

## TYPICAL FIELD COMMISSIONING SCHEME FOR 3TX-HiQ DIGITAL SYSTEMS



*"LUNCHBOX" portable assembly with 6700mAh rated LiPo battery with Smart Digital ZEUS™ pH sensor interfaced via HiQ4FP female panel connector to mate with HiQ4M male sensor snap connector. Ready to use as a field calibrator of smart digital pH/ORP sensors for 3TX-HiQ digital transmitters or intermittent spot grab sample measurements in process in configuration shown above. Install protective caps when port is not in use to ensure NEMA 4X rating of assembly.*

*Side angle view showing rugged carrying handle & rubber feet installed for ease of portability. Measuring 3TX module installed can be swapped as desired from 35mm DIN-RAIL hardware. Protective caps are supplied to seal all ports not actively in use to maintain NEMA 4X rating. 3350mAh @ 5VDC rated lithium polymer (LiPo) battery shown installed for ~4.5 hours runtime. Optional larger 6700mAh @ 5VDC LiPo battery pack (shown to left) will allow ~9 hours runtime.*

- Calibrate smart digital HiQ sensor with Windows software or spare 3TX-HiQ transmitter. Use of HiQ Windows setup & calibration software requires optional ASTI supplied HiQ to Windows bridge box assembly (see previous page for details).
  - The values from the calibrations performed with the Windows software will not be written to the calibration history for a brand new out of box HiQ digital sensor but can be viewed in the calibrate Window.
    - Calibration values will only be written to the history after the sensor is field activated (see below).
    - If you wish to simply test the functionality of your new-in-box smart digital 3TX-HIQ sensor without setting the initial field installation date only the Windows software can allow you accomplish this goal.
  - Initial calibration and transmitter configuration can be performed between 3TX-HiQ transmitter and HiQ sensor instead of Windows software. When 3TX-HiQ transmitters are used for first calibration & configuration setup the initial field installation (activation) date will be stamped. If first calibration & configuration is done with Windows software the initial installation date is not stamped. First calibration with Windows software is not added to calibration history.
- Setup the 3TX-HiQ transmitter configuration as is desired for the planned installation point with the Windows software or spare 3TX-HiQ transmitter. Using the Windows software to create the configuration allows for it to be saved on the PC with a logical filename should it need to be loaded onto a new sensor in the future or else to keep track of changes to the transmitter configuration over time for the given installation point. If multiple installations will use exactly the same transmitter configuration this same file can be loaded onto multiple sensors. This task of loading the same configuration onto multiple smart digital sensors can also be accomplished via the 3TX-HiQ Intelligent transmitter using the appropriate parameter call.
- Connect the HiQ smart digital sensor that was previously calibrated with the Windows software to the 3TX-HiQ transmitter. The calibration values will be automatically loaded and the values displayed in the measurement mode will reflect the process parameter and temperature including this previous calibration done with the Windows software. At this moment the initial installation field is stamped onto the sensor as the activation date. After this moment, the last date in field service will also be stamped whenever this sensor is connected to any intelligent HiQ digital transmitter.
- Load the configuration saved onto the smart digital HiQ sensor onto the 3TX-HiQ transmitter (see transmitter manual for details).
- Calibrations performed with 3TX-HiQ-pH transmitter or HiQ Windows software are recorded to calibration history after sensor activation. It is not relevant whether subsequent calibrations are performed with the 3TX-HiQ-pH transmitter in field installation or a separate 3TX-HiQ-pH transmitter in the shop or using a portable battery-powered LUNCHBOX or CARRY-ON assembly.

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## TYPICAL OPTIMIZED ONGOING MAINTENANCE SCHEME & WORKFLOW FOR HiQ SMART DIGITAL MEASUREMENT SYSTEMS

- One of the core advantages of the smart digital HiQ platform is the availability to calibrate in one location and to install the sensor into another location. The calibration values saved on the sensor are automatically loaded to the 3TX-HiQ intelligent transmitter after the sensor is interfaced with the NEMA 6P rated field snap connector without any user action of any kind meaning for a true plug and play hot-swap ability between any sensor and transmitter.
  - The choice of where to perform the calibration is a matter of what is best for your particular facility and operational setup. In order to avoid downtime while the calibrations are performed, at least one spare HiQ digital sensor is required. If a spare HiQ sensor was not purchased as a part of the initial commissioning it is recommended to purchase one for ongoing maintenance best practice.
- There are three convenient options to perform the calibration of the HiQ digital sensor and modify the transmitter configuration after the initial field commissioning aside from using the field installed 3TX-HiQ transmitter to which the HiQ sensor is installed for continuous inline service. All are functionally equivalent and the choice of which approach is employed need only be selected based upon what best suits your needs. The three possibilities are:
  - Use a spare 3TX-HiQ transmitter assembly. The unit employed can be identical to the field commissioned package so that this spare 3TX-HiQ transmitter assembly can serve both for purposes of calibration as well as a backup in case the field unit(s) are damaged due to some unforeseen incident.
  - Use a portable LUNCHBOX or CARRYON assembly with a 3TX-HiQ transmitter installed. The primary advantage here is that such a portable unit is battery powered (either from a 9V or a 5V USB rechargeable cell) and so the calibration can be done in any location whether line power is available or not. This portable assembly can also serve to spot check process measurement values as well as performing recalibration for the field installed sensors.
  - Use the HiQ Windows software. This can be done in the lab with a desktop PC and also in the field if the HiQ to Windows bridge box is purchased with the portability package and a laptop computer is employed.
    - Note that when calibrating a sensor new out of box only the Windows software will not stamp the sensor with the initial installation field activation date nor the last date in service.
    - If you simply wish to spot-check any sensor in stock then the Windows approach is the best choice as it will not stamp/update either the field activation (first date in use) nor the last date field in field service dates.
- While calibration values from any of the three choices detailed above will automatically be loaded onto the field installed inline 3TX-HiQ transmitter in contrast any change in the transmitter configuration requires an affirmative user action (see 3TX-HiQ or HiQ Windows manual for more details about this aspect). This requirement for an affirmative user action to make any change to the transmitter configuration is done to prevent accidental crossing of transmitter configuration for different installation points.
  - Since transmitter configurations are NOT automatically loaded from the HiQ sensors (but rather only the calibration are automatically loaded) this design scheme allows for the HiQ sensors to be seamlessly hot-swapped between installations that may have different transmitter configuration but use the same type of smart digital sensor model.
- It is best practice to save any modifications to the transmitter configuration for a given installation point as a new filename from the HiQ Windows software for archival tracking of transmitter configurations as well as to allowing to revert to a previous setup if desired.