

Data Model Examples

RMC-100 JSON Files

Disclaimer

This document provides examples of data model definitions which support the RMC-100. The examples are available as an aid for customers designing their own custom MQTT implementations, but not as a product that is supported by ABB. ABB is not liable for the incorrect use of any part of the contents. Customers are encouraged to examine the contents before copying or using any of the definitions. ABB expects that customers carefully examine their requirements and create the solutions appropriate to their own environment. It is expected that customers conduct their own testing process and verify that the results meet their requirements and render accurate data.

Contents

Disclaimer	1
abb_totalflow_AGA3_alarmdefinition_type.json	2
abb_totalflow_AGA3_qtr_dailylog.json.....	8
abb_totalflow_AGA7_qtr_customlog_type.json	13
abb_totalflow_gaslift_eventlog_type.json	16
abb_totalflow_holdingregisters_trendlog_type.json	20
abb_totalflow_liquid_type.json	21
abb_totalflow_plunger_alarmlog_type.json.....	49
abb_totalflow_plunger_trenddefinition_type.json	53

abb_totalflow_AGA3_alarmdefinition_type.json

```
{
  "model": "abb.totalflow.alarmdefinition",
  "typeId": "abb.totalflow.AGA3.alarmdefinition.type",
  "version": "1.0.0",
  "name": "Alarm definition Type",
  "isExtensible": true,
  "description": "Alarm definition Type details",
  "relatedModels": [
    {
      "type": "abb.totalflow.AGA3.composition.type@1",
      "model": "abb.totalflow.composition"
    },
    {
      "type": "abb.totalflow.AGA3.lastcalc.type@1",
      "model": "abb.totalflow.lastcalc"
    },
    {
      "type": "abb.totalflow.AGA3.aggregate.type@1",
      "model": "abb.totalflow.aggregate"
    },
    {
      "type": "abb.totalflow.AGA3.auxiliary.type@1",
      "model": "abb.totalflow.auxiliary"
    },
    {
      "type": "abb.totalflow.AGA3.qtr.customlog.type@1",
      "model": "abb.totalflow.qtr.customlog"
    },
    {
      "type": "abb.totalflow.AGA3.qtr.dailylog.type@1",
      "model": "abb.totalflow.qtr.dailylog"
    },
    {
      "type": "abb.totalflow.AGA3.alarmlog.type@1",
      "model": "abb.totalflow.alarmlog"
    },
    {
      "type": "abb.totalflow.AGA3.type@1",
      "model": "abb.totalflow.app"
    },
    {
      "type": "abb.totalflow.AGA3.trendlog.type@1",
      "model": "abb.totalflow.trendlog"
    },
    {
      "type": "abb.totalflow.AGA3.trenddefinition.type@1",
      "model": "abb.totalflow.trenddefinition"
    }
  ]
}
```

```

    },
    {
      "type": "abb.totalflow.AGA3.eventlog.type@1",
      "model": "abb.totalflow.eventlog"
    },
    {
      "type": "abb.totalflow.AGA3.register.type@1",
      "model": "abb.totalflow.register"
    }
  ],
  "tags": [
    "Alarm",
    "Definitions"
  ],
  "alarmDefinitions": [
    {
      "alarmDefuuid": {
        "description": "Universally unique identifier for alarm log record",
        "dataType": "string",
        "displayName": "UUID"
      },
      "name": {
        "displayName": "Description",
        "description": "Name of the alarm",
        "dataType": "string"
      },
      "severity": {
        "displayName": "Severity",
        "description": "Severity of the alarm",
        "dataType": "enum",
        "dataTypeExt": "uint8",
        "valueOptions": [
          {
            "Name": "Normal",
            "Value": 0
          },
          {
            "Name": "General",
            "Value": 1
          },
          {
            "Name": "Warning",
            "Value": 100
          },
          {
            "Name": "Fault",
            "Value": 200
          }
        ]
      }
    }
  ]
}

```

```

        "Name": "System Fault",
        "Value": 255
    }
]
},
"alarmType": {
    "displayName": "Alarm Type",
    "description": "Type of the alarm",
    "dataType": "enum",
    "dataTypeExt": "string",
    "valueOptions": [
        {
            "Name": "System",
            "Value": "system"
        },
        {
            "Name": "User Defined",
            "Value": "userDefined"
        }
    ]
},
"condition": {
    "displayName": "Condition",
    "description": "Operator for alarm condition",
    "dataType": "int",
    "dataTypeExt": "uint8",
    "valueOptions": [
        {
            "Name": "No Alarm",
            "Value": 0
        },
        {
            "Name": "GT",
            "Value": 1
        },
        {
            "Name": "LT",
            "Value": 2
        },
        {
            "Name": "ON",
            "Value": 3
        },
        {
            "Name": "OFF",
            "Value": 4
        },
        {
            "Name": "AND",

```

```

    "Value": 5
  },
  {
    "Name": "OR",
    "Value": 6
  },
  {
    "Name": "GE",
    "Value": 7
  },
  {
    "Name": "LE",
    "Value": 8
  },
  {
    "Name": "NAND",
    "Value": 9
  },
  {
    "Name": "NOR",
    "Value": 10
  },
  {
    "Name": "PLUS",
    "Value": 11
  },
  {
    "Name": "MINUS",
    "Value": 12
  },
  {
    "Name": "MULT",
    "Value": 13
  },
  {
    "Name": "DIV",
    "Value": 14
  },
  {
    "Name": "NOT",
    "Value": 15
  }
]
},
"inputVariableRef": {
  "displayName": "Input Variable Ref",
  "description": "Against which variable this alarm is generated. Example. sp of AGA3 app
instance",
  "objectId": "",

```

```

    "variableName": "",
    "modelId": ""
  },
  "thresholdRef": {
    "displayName": "Threshold Value",
    "const": "",
    "objectId": "",
    "variableName": "",
    "modelId": ""
  },
  "outputVariableRef": {
    "displayName": "Output Variable Ref",
    "description": "If alarm condition met, it should update value of a variable",
    "objectId": "",
    "variableName": "",
    "modelId": ""
  },
  "supressRef": {
    "displayName": "Suppress",
    "dataType": "int",
    "dataTypeExt": "uint8",
    "description": "If its enabled then no alarm will be generated. ex. operator might enable this in
case of lot of false alarm or maintenance work. Its equivalent of trigger",
    "const": {
      "valueOptions": [
        {
          "Name": "Enabled",
          "Value": 1
        },
        {
          "Name": "Disabled",
          "Value": 0
        }
      ]
    },
    "objectId": "",
    "variableName": "",
    "modelId": ""
  },
  "status": {
    "displayName": "Status",
    "description": "Status of the alarm",
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "Normal",
        "Value": 0
      }
    ],
  },

```

```

    {
      "Name": "Active",
      "Value": 1
    }
  ]
},
"filter": {
  "displayName": "Filter Threshold",
  "description": "Tolerance set to avoid False alarms / False normal in terms of time it stays in
alarm condition or time it stays in normal condition",
  "type": {
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "Consec",
        "Value": 0
      },
      {
        "Name": "Percent",
        "Value": 1
      }
    ]
  },
},
"unit": {
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "days",
      "Value": 3
    },
    {
      "Name": "hrs",
      "Value": 2
    },
    {
      "Name": "min",
      "Value": 1
    },
    {
      "Name": "sec",
      "Value": 0
    }
  ]
},
"value": ""
},
"createdBy": {

```

```

        "displayName": "Created By",
        "description": "User who defined the alarm condition"
    }
}
]
}

```

abb_totalflow_AGA3_qtr_dailylog.json

```

{
  "model": "abb.totalflow.qtr.dailylog",
  "typeId": "abb.totalflow.AGA3.qtr.dailylog.type",
  "name": "AGA3 qtr daily log Type",
  "description": "Displays all variables in AGA3 related to daily log",
  "version": "1.0.0",
  "relatedModels": [
    {
      "type": "abb.totalflow.AGA3.composition.type@1",
      "model": "abb.totalflow.composition"
    },
    {
      "type": "abb.totalflow.AGA3.lastcalc.type@1",
      "model": "abb.totalflow.lastcalc"
    },
    {
      "type": "abb.totalflow.AGA3.aggregate.type@1",
      "model": "abb.totalflow.aggregate"
    },
    {
      "type": "abb.totalflow.AGA3.auxiliary.type@1",
      "model": "abb.totalflow.auxiliary"
    },
    {
      "type": "abb.totalflow.AGA3.qtr.customlog.type@1",
      "model": "abb.totalflow.qtr.customlog"
    },
    {
      "type": "abb.totalflow.AGA3.type@1",
      "model": "abb.totalflow.app"
    },
    {
      "type": "abb.totalflow.AGA3.alarmlog.type@1",
      "model": "abb.totalflow.alarmlog"
    },
    {
      "type": "abb.totalflow.AGA3.alarmdefinition.type@1",
      "model": "abb.totalflow.alarmdefinition"
    },
    {
      "type": "abb.totalflow.AGA3.alarmdefinition.type@1",
      "model": "abb.totalflow.alarmdefinition"
    }
  ]
}

```



```

    "type": "abb.totalflow.AGA3.trendlog.type@1",
    "model": "abb.totalflow.trendlog"
  },
  {
    "type": "abb.totalflow.AGA3.trenddefinition.type@1",
    "model": "abb.totalflow.trenddefinition"
  },
  {
    "type": "abb.totalflow.AGA3.eventlog.type@1",
    "model": "abb.totalflow.eventlog"
  },
  {
    "type": "abb.totalflow.AGA3.register.type@1",
    "model": "abb.totalflow.register"
  }
],
"deviceTimestamp": "{\description\": \"Time stamp for log record, daily or period
time\", \"dataType\": \"dateTime\", \"displayName\": \"Date\"}",
"deviceUtcTimestamp": "{\description\": \"UTC Time stamp for log record, daily or period
time\", \"dataType\": \"dateTime\", \"displayName\": \"Date/Time (UTC)\"}",
"efmLoguuid": {
  "description": "Universally unique identifier for log record",
  "dataType": "string",
  "displayName": "UUID"
},
"periodTime": {
  "displayName": "Period Time",
  "dataType": "float",
  "description": "Length of period",
  "units": "seconds"
},
"sequence": {
  "displayName": "SN",
  "dataType": "float",
  "description": "Record sequence number",
  "defaultValue": 0,
  "min": 0
},
"alarms": {
  "displayName": "Alarms",
  "description": "Alarms during log period",
  "dataType": "int",
  "dataTypeExt": "uint32"
},
"variables": {
  "staticPressure": {
    "displayName": "Static Pressure",
    "description": "Average static pressure during log period",
    "dataType": "float",

```

```

"logAverage": {
  "displayName": "SP",
  "dataType": "float",
  "description": "Average temperature during log period",
  "defaultValue": 0
},
"maximum": {
  "overwritten": true,
  "displayName": "SP Max",
  "description": "Maximum recorded static pressure during log period",
  "defaultValue": 0
},
"minimum": {
  "overwritten": true,
  "displayName": "SP Min",
  "description": "Minimum recorded static pressure during log period",
  "defaultValue": 0
},
"percentHigh": {
  "displayName": "SP %HI",
  "description": "Percentage of samples with static pressure above high limit",
  "dataType": "float",
  "defaultValue": 0,
  "max": 100,
  "min": 0
},
"percentLow": {
  "displayName": "SP %LO",
  "description": "Percentage of samples with static pressure below low limit",
  "dataType": "float",
  "defaultValue": 0,
  "max": 100,
  "min": 0
}
},
"differentialPressure": {
  "displayName": "Differential Pressure",
  "dataType": "float",
  "description": "Average differential pressure during log period",
  "logAverage": {
    "displayName": "DP",
    "dataType": "float",
    "description": "Average temperature during log period",
    "defaultValue": 0
  },
  "maximum": {
    "overwritten": true,
    "displayName": "DP Max",
    "description": "Maximum recorded differential pressure during log period",
  }
}

```

```

    "defaultValue": 0
  },
  "minimum": {
    "overwritten": true,
    "displayName": "DP Min",
    "description": "Minimum recorded differential pressure during log period",
    "defaultValue": 0
  },
  "percentHigh": {
    "displayName": "DP %HI",
    "description": "Percentage of samples with differential pressure above high limit",
    "dataType": "float",
    "defaultValue": 0,
    "max": 100,
    "min": 0
  },
  "percentLow": {
    "displayName": "DP %LO",
    "description": "Percentage of samples with differential pressure below low limit",
    "dataType": "float",
    "defaultValue": 0,
    "max": 100,
    "min": 0
  }
},
"temperature": {
  "displayName": "Temperature",
  "units": {
    "defaultValue": "Deg F"
  },
  "tags": [
    "temperature"
  ],
  "logAverage": {
    "displayName": "TF",
    "dataType": "float",
    "description": "Average temperature during log period",
    "defaultValue": 0
  },
  "maximum": {
    "overwritten": true,
    "displayName": "TF Max",
    "description": "Maximum recorded temperature during log period",
    "defaultValue": 0
  },
  "minimum": {
    "overwritten": true,
    "displayName": "TF Min",
    "description": "Minimum recorded temperature during log period",

```

```

    "defaultValue": 0
  },
  "percentHigh": {
    "displayName": "TF %HI",
    "description": "Percentage of samples with temperature above high limit",
    "dataType": "float",
    "defaultValue": 0,
    "max": 100,
    "min": 0
  },
  "percentLow": {
    "displayName": "TF %LO",
    "description": "Percentage of samples with temperature below low limit",
    "dataType": "float",
    "defaultValue": 0,
    "max": 100,
    "min": 0
  }
},
"integral": {
  "displayName": "Integral",
  "description": "Integral value",
  "dataType": "float",
  "defaultValue": 0
},
"volume": {
  "displayName": "Volume",
  "description": "Total corrected volume during log period",
  "dataType": "float",
  "defaultValue": 0,
  "units": {
    "defaultValue": "MSCF"
  },
  "tags": [
    "volume"
  ]
},
"energy": {
  "displayName": "Energy",
  "dataType": "float",
  "description": "Total energy during log period",
  "defaultValue": 0,
  "units": {
    "defaultValue": "MMBtu"
  },
  "tags": [
    "energy"
  ]
},

```

```

"flowTime": {
  "displayName": "Flow Time",
  "dataType": "float",
  "description": "Time in which flow occurred",
  "units": "seconds"
},
"backFlow": {
  "displayName": "Back Flow",
  "dataType": "float",
  "description": "Percentage of samples in which back flow occurred",
  "defaultValue": 0,
  "max": 100,
  "min": 0
},
"contractHour": {
  "displayName": "Contract Hr",
  "dataType": "int"
}
}
}
}

```

abb_totalflow_AGA7_qtr_customlog_type.json

```

{
  "model": "abb.totalflow.qtr.customlog",
  "typeId": "abb.totalflow.AGA7.qtr.customlog.type",
  "name": "AGA7 qtr custom log Type",
  "description": "Displays all variables in AGA7 related to custom log",
  "version": "1.0.0",
  "relatedModels": [
    {
      "type": "abb.totalflow.AGA7.composition.type@1",
      "model": "abb.totalflow.composition"
    },
    {
      "type": "abb.totalflow.AGA7.lastcalc.type@1",
      "model": "abb.totalflow.lastcalc"
    },
    {
      "type": "abb.totalflow.AGA7.aggregate.type@1",
      "model": "abb.totalflow.aggregate"
    },
    {
      "type": "abb.totalflow.AGA7.auxiliary.type@1",
      "model": "abb.totalflow.auxiliary"
    },
    {
      "type": "abb.totalflow.AGA7.type@1",
      "model": "abb.totalflow.app"
    }
  ]
}

```

```

    },
    {
      "type": "abb.totalflow.AGA7.qtr.dailylog.type@1",
      "model": "abb.totalflow.qtr.dailylog"
    },
    {
      "type": "abb.totalflow.AGA7.alarmlog.type@1",
      "model": "abb.totalflow.alarmlog"
    },
    {
      "type": "abb.totalflow.AGA7.alarmdefinition.type@1",
      "model": "abb.totalflow.alarmdefinition"
    },
    {
      "type": "abb.totalflow.AGA7.trendlog.type@1",
      "model": "abb.totalflow.trendlog"
    },
    {
      "type": "abb.totalflow.AGA7.trenddefinition.type@1",
      "model": "abb.totalflow.trenddefinition"
    },
    {
      "type": "abb.totalflow.AGA7.eventlog.type@1",
      "model": "abb.totalflow.eventlog"
    },
    {
      "type": "abb.totalflow.AGA7.register.type@1",
      "model": "abb.totalflow.register"
    }
  ],
  "deviceTimestamp": "{\description\": \"Time stamp for log record, daily or period time\", \"dataType\": \"dateTime\", \"displayName\": \"Date/Time\"}",
  "deviceUtcTimestamp": "{\description\": \"UTC Time stamp for log record, daily or period time\", \"dataType\": \"dateTime\", \"displayName\": \"Date/Time (UTC)\"}",
  "efmLoguuid": {
    "description": "Universally unique identifier for log record",
    "dataType": "string",
    "displayName": "UUID"
  },
  "periodTime": {
    "displayName": "Period Time",
    "dataType": "float",
    "description": "Length of period",
    "units": "seconds"
  },
  "sequence": {
    "displayName": "SN",
    "dataType": "float",
    "description": "Record sequence number",

```

```

    "defaultValue": 0,
    "min": 0
  },
  "alarms": {
    "displayName": "Alarms",
    "description": "Alarms during log period",
    "dataType": "int",
    "dataTypeExt": "uint32"
  },
  "variables": {
    "staticPressure": {
      "displayName": "SP",
      "description": "Average static pressure during log period",
      "dataType": "float",
      "defaultValue": 0
    },
    "temperature": {
      "displayName": "TF",
      "dataType": "float",
      "description": "Average temperature during log period",
      "defaultValue": 0
    },
    "volume": {
      "displayName": "Volume",
      "description": "Total corrected volume during log period",
      "dataType": "float",
      "defaultValue": 0,
      "units": {
        "defaultValue": "MSCF"
      }
    },
    "energy": {
      "displayName": "Energy",
      "dataType": "float",
      "description": "Total energy during log period",
      "defaultValue": 0,
      "units": {
        "defaultValue": "MMBtu"
      }
    },
    "pulseCount": {
      "displayName": "Count",
      "description": "Pulse Count",

```

```

    "dataType": "float",
    "defaultValue": 0
  },
  "AVolume": {
    "displayName": "AVol",
    "description": "Uncorrected volume",
    "dataType": "float",
    "defaultValue": 0
  },
  "flowTime": {
    "displayName": "Flow Time",
    "dataType": "float",
    "description": "Percentage of samples in which flow occurred",
    "defaultValue": 0,
    "max": 100,
    "min": 0
  }
}
}
}

```

abb_totalflow_gaslift_eventlog_type.json

```

{
  "model": "abb.totalflow.eventlog",
  "typeId": "abb.totalflow.gaslift.eventlog.type",
  "version": "1.0.0",
  "name": "Event Log Type Definition for Gas lift application",
  "isExtensible": true,
  "description": "Gas Lift Event Log Type Definition",
  "relatedModels": [
    {
      "type": "abb.totalflow.gaslift.aggregate.type@1",
      "model": "abb.totalflow.aggregate"
    },
    {
      "type": "abb.totalflow.gaslift.alarmlog.type@1",
      "model": "abb.totalflow.alarmlog"
    },
    {
      "type": "abb.totalflow.gaslift.alarmdefinition.type@1",
      "model": "abb.totalflow.alarmdefinition"
    },
    {
      "type": "abb.totalflow.gaslift.trendlog.type@1",
      "model": "abb.totalflow.trendlog"
    },
    {
      "type": "abb.totalflow.gaslift.trenddefinition.type@1",
      "model": "abb.totalflow.trenddefinition"
    }
  ]
}

```



```

    },
    {
      "type": "abb.totalflow.gaslift.type@1",
      "model": "abb.totalflow.app"
    },
    {
      "type": "abb.totalflow.gaslift.register.type@1",
      "model": "abb.totalflow.register"
    }
  ],
  "eventLogs": [
    {
      "deviceTimestamp": {
        "description": "Local Time stamp for log record",
        "dataType": "uint32",
        "displayName": "Date/Time"
      },
      "deviceUtcTimestamp": {
        "description": "UTC Time stamp for log record",
        "dataType": "uint32",
        "displayName": "Date/Time (UTC)"
      },
      "eventLoguuid": {
        "description": "Universally unique identifier for event log record",
        "dataType": "string",
        "displayName": "UUID"
      },
      "mode": {
        "description": "Gas Lift Mode",
        "dataType": "int",
        "dataTypeExt": "uint32",
        "displayName": "Mode",
        "valueOptions": [
          {
            "Name": "OFF",
            "Value": 0
          },
          {
            "Name": "Manual",
            "Value": 1
          },
          {
            "Name": "Critical",
            "Value": 2
          },
          {
            "Name": "Plunger",
            "Value": 3
          }
        ]
      }
    }
  ]
}

```

```

{
  "Name": "Intermittent",
  "Value": 4
},
{
  "Name": "Step Rate Test",
  "Value": 5
}
]
},
"event": {
  "description": "Event state of Gas Lift event Log record",
  "dataType": "int",
  "dataTypeExt": "uint32",
  "displayName": "Event",
  "valueOptions": [
    {
      "Name": "Closed",
      "Value": 0
    },
    {
      "Name": "Open",
      "Value": 1
    },
    {
      "Name": "Arrival",
      "Value": 2
    },
    {
      "Name": "Cleanup",
      "Value": 3
    },
    {
      "Name": "Afterflow",
      "Value": 4
    },
    {
      "Name": "Manual",
      "Value": 5
    },
    {
      "Name": "Critical",
      "Value": 6
    },
    {
      "Name": "Wait",
      "Value": 7
    },
    {

```

```

    "Name": "Slow",
    "Value": 8
  },
  {
    "Name": "Hold",
    "Value": 9
  },
  {
    "Name": "SHUTDOWN",
    "Value": 10
  },
  {
    "Name": "RESET",
    "Value": 11
  },
  {
    "Name": "Cleanup Close",
    "Value": 12
  }
]
},
"plunger": {
  "description": "Plunger State of the Gas Lift event Log record",
  "dataType": "int",
  "dataTypeExt": "uint32",
  "displayName": "Plunger State",
  "valueOptions": [
    {
      "Name": "FAIL",
      "Value": 0
    },
    {
      "Name": "Closing Valve",
      "Value": 1
    },
    {
      "Name": "Valve Closed",
      "Value": 2
    },
    {
      "Name": "Plunger Arriving",
      "Value": 3
    },
    {
      "Name": "Blow Valve",
      "Value": 4
    },
    {
      "Name": "PlungerArrived",

```

```

        "Value": 5
      },
      {
        "Name": "AfterFlow",
        "Value": 6
      }
    ]
  },
  "prodRate": {
    "displayName": "Production Rate",
    "description": "Production Rate",
    "dataType": "float",
    "defaultValue": 0
  },
  "injectRate": {
    "displayName": "Injection Rate",
    "description": "Injection Rate",
    "dataType": "float",
    "defaultValue": 0
  },
  "criticalRate": {
    "displayName": "Critical Rate",
    "description": "Critical Rate",
    "dataType": "float",
    "defaultValue": 0
  },
  "injSetpoint": {
    "displayName": "Injection Set Point",
    "description": "Injection Set Point",
    "dataType": "float",
    "defaultValue": 0
  }
}
]
}

```

abb_totalflow_holdingregisters_trendlog_type.json

```

{
  "typeId": "abb.totalflow.holdingregisters.trendlog.type",
  "model": "abb.totalflow.trendlog",
  "name": "Trend log Type",
  "isExtensible": true,
  "version": "1.0.0",
  "description": "Trend log Type details",
  "relatedModels": [
    {
      "type": "abb.totalflow.holdingregisters.alarmdefinition.type@1",
      "model": "abb.totalflow.alarmdefinition"
    }
  ]
}

```

```

    },
    {
      "type": "abb.totalflow.holdingregisters.alarmlog.type@1",
      "model": "abb.totalflow.alarmlog"
    },
    {
      "type": "abb.totalflow.holdingregisters.trenddefinition.type@1",
      "model": "abb.totalflow.trenddefinition"
    },
    {
      "type": "abb.totalflow.holdingregisters.type@1",
      "model": "abb.totalflow.app"
    },
    {
      "type": "abb.totalflow.holdingregisters.register.type@1",
      "model": "abb.totalflow.register"
    }
  ],
  "tags": [ "Trend", "Logs" ],
  "deviceTimestamp": "{\description\:\Time stamp for log record, daily or period
time\,\datatype\:\dateTime\,\displayName\:\Date/Time\}",
  "deviceUtcTimestamp": "{\description\:\UTC Time stamp for log record, daily or period
time\,\datatype\:\dateTime\,\displayName\:\Date/Time (UTC)\}",
  "trendloguuid": "",
  "sequence": {},
  "trenddefinitionref": "",
  "periodTime": {
    "value": "",
    "unit": ""
  },
  "variables": [
    {
      "name": "varDataType",
      "value": ""
    }
  ],
  "attributes": {
    "trendloguuid": {
      "description": "unique id of each trend log generated against trend definition at regular intervals"
    },
    "trenddefinitionref": {
      "description": "Reference to trend definition"
    }
  }
}
}
}

```

abb_totalflow_liquid_type.json

```
{
```

```

"model": "abb.totalflow.app",
"typeId": "abb.totalflow.liquid.type",
"version": "1.0.0",
"name": "Liquid",
"relatedModels": [
  {
    "type": "abb.totalflow.liquid.composition.type@1",
    "model": "abb.totalflow.composition"
  },
  {
    "type": "abb.totalflow.liquid.lastcalc.type@1",
    "model": "abb.totalflow.lastcalc"
  },
  {
    "type": "abb.totalflow.liquid.aggregate.type@1",
    "model": "abb.totalflow.aggregate"
  },
  {
    "type": "abb.totalflow.liquid.auxiliary.type@1",
    "model": "abb.totalflow.auxiliary"
  },
  {
    "type": "abb.totalflow.liquid.qtr.customlog.type@1",
    "model": "abb.totalflow.qtr.customlog"
  },
  {
    "type": "abb.totalflow.liquid.qtr.dailylog.type@1",
    "model": "abb.totalflow.qtr.dailylog"
  },
  {
    "type": "abb.totalflow.liquid.alarmlog.type@1",
    "model": "abb.totalflow.alarmlog"
  },
  {
    "type": "abb.totalflow.liquid.alarmdefinition.type@1",
    "model": "abb.totalflow.alarmdefinition"
  },
  {
    "type": "abb.totalflow.liquid.trendlog.type@1",
    "model": "abb.totalflow.trendlog"
  },
  {
    "type": "abb.totalflow.liquid.trenddefinition.type@1",
    "model": "abb.totalflow.trenddefinition"
  },
  {
    "type": "abb.totalflow.liquid.eventlog.type@1",
    "model": "abb.totalflow.eventlog"
  },
  },

```

```

{
  "type": "abb.totalflow.liquid.register.type@1",
  "model": "abb.totalflow.register"
}
],
"properties": {
  "deviceID": {
    "displayName": "Device/APP ID",
    "dataType": "string",
    "eventEnable": false,
    "isMandatory": true,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "description": "Identification name for application or flow calculation",
    "defaultValue": "SULIQ-1",
    "tags": [
      "application name",
      "application ID",
      "app name"
    ]
  }
},
"tubeDescription": {
  "displayName": "Tube Description",
  "dataType": "string",
  "eventEnable": false,
  "isMandatory": true,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "defaultValue": "",
  "description": "Description of tube application",
  "tags": [
    "tube description"
  ]
},
"enhancedMode": {
  "displayName": "Enhanced Mode",
  "description": "Enhanced Mode",
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "group": "enhancedMode",
  "cloudAccess": "Read",
  "eventEnable": false,
  "cloudEnable": true,
  "isMandatory": false,
  "valueOptions": [
    {
      "Name": "Disabled",
      "Value": 0
    }
  ],
},

```

```

    {
      "Name": "Enabled",
      "Value": 1
    }
  ]
},
"facilityMeasurementPt": {
  "displayName": "Facility Measurement Point",
  "dataType": "string",
  "eventEnable": false,
  "isMandatory": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "group": "enhancedMode",
  "enable": {
    "$ref": "#/properties/enhancedMode"
  },
  "description": "Facility Measurement Point"
},
"companyName": {
  "displayName": "Company Name",
  "dataType": "string",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "group": "enhancedMode",
  "enable": {
    "$ref": "#/properties/enhancedMode"
  },
  "description": "Company Name"
},
"locationElevation": {
  "displayName": "Location Elevation",
  "description": "Location Elevation",
  "dataType": "float",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": false,
  "defaultValue": 0,
  "group": "enhancedMode",
  "enable": {
    "$ref": "#/properties/enhancedMode"
  },
  "units": "ft"
},
"contractHour": {
  "displayName": "Contract Hour",

```



```

"description": "Start time for contract day",
"eventEnable": false,
"cloudAccess": "Read",
"cloudEnable": true,
"isMandatory": true,
"dataType": "int",
"dataTypeExt": "uint8",
"defaultValue": {
  "value": 0,
  "typeOnly": "false"
},
"min": 0,
"max": 23,
"tags": [
  "contract hour"
]
},
"volCalcPeriod": {
  "dataType": "int",
  "dataTypeExt": "int16",
  "displayName": "Vol Calc Period",
  "eventEnable": false,
  "isMandatory": true,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "description": "Volume Calculation Period",
  "units": "second",
  "tags": [
    "Volume",
    "Period"
  ]
},
"volLogPeriod": {
  "dataType": "enum",
  "dataTypeExt": "int32",
  "displayName": "Log Period",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": true,
  "description": "Volume Log Period",
  "defaultValue": 60,
  "valueOptions": [
    {
      "Name": "1 minute",
      "Value": 60
    },
    {
      "Name": "2 minutes",

```

```

    "Value": 120
  },
  {
    "Name": "5 minutes",
    "Value": 300
  },
  {
    "Name": "10 minutes",
    "Value": 600
  },
  {
    "Name": "20 minutes",
    "Value": 1200
  },
  {
    "Name": "30 minutes",
    "Value": 1800
  },
  {
    "Name": "60 minutes",
    "Value": 3600
  }
],
"tags": [
  "Log",
  "Period"
]
},
"flowPeriod": {
  "displayName": "Flow Period",
  "description": "Flow period for liquid tubes",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": false,
  "dataType": "float",
  "defaultValue": 1,
  "units": "second"
},
"volCalcType": {
  "displayName": "Calculation Type",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": true,
  "description": "Calculation type used",
  "valueOptions": [
    {
      "Name": "API Liquid",

```

```

    "Value": 6
  }
],
"defaultValue": 6,
"dataType": "enum",
"dataTypeExt": "uint8"
},
"extendedCalculation": {
  "displayName": "Extended Calculations",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": true,
  "dataType": "enum",
  "dataTypeExt": "int8",
  "valueOptions": [
    {
      "Name": "Disabled",
      "Value": 0
    },
    {
      "Name": "Enabled",
      "Value": 1
    }
  ],
  "defaultValue": 1
},
"ticketNumber": {
  "displayName": "Ticket Number",
  "description": "Ticket Number",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "int",
  "dataTypeExt": "int32",
  "defaultValue": 0
},
"meterBodySrNumber": {
  "displayName": "Meter Body Serial Number",
  "description": "Meter Body Serial Number",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "string",
  "defaultValue": 0
},
"meterInternalSrNumber": {

```

```

"displayName": "Meter Internals Serial Number",
"description": "Meter Internals Serial Number",
"cloudAccess": "Read",
"cloudEnable": true,
"eventEnable": false,
"isMandatory": false,
"dataType": "string",
"defaultValue": 0
},
"holdTimeOut": {
"displayName": "Hold TimeOut (Seconds)",
"description": "Hold TimeOut (Seconds)",
"cloudAccess": "Read",
"cloudEnable": true,
"isMandatory": true,
"eventEnable": false,
"dataType": "int",
"dataTypeExt": "int32",
"defaultValue": 3600
},
"liquidType": {
"displayName": "Liquid Type",
"description": "Liquid Type",
"cloudAccess": "Read",
"cloudEnable": true,
"eventEnable": false,
"isMandatory": true,
"dataType": "enum",
"dataTypeExt": "uint8",
"valueOptions": [
{
>Name": "Crude Oil",
>Value": 0
},
{
>Name": "Fuel Oil",
>Value": 1
},
{
>Name": "Jet Fuel",
>Value": 2
},
{
>Name": "Transition/Diesel",
>Value": 3
},
{
>Name": "Gasoline",
>Value": 4

```

```

    },
    {
      "Name": "Lube Oil",
      "Value": 5
    },
    {
      "Name": "Special Appl.",
      "Value": 6
    },
    {
      "Name": "Water",
      "Value": 7
    },
    {
      "Name": "Light Hydros",
      "Value": 8
    }
  ],
  "defaultValue": 0
},
"equilibriumVaporPressure": {
  "displayName": "Equilibrium Vapor Pressure",
  "description": "Equilibrium Vapor Pressure",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": true,
  "dataType": "float",
  "units": {
    "defaultValue": "psia"
  }
},
"defaultValue": 0
},
"sedWaterType": {
  "displayName": "Sediment and Water Type",
  "description": "Sediment and Water Type",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": true,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "Measured",
      "Value": 0
    },
    {
      "Name": "User Entered",

```

```

    "Value": 1
  }
],
"defaultValue": 1
},
"sedWaterPercentage": {
  "displayName": "Sediment and Water Percentage",
  "description": "Sediment and Water Percentage",
  "cloudAccess": "Read",
  "isMandatory": true,
  "cloudEnable": true,
  "eventEnable": false,
  "dataType": "float",
  "defaultValue": 0
},
"alpha60Type": {
  "displayName": "Thermal expansion Factor Type (Alpha 60)",
  "description": "Thermal expansion Factor Type (Alpha 60)",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "User Entered",
      "Value": 0
    },
    {
      "Name": "Calculated",
      "Value": 1
    }
  ]
},
"defaultValue": 1
},
"userEnteredAlpha60": {
  "displayName": "User Entered Thermal expansion Factor (Alpha 60)",
  "description": "User Entered Thermal expansion Factor (Alpha 60)",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "float",
  "defaultValue": 0,
  "units": "/deg F"
},
"densityType": {
  "displayName": "Density Type",

```

```

"description": "Density Type",
"cloudAccess": "Read",
"cloudEnable": true,
"isMandatory": false,
"eventEnable": false,
"dataType": "enum",
"dataTypeExt": "uint8",
"valueOptions": [
  {
    "Name": "User Entered",
    "Value": 1
  },
  {
    "Name": "Measured",
    "Value": 0
  }
],
"defaultValue": 1
},
"userEnteredDensityType": {
  "displayName": "User Entered Density Type",
  "description": "User entered Density Type",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": false,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "Base/Standard",
      "Value": 0
    },
    {
      "Name": "Flowing",
      "Value": 1
    }
  ],
  "defaultValue": 0
},
"rawUserEnteredDensity": {
  "displayName": "Raw User Entered Density/Gravity",
  "description": "Raw User Entered Density/Gravity",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "float",
  "units": {

```

```

    "defaultValue": "Kg/m3"
  },
  "defaultValue": 0
},
"useTempCorrFactor": {
  "displayName": "Use Temp Correction Factor (Ctl)",
  "description": "Use Temp Correction Factor",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "No",
      "Value": 0
    },
    {
      "Name": "Yes",
      "Value": 1
    }
  ],
  "defaultValue": 0
},
"tempCorrFactorType": {
  "displayName": "Temp Correction Factor Type (Ctl)",
  "description": "Temp Correction Factor type",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "User Entered",
      "Value": 0
    },
    {
      "Name": "Calculated",
      "Value": 1
    }
  ],
  "defaultValue": 0
},
"userEnteredTempCorrFactor": {
  "displayName": "User Entered Temp. Correction Factor (Ctl)",
  "eventEnable": false,

```



```

    "isMandatory": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "description": "User Entered Temp. Correction Factor",
    "dataType": "float",
    "tags": [
      "Temperature",
      "Correction"
    ],
    "defaultValue": 1
  },
  "usePressureCorrFactor": {
    "displayName": "Use Pressure Correction Factor (Cpl)",
    "description": "Use pressure Correction Factor",
    "cloudAccess": "Read",
    "cloudEnable": true,
    "eventEnable": false,
    "isMandatory": false,
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "No",
        "Value": 0
      },
      {
        "Name": "Yes",
        "Value": 1
      }
    ],
    "defaultValue": 0
  },
  "pressureCorrFactorType": {
    "displayName": "Pressure Correction Factor Type (Cpl)",
    "description": "Pressure Correction Factor type",
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": false,
    "eventEnable": false,
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "User Entered",
        "Value": 0
      },
      {
        "Name": "Calculated",
        "Value": 1
      }
    ]
  }
}

```

```

    }
  ],
  "defaultValue": 0
},
"userEnteredPressureCorrFactor": {
  "displayName": "User Entered Pressure Correction Factor (Cpl)",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "User Entered Pressure Correction Factor",
  "dataType": "float",
  "tags": [
    "Pressure",
    "Correction"
  ],
  "defaultValue": 1
},
"basePressure": {
  "displayName": "Base Pressure",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": true,
  "description": "Base Pressure",
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "1",
      "Value": 0
    }
  ],
  "units": "ATM",
  "tags": [
    "Pressure",
    "Base"
  ],
  "defaultValue": 0
},
"baseTemperature": {
  "displayName": "Base Temperature",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": true,
  "description": "Base Temperature",
  "dataType": "enum",
  "dataTypeExt": "uint8",

```

```

"valueOptions": [
  {
    "Name": "60",
    "Value": 0
  }
],
"units": "F",
"tags": [
  "Temperature",
  "Base"
]
},
"barometricPressure": {
  "displayName": "Barometric Pressure",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "description": "Barometric Pressure",
  "dataType": "float",
  "isMandatory": true,
  "tags": [
    "Pressure",
    "Barometric"
  ],
  "units": {
    "defaultValue": "psia"
  },
  "defaultValue": 14.73
},
"kFactorType": {
  "displayName": "K Factor Type",
  "description": "K Factor Type",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "dataType": "enum",
  "isMandatory": true,
  "dataTypeExt": "int8",
  "group": "kFactor",
  "valueOptions": [
    {
      "Name": "Quantity/Pulse",
      "Value": 0
    },
    {
      "Name": "Pulse/Quantity",
      "Value": 1
    }
  ]
},

```

```

    "defaultValue": 1
  },
  "pipeDiameter": {
    "displayName": "Pipe Diameter (ID)",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": true,
    "description": "pipe diameter of material",
    "dataType": "float",
    "tags": [
      "Diameter"
    ],
    "units": {
      "defaultValue": "in"
    },
    "defaultValue": 8
  },
  "flowingPressureHigh": {
    "displayName": "Flowing Pressure High Limit",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": false,
    "group": "flowingPressure",
    "description": "High limit of flowing pressure",
    "dataType": "float",
    "tags": [
      "Pressure"
    ],
    "units": {
      "defaultValue": "psia"
    },
    "defaultValue": 2047.969
  },
  "flowingPressureLow": {
    "displayName": "Flowing Pressure Low Limit",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": false,
    "group": "flowingPressure",
    "description": "Low limit of flowing pressure",
    "dataType": "float",
    "tags": [
      "Pressure"
    ],
    "units": {
      "defaultValue": "psia"
    }
  }
}

```

```

    },
    "defaultValue": 0
  },
  "flowingTempHigh": {
    "displayName": "Flowing Temp. High Limit",
    "eventEnable": false,
    "isMandatory": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "description": "High limit of flowing temperature",
    "dataType": "float",
    "group": "flowingTemperature",
    "tags": [
      "Temperature"
    ],
    "units": {
      "defaultValue": "deg F"
    },
    "defaultValue": 420
  },
  "flowingTempLow": {
    "displayName": "Flowing Temp. Low Limit",
    "eventEnable": false,
    "isMandatory": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "group": "flowingTemperature",
    "description": "Low limit of flowing temperature",
    "dataType": "float",
    "tags": [
      "Temperature"
    ],
    "units": {
      "defaultValue": "deg F"
    },
    "defaultValue": 0
  },
  "flowRateHigh": {
    "displayName": "Gross Flow Rate High Limit",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": false,
    "description": "High limit of flow rate",
    "dataType": "float",
    "tags": [
      "Flowrate"
    ],
    "units": {

```

```

    "defaultValue": "bbl/Hr"
  },
  "defaultValue": 24000
},
"flowRateLow": {
  "displayName": "Gross Flow Rate Low Limit",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "Low limit of flow rate",
  "dataType": "float",
  "tags": [
    "Flowrate"
  ],
  "units": {
    "defaultValue": "bbl/Hr"
  },
  "defaultValue": 0
},
"indicatedVolHigh": {
  "displayName": "Ind. Vol. High Limit",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "High limit of indicated volume",
  "dataType": "float",
  "tags": [
    "Volume"
  ],
  "units": {
    "defaultValue": "AUSgal"
  },
  "defaultValue": 2047
},
"indicatedVolLow": {
  "displayName": "Ind. Vol. Low Limit",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "Low limit of indicated volume",
  "dataType": "float",
  "tags": [
    "Volume"
  ],
  "units": {
    "defaultValue": "AUSgal"
  }
}

```

```

    },
    "defaultValue": 0
  },
  "periodMassHigh": {
    "displayName": "Period Mass High Limit",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": false,
    "description": "High limit of Period Mass",
    "dataType": "float",
    "tags": [
      "Mass"
    ],
    "units": {
      "defaultValue": "lbm"
    },
    "defaultValue": 2047
  },
  "periodMassLow": {
    "displayName": "Period Mass Low Limit",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": false,
    "description": "Low limit of Period Mass",
    "dataType": "float",
    "tags": [
      "Mass"
    ],
    "units": {
      "defaultValue": "lbm"
    },
    "defaultValue": 0
  },
  "useUserEnteredFpOnError": {
    "displayName": "Use User Entered Flowing Pressure On Error",
    "description": "Use User Entered Flowing Pressure On Error",
    "cloudAccess": "Read",
    "cloudEnable": true,
    "eventEnable": false,
    "isMandatory": false,
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "No",
        "Value": 0
      }
    ],
  },

```

```

    {
      "Name": "Yes",
      "Value": 1
    }
  ],
  "defaultValue": 0
},
"userEnteredFp": {
  "displayName": "User Entered Flowing Pressure Value",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "User Entered Flowing Pressure",
  "dataType": "float",
  "tags": [
    "Pressure"
  ],
  "units": {
    "defaultValue": "psia"
  },
  "defaultValue": 14.73
},
"flowingPressureHighError": {
  "displayName": "Flowing Pressure High Error",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "Flowing Pressure High Error",
  "dataType": "float",
  "tags": [
    "Pressure"
  ],
  "units": {
    "defaultValue": "psia"
  },
  "defaultValue": 0
},
"flowingPressureLowError": {
  "displayName": "Flowing Pressure Low Error",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "Flowing Pressure Low Error",
  "dataType": "float",
  "tags": [
    "Pressure"
  ]
}

```



```

    ],
    "units": {
      "defaultValue": "psia"
    },
    "defaultValue": 0
  },
  "useUserEnteredFtOnError": {
    "displayName": "Use User Entered Flowing Temp. On Error",
    "description": "Use User Entered Flowing Temp On Error",
    "cloudAccess": "Read",
    "cloudEnable": true,
    "eventEnable": false,
    "isMandatory": false,
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "No",
        "Value": 0
      },
      {
        "Name": "Yes",
        "Value": 1
      }
    ]
  },
  "defaultValue": 0
},
"userEnteredFt": {
  "displayName": "User Entered Flowing Temp",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "User Entered Flowing Temp",
  "dataType": "float",
  "tags": [
    "Pressure"
  ],
  "units": {
    "defaultValue": "deg F"
  },
  "defaultValue": 60
},
"flowingTempHighError": {
  "displayName": "Flowing Temp High Error",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,

```

```

"description": "Flowing Temperature High Error",
"dataType": "float",
"units": {
  "defaultValue": "deg F"
},
"tags": [
  "Temperature"
],
"defaultValue": 0
},
"flowingTempLowError": {
  "displayName": "Flowing Temp Low Error",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "Flowing Temperature Low Error",
  "dataType": "float",
  "tags": [
    "Temperature"
  ],
  "units": {
    "defaultValue": "deg F"
  },
  "defaultValue": 0
},
"useUserEnteredFp": {
  "displayName": "Use User Entered Flowing Pressure",
  "description": "Use User Entered Flowing Pressure",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "eventEnable": false,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "No",
      "Value": 0
    },
    {
      "Name": "Yes",
      "Value": 1
    }
  ],
  "defaultValue": 0
},
"userEnteredFpValue": {
  "displayName": "User Entered Flowing Pressure",

```

```

"eventEnable": false,
"cloudAccess": "Read",
"cloudEnable": true,
"isMandatory": false,
"description": "User Entered Flowing Pressure",
"dataType": "float",
"tags": [
  "Pressure"
],
"units": "psia",
"defaultValue": 14.73
},
"flowingPressureType": {
  "displayName": "Flowing Pressure Type",
  "description": "Flowing Pressure Type",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "dataType": "enum",
  "isMandatory": false,
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "Absolute",
      "Value": 0
    },
    {
      "Name": "Gauge",
      "Value": 1
    }
  ],
  "defaultValue": 0
},
"RTDInstalled": {
  "displayName": "RTD Installed",
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": false,
  "description": "Defines if there is an RTD device installed",
  "eventEnable": false,
  "valueOptions": [
    {
      "Name": "No",
      "Value": 1
    },
    {
      "Name": "Yes",

```

```

        "Value": 0
      }
    ],
    "defaultValue": 0
  },
  "useUserEnteredFt": {
    "displayName": "Use User Entered Flowing Temp",
    "description": "Use User Entered Flowing Temp",
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": false,
    "eventEnable": false,
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "No",
        "Value": 1
      },
      {
        "Name": "Yes",
        "Value": 0
      }
    ],
    "defaultValue": 0
  },
  "flowInputType": {
    "displayName": "Flow Input Type",
    "description": "Flow Input Type",
    "cloudAccess": "Read",
    "cloudEnable": true,
    "eventEnable": false,
    "isMandatory": true,
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "Pulse Input Vol",
        "Value": 0
      },
      {
        "Name": "Pulse Input Mass",
        "Value": 1
      },
      {
        "Name": "Volume Flow Rate",
        "Value": 2
      },
      {

```

```

      "Name": "Mass Flow Rate",
      "Value": 3
    }
  ],
  "defaultValue": 0
},
"methodForMeterFactors": {
  "displayName": "Method For Interpolating Meter Factor",
  "description": "Method For Interpolating Meter Factor",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": true,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "None",
      "Value": 0
    },
    {
      "Name": "Step/Range",
      "Value": 1
    },
    {
      "Name": "Linear",
      "Value": 2
    }
  ],
  "defaultValue": 1,
  "group": "MeterFactor"
},
"lastCalcFlowVolume": {
  "displayName": "Last Calculated Flow Volume",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": true,
  "description": "Last Calculated Flow Volume",
  "dataType": "float",
  "defaultValue": 0,
  "units": "AUSgal",
  "group": "MeterFactor",
  "enable": {
    "$ref": "composition/properties/analysisType"
  }
},
"lastCalcFlowMass": {
  "displayName": "Last Calculated Flow Mass",

```

```

"eventEnable": false,
"cloudAccess": "Read",
"cloudEnable": true,
"isMandatory": true,
"description": "Last Calculated Flow Mass",
"dataType": "float",
"defaultValue": 0,
"units": "UKton",
"group": "MeterFactor",
"enable": {
  "$ref": "composition/properties/analysisType"
}
},
"lastCalcMeterFactor": {
  "displayName": "Last Calculated Meter Factor",
  "eventEnable": false,
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": true,
  "description": "Last Calculated Meter Factor",
  "dataType": "float",
  "defaultValue": 0,
  "group": "MeterFactor"
},
"methodForKFactors": {
  "displayName": "Method For Interpolating K Factors",
  "description": "Method For Interpolating K Factors",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "eventEnable": false,
  "isMandatory": true,
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "Single",
      "Value": 0
    },
    {
      "Name": "Step/Range",
      "Value": 1
    },
    {
      "Name": "Linear",
      "Value": 2
    }
  ],
  "defaultValue": 1,
  "group": "KFactor"

```

```

},
"lastSecondKFactor": {
  "displayName": "Last Second K Factor",
  "description": "Last Second K Factor",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": true,
  "eventEnable": false,
  "dataType": "float"
},
"lastSecondFrequency": {
  "displayName": "Last Second Frequency",
  "description": "Last Second Frequency",
  "cloudAccess": "Read",
  "cloudEnable": true,
  "isMandatory": true,
  "eventEnable": false,
  "dataType": "float",
  "units": "Hz"
}
},
"variables": {
  "flowRate": {
    "displayName": "Flow Rate",
    "dataType": "float",
    "description": "Flow Rate",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": true,
    "units": {
      "defaultValue": "bbl/Hr"
    },
    "defaultValue": 0
  },
  "flowingPressure": {
    "displayName": "Flowing Pressure",
    "description": "Flowing pressure",
    "dataType": "float",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": true,
    "group": "flowingPressure",
    "high": {
      "$ref": "#/properties/flowingPressureHigh"
    },
    "low": {
      "$ref": "#/properties/flowingPressureLow"
    }
  }
}

```

```

    },
    "defaultValue": 0,
    "units": {
      "defaultValue": "psig"
    },
    "tags": [
      "pressure"
    ]
  },
  "flowingTemperature": {
    "displayName": "Flowing Temperature",
    "dataType": "float",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": true,
    "group": "flowingTemperature",
    "high": {
      "$ref": "#/properties/flowingTempHigh"
    },
    "low": {
      "$ref": "#/properties/flowingTempLow"
    },
    "defaultValue": 60,
    "units": {
      "defaultValue": "Deg F"
    }
  },
  "pulseCount": {
    "displayName": "Pulse Count",
    "dataType": "float",
    "description": "Pulse count",
    "eventEnable": false,
    "cloudAccess": "Read",
    "cloudEnable": true,
    "isMandatory": true,
    "units": "Counts/Flow Period",
    "defaultValue": 0
  }
},
"references": {
  "meterFactorReference": {
    "isHierarchical": true,
    "isContainment": true,
    "dataType": "int",
    "cloudEnable": true,
    "dataTypeExt": "uint8",
    "to": [
      {

```



```

        "type": "abb.totalflow.liquid.meterFactor.type@1",
        "min": 0,
        "max": 12
    }
]
},
"multiPtKFactorReference": {
    "isHierarchical": true,
    "isContainment": true,
    "dataType": "int",
    "cloudEnable": true,
    "dataTypeExt": "uint8",
    "to": [
        {
            "type": "abb.totalflow.liquid.multiPtKFactor.type@1",
            "min": 0,
            "max": 11
        }
    ]
}
}
}
}

```

abb_totalflow_plunger_alarmlog_type.json

```

{
    "model": "abb.totalflow.alarmlog",
    "typeId": "abb.totalflow.plunger.alarmlog.type",
    "version": "1.0.0",
    "name": "Alarm Log Type Definition",
    "isExtensible": true,
    "description": "Alarm Log Type Definition",
    "relatedModels": [
        {
            "type": "abb.totalflow.plunger.type@1",
            "model": "abb.totalflow.app"
        },
        {
            "type": "abb.totalflow.plunger.alarmdefinition.type@1",
            "model": "abb.totalflow.alarmdefinition"
        },
        {
            "type": "abb.totalflow.plunger.trendlog.type@1",
            "model": "abb.totalflow.trendlog"
        },
        {
            "type": "abb.totalflow.plunger.trenddefinition.type@1",
            "model": "abb.totalflow.trenddefinition"
        }
    ]
}

```

```

{
  "type": "abb.totalflow.plunger.qtr.customlog.type@1",
  "model": "abb.totalflow.qtr.customlog"
},
{
  "type": "abb.totalflow.plunger.register.type@1",
  "model": "abb.totalflow.register"
},
{
  "type": "abb.totalflow.plunger.eventlog.type@1",
  "model": "abb.totalflow.eventlog"
}
],
"tags": [
  "Alarm",
  "Logs"
],
"alarmLogs": [
  {
    "alarmLoguuid": {
      "description": "Universally unique identifier for alarm log record",
      "dataType": "string",
      "displayName": "UUID"
    },
    "name": {
      "displayName": "Name",
      "description": "Name of the alarm",
      "dataType": "string"
    },
    "value": {
      "displayName": "Value",
      "description": "Value of the variable for which alarm is raised"
    },
    "unit": {
      "displayName": "Unit",
      "description": "Unit in which variable's value is measured"
    },
    "deviceTimestamp": {
      "description": "Local Time stamp for log record",
      "dataType": "uint32",
      "displayName": "Date/Time"
    },
    "deviceUtcTimestamp": {
      "description": "UTC Time stamp for log record",
      "dataType": "uint32",
      "displayName": "Date/Time (UTC)"
    },
    "cloudTimestamp": {
      "description": "Time stamp for log record when received on data processing",

```

```

    "dataType": "uint32",
    "displayName": "Date/Time (Cloud)"
  },
  "state": {
    "displayName": "State",
    "description": "State of the alarm",
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "Active",
        "Value": 1
      },
      {
        "Name": "Normal",
        "Value": 0
      }
    ]
  },
  "ackStatus": {
    "displayName": "Ack Status",
    "description": "Acknowledgment Status",
    "dataType": "enum",
    "dataTypeExt": "uint8",
    "valueOptions": [
      {
        "Name": "acknowledged",
        "Value": 0
      },
      {
        "Name": "unacknowledged",
        "Value": 1
      },
      {
        "Name": "NA",
        "Value": 255
      }
    ]
  },
  "ackUser": {
    "displayName": "Ack User",
    "description": "User acknowledging the alarm",
    "dataType": "string"
  },
  "ackTimestamp": {
    "displayName": "Ack Timestamp",
    "description": "Time of acknowledging the alarm",
    "dataType": "int",
    "dataTypeExt": "uint32"
  }
}

```

```

},
"severity": {
  "displayName": "Severity",
  "description": "Severity of the alarm",
  "dataType": "enum",
  "dataTypeExt": "uint8",
  "valueOptions": [
    {
      "Name": "Normal",
      "Value": 0
    },
    {
      "Name": "General",
      "Value": 1
    },
    {
      "Name": "Warning",
      "Value": 100
    },
    {
      "Name": "Fault",
      "Value": 200
    },
    {
      "Name": "System Fault",
      "Value": 255
    }
  ]
},
"seqNum": {
  "displayName": "Sequence",
  "description": "Sequence number of the alarm",
  "dataType": "int",
  "dataTypeExt": "uint32"
},
"alarmType": {
  "displayName": "Alarm Type",
  "description": "Type of the alarm",
  "dataType": "enum",
  "dataTypeExt": "string",
  "valueOptions": [
    {
      "Name": "System",
      "Value": "system"
    },
    {
      "Name": "User Defined",
      "Value": "userDefined"
    }
  ]
}

```

```

    ]
  },
  "alarmDefinitionRef": {
    "displayName": "Alarm Definition Ref",
    "description": "Reference of alarm definition",
    "dataType": "string"
  },
  "variableName": {
    "displayName": "Variable Name",
    "description": "Name of the variable for which alarm is defined",
    "dataType": "string"
  }
}
]
}

```

abb_totalflow_plunger_trenddefinition_type.json

```

{
  "model": "abb.totalflow.trenddefinition",
  "typeId": "abb.totalflow.plunger.trenddefinition.type",
  "name": "Trend definition Type",
  "description": "Displays all variables in Trend",
  "version": "1.0.0",
  "relatedModels": [
    {
      "type": "abb.totalflow.plunger.alarmlog.type@1",
      "model": "abb.totalflow.alarmlog"
    },
    {
      "type": "abb.totalflow.plunger.alarmdefinition.type@1",
      "model": "abb.totalflow.alarmdefinition"
    },
    {
      "type": "abb.totalflow.plunger.trendlog.type@1",
      "model": "abb.totalflow.trendlog"
    },
    {
      "type": "abb.totalflow.plunger.type@1",
      "model": "abb.totalflow.app"
    },
    {
      "type": "abb.totalflow.plunger.qtr.customlog.type@1",
      "model": "abb.totalflow.qtr.customlog"
    },
    {
      "type": "abb.totalflow.plunger.register.type@1",
      "model": "abb.totalflow.register"
    }
  ],
}

```

```
{
  "type": "abb.totalflow.plunger.eventlog.type@1",
  "model": "abb.totalflow.eventlog"
}
],
"trendDefuuid": {
  "description": "Universally unique identifier for trenddefinition",
  "dataType": "string",
  "displayName": "UUID"
},
"createdBy": {
  "description": "User created the trend",
  "dataType": "string"
},
"interval": {
  "description": "Interval at which trend should be performed",
  "dataType": "int",
  "unit": "sec/min/hr"
},
"variables": [
  {
    "name": "var1",
    "$ref": "objectid/modelid/variables/name"
  }
]
}
```



ABB Inc.

Measurement & Analytics

Quotes: US-IAMA.inquiry@us.abb.com

Orders: US-IAMA.order@us.abb.com

Training: US-IAMA.training@us.abb.com

Support: upstream.support@us.abb.com

+1 800 442 3097 (opt. 2)

Additional free publications are available for download at:

www.abb.com/upstream

Main Office - Bartlesville

7051 Industrial Blvd
Bartlesville, OK 74006
Ph: +1 918 338 4888

Kansas Office - Liberal

2705 Centennial Blvd
Liberal, KS 67901
Ph: +1 620 626 4350

Texas Office - Houston

3700 W. Sam Houston
Parkway S., Suite 600
Houston, TX 77042
Ph: +1 713 587 8000

Texas Office – Odessa

8007 East Business 20
Odessa, TX 79765
Ph: +1 432 272 1173

Texas Office – Pleasanton

150 Eagle Ford Road
Pleasanton, TX 78064
Ph: +1 830 569 8062

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents - in whole or in parts - is forbidden without prior written consent of ABB.

2107732MNA A

Copyright© 2021 ABB all rights reserved