CO-OPS Engineering Bulletin 27-001

Engineering Change: CO-OPS Standard WaterLOG Long Range Radar Sensor Configuration Parameters Update

Systems Affected: All systems implementing WaterLog long-range radar sensors *(aka Air Gap sensors)*

Originating Team: Measurement Systems Manager

Approval Date: 01 October 2026

Background: WaterLOG long-range radar sensors are being utilized to measure bridge clearance at numerous locations in the Physical Oceanographic Real-Time Systems (PORTS) maintained by CO-OPS and its partners. These sensors have included the discontinued H-3612 and Nile 517 lines. CO-OPS has adapted the NOAA Nile, Part Number: 203360, as the new standard sensor for measuring bridge clearance up to 70 m. The approval of these sensors for operational use required an update to the CO-OPS standard operational configuration baseline.

Action Required: CIL and/or SIL shall enter the following parameters into all new and returned long range radar sensors during sensor configuration:

Parameters for the H-3612

Menu	Variable	Value
Basic Setup	Tag Number	Sensor Serial Number
Basic Setup	Media type	Liquid
Basic Setup	Tank Shape	Dome Ceiling
Basic Setup	Medium Property	DC:>10
Basic Setup	Process Condition	Fast Change
Basic Setup	Empty Calibration	70m
Basic Setup	Full Calibration	70m
Extended Calibration	Offset	0 m
Extended Calibration	Output Damping	0 s
Extended Calibration	Blocking Distance	1 m (can depend on location)
Extended Calibration	Antenna Extension	0 m

Parameters for the Nile 517 and NOAA Nile (203360)

Menu	Variable	Value
Setup	Device Tag	Sensor Serial Number
Setup	Distance Unit	M
Setup	Tank Type	Open Channel
Setup	Medium Group	Water Based >=4
Setup	Empty Calibration	70m
Setup	Full Calibration	70m
Setup/Advanced Setup/Level	Medium Property	DC>15
Setup/Advanced Setup/Level	Max. filling speed liquid	Very Fast > 2m(80in)/min
Setup/Advanced Setup/Level	Max. draining speed liquid	Very Fast > 2m(80in)/min
Setup/Advanced Setup/Level	Blocking Distance	1 m (can depend on location)
Setup/Advanced Setup/Current Output 1	Current Span	Fixed Current
Setup/Advanced Setup/Current Output 1	Fixed Current	4

When configuring a sensor, it should also be confirmed that the power mode of the sensor is set to always on mode. The SDI-12 command SXRPM! will read the current power mode. A response of 0 indicates the sensor is set to sleep mode and a response of 1 indicates the sensor is set to always on mode. If the power mode of the sensor is set to sleep mode the SDI-12 command SXWPM1 will set it to always on mode. If the NOAA Nile (203360) is used, the horn antenna should be replaced with the 100 mm/4-inch version, Endress+Hauser Part Number: 71187606.

While these settings comprise the recommended standard sensor configuration which should accommodate most situations, it is recognized that there will be the occasional need to deviate due to station specific environmental conditions, obstructions, or limited mounting options. Any variation from these standard configurations should be noted in the E-Site for the station where the sensor is installed and in the eQUIP entry for the sensor, so that personnel requesting equipment for the station are aware of the need for the nonstandard configuration.

Estimated Time to Complete: Approximately 10 Minutes per instrument

References:

Heitsenrether, Krug, Hensley, "*Field Installation Procedures for Design Analysis WaterLOG® H3611i Microwave Radar Water Level Sensor Using the Sutron Data Collection Platform*", Version 1, January 2013.

Krug, Bailey, *"Air Gap Field Installation Guide"*, Version 3.1, September 2014