|  |  |  |
| --- | --- | --- |
| Version | Date | Description of Revisions |
| 1 | November 1, 2011 | Standard Specification Release |
| 2 | April 20, 2015 | General formatting |
| 3 | June 13, 2022 | 1.3 Tagging requirement revised (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 consulting engineer 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.

### This specification is for depth and level pressure transmitters for use in small size bore holes, wells and dams. Applications include continuous measurement and absolute pressure in liquids.

### Contractor required to provide the following O&M documentation: manufacturers’ printed O&M documentation; 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, pressure measuring systems, 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 13285 – Depth and Level Pressure Transmitter as indicated in the Bid Form.

## Sensor/Transmitter

### Submersible transmitter.

### Sensing element generates output proportional to pressure

### Anti shock nose cone to protect against water hammer and other external hazards

### Polyurethane vented cable moulded to transmitter. Cable length suitable for installation to be provided.

### Overpressure to exceed twice the full scale range with negligible effect on calibration.

### 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.

### Install probe at a point free from flow and turbulence.

### PVC guide tube to be used for installation, internal diameter of guide tube shall be a minimum of 1mm larger that the outer diameter of the selected probe.

### Probe to be terminated in a suitable NEMA 4X termination box, the termination box must provide optimum humidity ad climatic protection, shall be suitable for outdoor installation.

### Provide manufacturers recommended accessories suitable for installation:

#### Sink weights

#### Mounting clamp

#### Cable hangers

#### Calibration adapters

#### Cable termination boxes.

#### Lightning surge protector to be installed on signal line both at the instrument and at the PAC panel.

# 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 | Endress+Hauser | FMX21 |
| 2 | Process Measurement & Controls, Inc. | VL4000 |
| 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.

## Depth & Level Pressure Transmitter

### First Named Manufacturer

|  |  |
| --- | --- |
| **Service:** | Well Level |
| **Process:** |  |
| Tag Name: | xxx-xxx |
| Installation DWG: | 13285x |
| Fluid: | Well Water |
| Temp min/max: | 0-30 °C |
| Level min/max: | 0 – 30m H2O |
| **Device Data:** |  |
| Approval: | Non-Hazardous Area |
| Output: | 4-20mA HART |
| Probe Tube: | Outer Diameter d=22mm, ASI 316L |
| Sensor Range: | 400kPa Gauge |
| Reference Accuracy: | Standard |
| Calibration Unit: | Sensor Range; kPa/MPa |
| Probe Connection: | XXXm Cable, Shortable, PUR |
| Seal: | FKM Viton |
| Options: |  |
| Accessories Enclosed: | Suspension Clamp, 316L |
|  | Cable Mounting Screw NPT 1-1/2, 304 |
|  | Termination Box IP66/67 |
|  | Additional Weight |
|  | Adapter, Function Test |
| Manufacturer: | E+H |
| Part Number: | FMX21-AA211MGC55A-POPRSPUPV |

### Second Named Manufacturer

|  |  |
| --- | --- |
| **Service:** | Well Level |
| **Process:** |  |
| Tag Name: | xxx-xxx |
| Installation DWG: | 13285x |
| Fluid: | Well Water |
| Temp min/max: | 0-30 °C |
| Level min/max: | 0 – 30m H2O |
| **Device Data:** |  |
| Construction: | Depth Cone ¾`` |
| Housing Material: | 316 Stainless Steel |
| Electrical Connection: | Polyurethane Molded Cable |
| Electrical Configuration: | 4-20 mA |
| Range: | 0-50psig |
| Accuracy: | 0.1% |
| Cable Length: | 900` |
| Manufacturer: | Process Measurement & Controls, Inc. |
| Part Number: | VL4113-50psi-0.1%-900` |
| **Accessories:** |  |
| Sink Weight: | SW4000 |
| Cable Hanger: | CH10 |
| Calibration Adapter: | CA11 |
| Dri-Box Termination Enclosure: | TE10 |
| Surge Protector: | SP10 |

|  |  |
| --- | --- |
| **Service:** | Wetwell Level |
| **Process:** |  |
| Tag Name: | xxx-xxx |
| Installation DWG: | 13285x |
| Fluid: | Sewage |
| Temp min/max: | 0-30 °C |
| Level min/max: | 0 – 6m |
| **Device Data:** |  |
| Ranges: | 300psig |
| Diaphragm: | Ceramic (for Pressure and Level Ranges) |
| Termination: | Stainless Steel Cover with 3m Vented Polyurethane Cable |
| Manufacturer: | Process Measurement & Controls, Inc. |
| Part Number: | PMC-MIN/S-SAN-300-Cer/L-CV/P |
| **Process Connection:** |  |
| Sanitary Threaded Nipple with 1`` NPTM: | PT-07-SAN-S |

**END OF SECTION**