**SCADA\_PRC\_XMTR\_4Duty**

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| **Version** | **Release Notes** |
| 1.0 | Initial Release |

**Description**: This AOI is to be used for implementing duty rotation for analog instruments.

**Naming Convention**: Tags will generally follow the naming convention BXX\_DTY#\_*AA*, where BXX denotes the facility and area, # is sequentially incremented for the number of duty rotation systems programmed in the PLC, and *AA* denotes the type of instrument being duty rotated (e.g. LI for level transmitter).

**UDT Members**

| **UDT Member** | **Datatype** | **Description** | **Usage** |
| --- | --- | --- | --- |
| ADDON | Xmtr\_4Duty\_ACP\_v1 | Duty Rotation AOI | Use in Duty\_Alt routine of ACP Program |
| PB\_EN | BOOL | Duty Rotation Enable PB | Used on HMI |
| DI\_EE | BOOL | Manual Duty Selection Error | Used on HMI |
| AI\_CV | REAL | Duty transmitter value | Used on HMI and within PLC Program |
| AO\_CT | DINT | Duty Transmitter User Entry | Used on HMI |
| AI\_CT | DINT | Duty Transmitter | Used on HMI |

**AOI**

| **AOI Parameter** | **Requirement** | **Default Value** | **Description** | **Implementation Guideline** |
| --- | --- | --- | --- | --- |
| Xmtr\_4Duty\_ACP\_v1 | Mandatory | *Tagname*.ADDON | Duty Transmitter AOI | N/A |
| Duty\_Device | Mandatory | *Tagname*.AI\_CT | Duty Transmitter ID | N/A |
| Duty\_Value | Mandatory | *Tagname*.AI\_CV | Duty Transmitter Value | N/A |
| Device\_1\_Value | Mandatory | .AI\_CV value for transmitter 1 | Transmitter 1 Value | N/A |
| Deivce\_1\_Failed | Mandatory | *Tagname*.ADDON.Device\_1\_Failed | Transmitter 1 has failed indication | Program outside the AOI with conditions that indicate the transmitter has failed/is not available |
| Device\_2\_Value | Mandatory | .AI\_CV value for transmitter 2 | Transmitter 2 Value | N/A |
| Device\_2\_Failed | Mandatory | *Tagname*.ADDON.Device\_2\_Failed | Transmitter 2 has failed indication | Program outside the AOI with conditions that indicate the transmitter has failed/is not available |
| Device\_3\_Value | Mandatory | .AI\_CV value for transmitter 3 | Transmitter 3 Value | N/A |
| Device\_3\_Failed | Mandatory | *Tagname*.ADDON.Device\_3\_Failed | Transmitter 3 has failed indication | Program outside the AOI with conditions that indicate the transmitter has failed/is not available |
| Device\_4\_Value | Mandatory | .AI\_CV value for transmitter 4 | Transmitter 4 Value | N/A |
| Device\_4\_Failed | Mandatory | *Tagname*.ADDON.Device\_4\_Failed | Transmitter 4 has failed indication | Program outside the AOI with conditions that indicate the transmitter has failed/is not available |
| Duty\_Device\_SP | Mandatory | *Tagname*.AO\_CT | Duty Device Pending Setpoint | N/A |
| Disable\_Rotation | Mandatory | *Tagname*.PB\_EN | Disable Duty Rotation | N/A |
| Entry\_Error | Mandatory | *Tagname*.DI\_EE | Duty Device Entry Error | N/A |

**AOI Operation Description**

The AOI will verify that a valid duty transmitter has been selected, either from the HMI or by the AOI. If this is not the case the error flag is set. The duty device will only be updated to reflect the setpoint when a valid selection is made.

Provided duty rotation has not been disabled, the AOI will evaluate logic conditions to determine if automatic duty rotation is required. If the duty device fails and another device has not failed, then the duty assignment will be updated. The affinity of the AOI is to fail back to device 1, if it is available. If multiple devices have failed the AOI will attempt to find the next device in sequence that has not failed and assign it as the duty device. The duty transmitter value is then updated based on the selected duty device.

**Programming Examples**

This AOI should be programmed in the Duty\_Alt routine of the ACP program. The duty transmitter value will then be used for various functions within the ACP program. The duty transmitter value can also be used as the raw input into an Analog Instrument UDT if additional alarming and monitoring functions are required by the programming.

**HMI Integration**

This UDDT is designed for use with the “Transmitter 4 Duty” pop-up in the InTouch Baseload. A mapping script for the indirect tags is implanted on the “Pumping Station Setpoints” on the green rectangle associated with the Duty Level Transmitter Setpoint. Programmers should perform a tag substitution on the script appropriate to their application. The script must be modified to ensure it opens the correct pop-up.