic CBX units the sensor is automatically lowered into the clarifier at a programmed sequence.

In the case of the Harris facility there is a switch located on the Rake gear drive. When the rake is at 90 degrees to the sensor the switch trips and sends the sensor down into the clarifier. In the case of this application we set the TSS sensor to trip at 3500 mg/l. The sensor will travel down into the clarifier and when it sees 3500 mg/l it will stop. The dept from the bottom of the clarifier is automatically indicated and outputted.

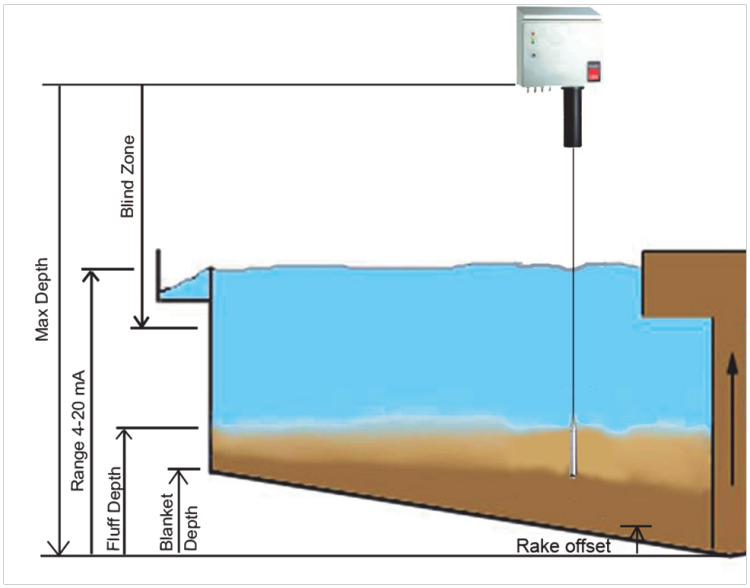
The sensor then retracts and the automatic flushing and cleaning is performed. The unit now waits until the switch on the rake trips again. This sequence can be programmed to suit your application.

Currently the City of Toronto Harris facility now has two of their clarifiers under control and plan on adding the other two in the near future.

Automatic Sludge Blanket Meter

Automatic measurement of sludge blanket level in clarifiers, thickeners, etc. in water and wastewater treatment plants. Unit to consist of Sensor control box and separate processor control box that will accommodate up to four different types of sensors. Sludge blanket monitor to generate two depths, 1st - blanket depth at preset concentration and 2nd - fluff depth at preset concentration both as mA outputs.

The measuring principle is based on transmission of a single NIR (Near Infra-Red) light beam between two glass prisms and the ability of particles to absorb this light. NIR light is not sensitive to color and does not contribute to biological growth as with visible light. Light source to be 880 nm wavelength NIR light (reflective design sensors are not acceptable). The sensor should be lowered at programmable intervals or pulses from the limit switch activated by the rake until the sludge phase is found or blanket level detected. Second measurement should be available for fluff depth from a programmed concentration. The sensor is then raised and cleaned with a built-in water flushing system after each cycle. The sensor head should be made of 316SS and attached to 33' (10 m) of 4 conductor cable with Tefsel outer coating, in order to withstand mechanical wear and chemical attack from various fluids.



Winch assembly to consist of motor, 110/1/60, aluminum winding drum where cable winds on top of itself and SS weather-proof enclosure. Winch to include flushing mechanism for probe and 1/2" npt (12 mm) hose connection for flushing water. Max. flush water pressure to be 90 psig (6 bar). Winch to have safety clutch to prevent major damage in case of probe being caught in the rake. Safety clutch to be adjustable from motor to winch drum. Probe speed to 5.7" per second. Sensor to have built-in tilt alarm, so sensor will return to home position, if it contacts the rake or any other item on the trip down.

Control box to support up to four instruments, which can be either/or sludge blanket monitor, dissolved oxygen, suspended solids, pH, ORP, or open channel flow sensors and generates up to 4 independent and isolated 4-20 mA output signals. Control box to be designed for future upgrade to commonly used fieldbus protocols by installing a protocol board. Microprocessor based control box with self-instructing menu, digital circuitry, and illuminated graphical LCD display.

Graphical display to show blanket level in feet or meters and 0-100% of mA output. Control box to have field adjustable contrast from front keyboard panel. The control box produces up to four linearized 4-20 mA, max 500 ohms galvanically isolated, output signals (12 bit resolution) proportional to blanket level or Profibus DP digital output signal. Light on the front panel to indicate status of alarms. The control box enclosure should be watertight molded polycarbonate box, NEMA 4X (IP65). The power supply must be equipped with filter, fuse and arrestors for protection against power surges. The control box should have EEPROM memory, so that following a power failure the control box should start up and resume measuring without requiring recalibration. Power supply is to be 110/1/60 or 220/1/50. Control box to be equipped with built-in heater on circuit board to maintain proper temperature inside control box down to –20 F outside temperature. Y-splitters are to be supplied for attachment of multiple digital sensors to a common control box.

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Sounding intervals to be determined by internal timer or externally pulses from a rake. Timer intervals to be adjustable from 4 - 120 minutes. Transmitter to have internal pulse counter that is adjustable from 1-99 pulses. Pulses are generated by external closing relay, which is activated by the rake and powered by 5 VDC supplied by the control box. Limit switch to be normally mounted 90 degrees out of phase with rake on circular clarifiers.

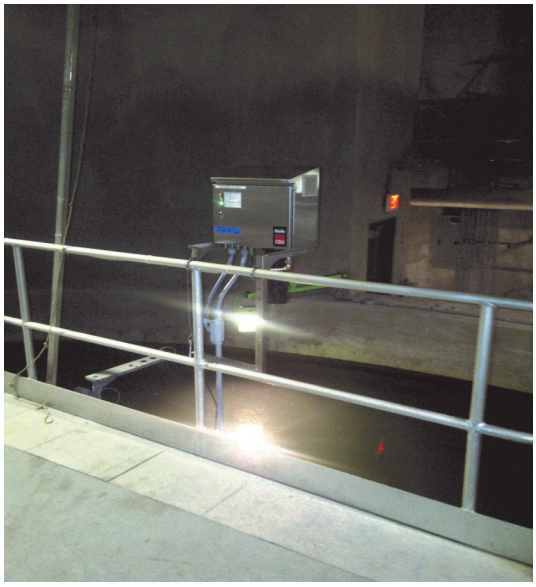
Zero point calibration to be done using clean de-aerated water. The control box should allow for blanket calibration against suspended solids solution at to one point.

The value for the calibration point which are obtained from laboratory analysis, should be able to be entered anytime after calibration since the meter correlates these to light transmission values. Output range should be easily adjustable by changing 4-20 mA output range. Programming menus to be of a cursor type.

All programming and settings are performed from the outside of the transmitter box by using a self-instructing menu controlled by just four touch pad keys. Unit to accept two calibrations points: 1) zero point using clean de-aerated water and 2) sample point using RAS and entering concentration determined by lab. In order to obtain a high accuracy on distance measurement, the unit should allow for calibration against a known distance between the probe's "home position" and a reference point. Unit to have programming offset for dead zone in order to prevent floating sludge or foam from being detected as false sludge blanket. Maximum span or travel distance to be 32' from bottom of control box to bottom of tank.

Tamperproof programming feature is required to keep settings from being changed, except by authorized personnel. In the case of power loss an EEPROM memory should save programming during power outages.

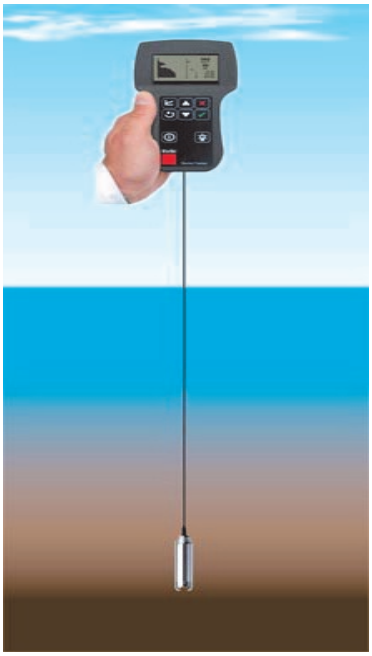
The software should be of Multi-task design. It should also contain a watch-dog function connected to the microprocessor. The software should inform the "watch-dog" at least once per second that the device is working properly. If it does not, then the "watch-dog" shall restart the processor in order for the unit to resume measuring.



Portable Sludge Blanket Monitor

Portable instrument to measure sludge blanket level in clarifiers and thickeners. Blanket Tracker is a portable optical meter for measuring of sludge blanket depth and suspended solids in clarifiers, thickeners, aeration basins etc in water and wastewater plats, as well in other facilities.

It is possible to display measured values as text or as a graphic image of the sludge profile. Two different alarms may be set to indicate fluff and sludge blanket levels. These may be displayed next to the graphic sludge profile. When levels are found the unit will alarm by a vibration and acoustic signal.



Blanket Tracker can with the built in data logger store up to 250 measurements which gives a graphic profile, with information of time, date and place. Each profile gives information of depth, detected levels of sludge blanket and fluff blanket concentrations.

Unit to be hand held and operated by 9V DC battery with life of over 50 hours of continuous operation. Hand held controller to have five adjustable ranges from 0-5% T.S. (total solids). If the sludge concentration is outside the selected range, then the two LED's are to indicate if a higher or lower range is to be chosen. Sensor is to be dropped into clarifier or thickener until variable indicator lights come on, indicating a rising concentration of sludge. Assembly to be supplied with portable plastic case for easy storage.

The sensor is to be made of silicon rubber with glass lens. The measuring principle is based on transmission of a single, high intensity, pulsed NIR (Near Infra-red) light beam between two glass prisms and the ability of particles to absorb and reflect this light. NIR light is not sensitive to color and does not contribute to biological growth as with visible light. The design of the sensor should have a "notched" head design with ¾" gap for easy inspection and cleaning. Sensor to be supplied with 33' (10 m) of cable with adjustable depth indication tabs placed at 1 meter intervals, which can be easily changed to 1 yard increments in the field. The sensor should have a measuring range of up to 5% T.S. (total solids)

Dissolved Oxygen Meter w/ Flush

Continuous on-line measurement of dissolved oxygen in water within the range of 0-15 mg/l for aeration basins and final effluent in municipal or industrial wastewater treatment plants. Assembly to consist of one control box with one or two DO sensors and one or two flushing solenoid valves per attached spec.

The electrode must be a replaceable Clark type cartridge design with active materials of gold/silver (cathode/anode) that are treated to maximize their life span. Electrode to have reliability error <1% and FEP (Teflon) membrane. Electrode should be designed to operate 12-18 months at 3-5 mg/l operation between replacement and should not require recalibration more than once every 6 months. The electrode must be "throw away" design - rechargeable designs are not acceptable. Temperature sensor must be built into the electrode to minimize instability due to temperature shifts. The electrode body is to be made of PVC with SS membrane retaining ring and equipped with an o-ring seal. Measuring range of 0-20 mg/l.

Sensor housing to be 316SS with 33' cable that plugs into control box and sensor to have built-in self identity logic so control box acknowledges sensors identity and calibration points which are stored in sensor's memory. Electrode to plug into sensor housing. Sensor to air calibration over bucket of water to match Sensor housing to have three (3) SS flushing nozzles which can be used if flushing solenoid valve is added to assembly. Flushing media to be 60 psig air or water depending on customer preference.

Signal Processor Control Box

Control box to support two sensors, which can be either/or dissolved oxygen, suspended solids, pH, or open channel flow sensors and generate up to 4 independent and isolated 4-20 mA output signals. Control box to be designed for future upgrade to commonly used fieldbus protocols by installing a protocol board. Microprocessor based control box with self-instructing menu, digital circuitry, and illuminated graphical LCD display. Graphical display to show solids concentrations in ppm, mg/l or % solids and 0 -100% of mA output. Graphical display to show calibration points and current suspended solids concentration. The control box produces two linearized 4-20 mA, max 500 ohms galvanically isolated, output signals (12 bit resolution) proportional to suspended solids concentrations. Light on front panel to indicate status of alarm. To avoid fluctuating output signal, the control box should have a dampening feature or integration time, which can be set from 1 to 999 seconds. The enclosure should be watertight molded polycarbonate box, NEMA 4X (IP65). The power supply must be equipped with filter, fuse and varistors for protection against power surges. The control box should have EEPROM memory. Following a power failure the control box should start up and resume measuring without requiring recalibration. Power supply is to be 110/1/60 or 220/1/50. Control box to be equipped with built-in heater on circuit board to maintain proper temperature inside control box down to –20 F outside temperature. Y-splitters are to be supplied for attachment of multiple digital sensors to a common control box.

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