Data Flow Systems

SCADA SOLUTIONS SINCE 1981
MELBOURNE, FL   WWW.DATAFLOWSYS.COM

A DFS RECOMMENDED SERVICE
ONSITE INSPECTION AND ROUTINE MAINTENANCE SERVICES

Success or failure of any SCADA component in the SCADA system can profoundly affect the ability to maintain intended performance levels. Proactive maintenance treats the SCADA system as a mission-critical asset to maximize its performance, help prevent system failures, and to protect your investment. Although DFS doesn't require maintenance contracts to receive support, we're here to help on an as-needed basis. To this end, DFS is now offering site-specific onsite inspection and routine maintenance services to our existing system users at discounted rates. Please note this service is limited to the items described below for DFS SCADA System hardware and software components. This service does not include the inspection of ancillary devices that may be connected to the SCADA system such as instrumentation, meters, generators, etc.

SERVICES TO BE PERFORMED BY DFS:

DFS will visit the Central Site(s), FTU(s) if applicable, and each existing Remote Terminal Unit (RTU) to perform the services specifically outlined below. This outline represents "the service" to be provided by DFS. Upon completion of the service, DFS will provide written documentation that describes the discovery and services performed on a per-site basis.

As outlined below, only certain routine-maintenance adjustments will be made during the service. Any existing product or component that is found to require repair or replacement will be documented. DFS will not proceed with any corrective action that requires an additional charge during the service. A follow-up quote will be provided to address additional corrective action requirements. The follow-up quote will also incorporate discounted pricing if recommended actions are taken within 90 days.

The following outlines the onsite inspection and routine maintenance services that will be provided:

➢ Hyper SCADA Server (HSS)

- o Visually inspect all components inside HSS cabinet for condition and proper operation.
- o Inspect terminal connectors and wire for evidence of damage.
- o Upgrade DFS SCADA Software to the latest revision (if applicable and at user's approval).
- o Confirm Hyper Server Module (HSM) back-up to primary workstation is configured and operational.

➢ Central Terminal Unit (CTU) / Master Radio (and FTU where applicable)

- o Inspect CTU/FTU connectors and wire for evidence of damage.
- o Check and tighten bonds of all wires terminated in CTU/FTU.
- o Confirm Polyphaser coax surge protector, Ditek power protection, and Transient Filter Shield (TFS) are correctly installed.
- o Confirm continuous ground loop bond exists between tower ground rod, antenna tower, coax surge protector, CTU/FTU enclosure, and site power source.
- o Measure ohms for site grounding value.
- o Check and tighten all ground bonding.
- o Check radio forward (FWD) power.
- o Check radio reflected (RFL) power.
- o Check antenna Voltage Standing Wave Ratio (VSWR) for proper antenna matching.
- o If applicable, identify possible causes of high RFL power and/or VSWR readings.
- o Compare current antenna azimuth against DFS Radio Study & Recommendation.

➢ Remote Terminal Unit (RTU) – *the following will be performed at "each" RTU location*

- o Inspect RTU terminal connectors and wire for evidence of damage.
- o Check and tighten bonds of all wires terminated in RTU.
- o Confirm Polyphaser coax surge protector, Ditek power protection, and Transient Filter Shield (TFS) are correctly installed.
- o Confirm all fuses and resistors that support RTU operation are of proper values and correctly installed.
- o Confirm continuous ground loop bond exists between tower ground rod, antenna tower/mast, coax surge protector, RTU enclosure, and site power source.
- o Measure ohms for site grounding value.
- o Check and tighten all ground bonding points.
- o Check radio forward (FWD) power.
- o Check radio reflected (RFL) power.
- o Check antenna Voltage Standing Wave Ratio (VSWR) for proper antenna matching.
- o If applicable, identify possible causes of high RFL power and/or VSWR readings.
- o Perform margin test to determine current radio signal strength fade margin.

- o Compare current fade margin against installed fade margin value as posted inside RTU enclosure (if available).

- o Compare current antenna azimuth against direction of CTU/FTU. If possible, perform corrective action while at site

- o If applicable, and if possible, re-align antenna to improve substandard fade margin (antenna height and/or mounting method will dictate service).

- o If applicable, identify any line-of-site obstruction in the RTU signal path that may be adversely impacting remote site signal strength/fade margin.

➤ Onsite Training

- o DFS will provide one (1) day of onsite "hands-on" type training that covers basic recommended routine maintenance practices and use of recommended RF test equipment.

PRICING:

Please contact the DFS Sales Department for a priced quotation. This service offer will be assembled and priced to address your site-specific system. Should you have any questions or require additional information, please don't hesitate to contact DFS Customer Support at 321-259-5009, or by email at service@dataflowsys.com.