InsiteIG Tech Sheet

MCR Service Plan and MCR/MCA Setup

Once a new administrator account has been successfully created online, please send an email to mcractivation@insiteig.com to have the graphing functions enabled. Ensure that the email is sent from the account used to create the administrator profile. The subject line should read: "**Activate Graphing**".

1. MCR Server Services and Data

Each MCR comes with a 3yr plan for server services and 20MB of cellular data per month. Monthly data of 20MB per month is appropriate for 8 sensors in a standard WWTP using default settings. Your application may vary. The MCA analyzer provides adjustable settings for sensor channel dampening/response time and sensor type data threshold limits to control data upload volume. These settings provide truly meaningful data for the operator. Data usage on the account is monitored by InsiteIG for the first 6 months. InsiteIG will contact the account administrator by email if overages occur, and work with the customer to remedy overages. Additional data is available in 10MB per month blocks if required. After 6 months, data overages will result in the unit disconnecting from the internet until the next monthly data cycle begins. Local Wi-Fi capability is available on the MCR for high volume data usage applications. MCR 3yr plan begins on date of product shipment from InsiteIG.

2. MCA settings required for MCR operation

Settings a through d should match the information below:

a. SETUP > MODBUS > COMM ADDRESS > 1
b. SETUP > MODBUS > COMM BAUD RATE > 9600
c. SETUP > MODBUS > COMM MODE > RTU
d. SETUP > MODBUS > MCR MODBUS > ENABLED
e. *Threshold Default Settings*:

MCR SETUP

DO SENSITIVITY > 4%	(Range: 1% to 6%)
TSS SENSITIVITY > 4%	(Range: 1% to 6%)
TSSL SENSITIVITY > 4%	(Range: 1% to 6%)
PH SENSITIVITY > 0.2pH	(Range: 0.03pH to 1.00pH)
ORP SENSITIVITY > 10mV	(Range: 5mV to 50mV)
TEMP SENSITIVITY > 0.5C	(Range: 0.1C to 1.0C)
SENS TIMEOUT > 900secs	(Range: 300secs to 900secs)
CH1 SECONDARY EN > DISABLED	
CH2 SECONDARY EN > DISABLED	
CH3 SECONDARY EN > DISABLED	
CH4 SECONDARY EN > DISABLED	
CH5 SECONDARY EN > DISABLED	
CH6 SECONDARY EN > DISABLED	
CH7 SECONDARY EN > DISABLED	
CH8 SECONDARY EN > DISABLED	

3. MCR Setup
MCR initial setup information can be found in the MCR Manual or MCR Quick Setup video on our website www.InsiteIG.com.

MCR Manual

MCR Quick Setup Video

4. Data Threshold Settings
Menu Path: SETUP > MODBUS > MCR MODBUS > ENABLED (Pressing ENTER at the ENABLED screen will open the Data Threshold settings.)

The Threshold Default Settings, previously listed, are factory set on all MCA units that ship with a MCR. Threshold settings are adjusted per sensor type.

In any typical application, the values that are detected by the sensors connected to an MCA unit are constantly varying by small amounts. If every small variation in reading were to be reported for logging to the internet server by the MCR, this would result in an unwieldy amount of unmeaningful data being transmitted to the server. The 'threshold" settings for the MCR data are intended to limit the transmission of data to that which is truly meaningful for the operator, when viewing the data remotely via the internet server.
The threshold system operates as follows:

a. When the system is first turned on, all sensor readings are reported to the server by the MCR as soon as they are determined by the MCA.

b. Once a reading has been successfully reported to the server, the system will only report a new value to the server if that sensor's reading changes by an amount that is greater than the "Sensitivity" percentage stored in the MCR SETUP parameters. As an example, the DO SENSITIVITY default is 4%, so if a connected D.O. sensor initially gets logged to the server with a reading of 2.75 mg/l, a new value will not be logged unless the reading changes by more than 4% of 2.75, or 0.11mg/l. Fluctuating readings between 2.64 and 2.86 will not be reported to the server.

c. These sensitivity conditions for updating will continue until the SENS TIMEOUT time has passed. Once the SENS TIMEOUT time is exceeded, the system will transmit ANY current value that is different from the last logged value. Once a new value is successfully transmitted and logged, the system resets the timeout timer and returns to the conditions of step 2. The SENS TIMEOUT default value is 15 minutes (or 900 seconds).

This system limits unnecessary bandwidth, but it insures that when an operator views data remotely, all of the readings are current within the timeout (15 minutes by default) time period, and there will be manageable amounts of historical data to view. It should be stressed that these sensitivity and timeout settings only effect the data as reported to the internet server for remote viewing. Readings viewed at the local MCA display are always current.

Additionally included with the Data Threshold Settings are sensor channel ENABLED/DISABLED settings for reporting sensor temperature readings to the online account. It is best to only enable readings that are required, to reduce data usage.

5. Sensor Dampening/Response Time Settings

Menu Path: SETUP > SENSOR > SENSOR # > DAMPENING/RESPONSE TIME

The dampening/response time parameter will allow the adjustment of the amount of averaging taking place. This is entered in the amount of time it will take to achieve a stabilized reading, in seconds. These setting adjust per sensor channel.

6. Adjusting Threshold and Dampening/Response Time settings to Optimize Data Plans

The Data Threshold Settings can be adjusted to allow for more or less frequent data reporting to the online server. **NOTE:** Be aware that adjusting these settings lower to receive more frequent data will cause higher data usage. When gauging data use per day it is appropriate to use 3600 data points per day as an upper limit for a MCR system. This information can be accessed from the online account. Select "Datapoints" on the home screen, then below the graphing section enter the same "From" and "To" date with a complete 24 hour day of data. Select "Analogs" from the "Variable" pull down selection box. Total data points will show as the "results found" number at the bottom of the screen. If there are multiple MCR units on your account you will have to use the "MCR Name" filter to remove unwanted MCR data points.

Rules of thumb:

a. Adjust Threshold filters higher if there is excessive data reported to the online server that is varying 6% or less.
b. Adjust Dampening/Response Time settings higher if there is excessive data reported to the online server that is varying more than 6%.

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