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| Version | Date | Description of Revisions |
| 1 | November 1, 2011 | Standard Specification Release |
| 2 | April 20, 2015 | General formatting |
| 3 | June 13, 2022 | 1.5 Revised tagging requirement (BM) |
|  |  |  |

NOTE:

This is a CONTROLLED Document. Any documents appearing in paper form are not controlled and should be checked against the on-line file version prior to use.

**For each project the Consultants is responsible for the correct application of the specifications and for updating and modifying all highlighted items, as well as updating and modifying those sections that are directly applicable to the project. All updates and modifications to this standard document are to be highlighted to the Region for review and acceptance on each project.**

**Notice:** This Document hardcopy must be used for reference purpose only.

**The on-line copy is the current version of the document.**

# GENERAL

## General

### The specifications in this section define additional requirements to those set forth in Section 13105 – Process Control: General Instrumentation Requirements. Where a conflict exists, the more stringent requirement is to be provided.

### The contractor is to clearly identify on the shop drawings any deviation from the specification.

### Contractor required to provide the following O&M documentation: manufacturers’ printed recommendations; installation instructions; specifications; operation manuals, including electrical drawings, and plumbing diagrams; sales literature; materials; and training materials as applicable.

### Contractor is to furnish copies of the manufacturer’s warranties.

### Contractor is to provide, through the Instrumentation Supplier, temperature transmitters, complete and operable, in accordance with the Contract Documents.

## Measurement and Payment

### The work outlined in this section shall be included in the lump sum price for Section 13295 – Suspended Analyzer as indicated in the Bid Form.

## Low Range SS Sensor

### Type: Single gap optical light absorption sensor.

### Automatic ambient light compensating technology.

### Range: 10 – 1,500 mg/L.

### Automatic self cleaning.

### Construction: Chemical resistant polyurethane optics in polyurethane housing.

## Medium Range SS Sensor

### Application: Submersible

### Type: Single gap optical light absorption sensor.

### Phased array light source and photo detector.

### Automatic colour compensating technology.

### Range: 300 – 3,000 mg/L up to 300 – 30,000 mg/L .

### Automatic self cleaning.

### Construction: Chemical resistant polyurethane optics, molded polymer housing.

## Transmitter

### LCD display, 64 x 128 pixel.

### NEMA 4X/IP65 enclosure with brackets for wall mounting or handrail mounting.

### Self-diagnostics to detect and alert:

#### Sensor light detector failure

#### Abnormal conditions during calibration

#### Internal program failure

### Incorporate built-in test feature including:

#### Constant current output on demand for both 4mA and 20 mA.

#### Relay activation test parameter to latch and unlatch the relays in demand

### For compatible sensor, provide jet clean compressor assembly for automatic cleaning of the sensor.

### Equipment tag wired to transmitter in accordance with Section 01080 – Process Equipment Location Tagging.

# INSTALLATION

## General

### The following installation requirements are in addition to or deviations from the requirements set forth for instrumentation in Section 13105 – Process Control: General Instrumentation Standard.

#### Locate the sample point to suit the application. Take care to ensure the sample is representative of the process stream

#### Provide all required process connections and miscellaneous mounting hardware not provided with analyzer. Select type and material for the application.

#### Sensor mounting to slip fit 1 ½” PVC pipe. Pipe length suitable sized for the application.

#### Provide a local junction box for wiring to allow withdrawal of the sensor for maintenance.

#### Wire to allow easy withdrawal of the sensor assembly for maintenance.

#### Ensure that the system is on-line 24 hours before start up and calibration for adequate warm up.

#### Transmitter unit is to be mounted, preferably at 1.8m off the floor, in a readily accessible location for ease of reading and to facilitate maintenance and calibration.

#### Provide a one (1) year supply of spare parts and consumables.

#### Transmitter/Electronics not mounted/installed indoors must be installed within fiberglass enclosure with viewing window, thermostat and heater. Panel heater to be powered from separate lighting panel circuit than instrument.

# ACCEPTABLE MANUFACTURERS

### Acceptable manufacturers are listed in the following table in order of preference. The design has been completed around the first named supplier. The contractor is responsible for all costs associated with any changes required to the design to accommodate one of the other manufacturers.

|  |  |  |
| --- | --- | --- |
| Preference | Manufacturer | Model |
| 1 | Royce Technologies | 7011A |
| 2 |  |  |
| 3 |  |  |

### The Contractor is to select the appropriate options to suit the application and the requirements of the specification.

### Where second and third named manufacturers are provided, they are to meet the performance specifications of the first named manufacturer.

## Suspended Solids Analyzer

First Named Manufacturer:

|  |  |  |
| --- | --- | --- |
| **Service:** | Low Range Submersible | Medium Range Submersible |
| **Process:** |  |  |
| Tag Name: | xxx-xxx | xxx-xxx |
| Installation DWG: | 13295x | 13295x |
| Product: | Final Water | Aeration Basin |
| Temp min/max: | 0 - 30oC | 0 - 30oC |
| **Sensor Device Data:** |  |  |
| Type: | Single Gap Optical | Single Gap Optical, Phased Array Emitter/Receptor |
| Compensation: | Ambient Light Compensating | Colour Compensation |
| Range: | 10-1500 mg/L | 300 – 3,000 mg/L |
| Resolution: | 1 mg/L |  |
| Accuracy: | ± 5% of reading or ± 5 mg/L, whichever is greater | ± 5% of reading or ± 100 mg/L, whichever is greater |
| Repeatability: | ± 1% of reading or ± 2 mg/L, whichever is greater | ± 1% of reading or ± 20 mg/L, whichever is greater |
| Operating Limits: | 0°C - 50°C, 0 psig - 50 psig | 0°C - 50°C, 0 psig - 50 psig |
| Construction: | Chemically Resistant Polyurethane Optics in Polyurethane Housing | Chemically Resistant Polyurethane Optics, Molded Polymer Housing |
| Sensor Cable: | 50 ft. | 50 ft. |
| Manufacturer: | Royce Technologies | Royce Technologies |
| Part Number: | Model 72A | Model 73B |
| **Transmitter Device Data:** |  |  |
| Range: | 100 – 10,000 up to 800 – 80,000 mg/L (Sensor Dependent) | 100 – 10,000 up to 800 – 80,000 mg/L (Sensor Dependent) |
| Standard Outputs: | 4-20 mA, isolated | 4-20 mA, isolated |
| Standard Setpoints: | 2 Programmable Setpoint Relays,  Form C, 7A, 250 VAC | 2 Programmable Setpoint Relays,  Form C, 7A, 250 VAC |
| Read Out Device: | Harsh Environment, 2.2” x 1.5:” LCD Display | Harsh Environment, 2.2” x 1.5:” LCD Display |
| Input Power: | 110VAC, 60Hz | 110VAC, 60Hz |
| Enclosure: | NEMA 4X/IP65 Fibreglass | NEMA 4X/IP65 Fibreglass |
| Ambient Conditions: | -10°C – 50°C, -40°C – 50°C with Heater, 0 – 100% Humidity | -10°C – 50°C, -40°C – 50°C with Heater, 0 – 100% Humidity |
| Mounting: | Handrail Mount | Handrail Mount |
| Manufacturer: | Royce Technologies | Royce Technologies |
| Part Number: | Model 7011A | Model 7011A |
| **Options:** |  |  |
|  | NEMA 4X Enclosure with Quick Disconnect for Sensor | NEMA 4X Enclosure with Quick Disconnect for Sensor |
|  | Rear Rail Mounting Kit | Rear Rail Mounting Kit |
|  | JB-93 Junction Box with Quick Disconnect for Sensor | JB-93 Junction Box with Quick Disconnect for Sensor |
| **Jet Clean Self-Cleaning System:** | JC Series Jet Clean Compressor Assembly | JC Series Jet Clean Compressor Assembly |
| Type: | Air Compressor, L:ight, Non-Continuous Duty | Air Compressor, L:ight, Non-Continuous Duty |
| Pressure Supplied: | 40 psig – 60 psig | 40 psig – 60 psig |
| Temperature Limits: | 0°C - 50°C | 0°C - 50°C |
| Enclosure: | NEMA 4X | NEMA 4X |
| Input Power: | 110VAC, 60Hz | 110VAC, 60Hz |
| Mounting: | Rail Mounting Kit | Rail Mounting Kit |
| Options: | Heater | Heater |
| Manufacturer: | Royce Technologies | Royce Technologies |
| Part Number: | JC-1 | JC-1 |

**END OF SECTION**