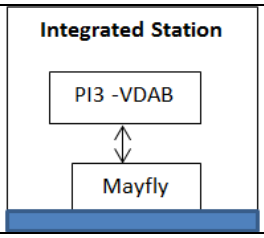
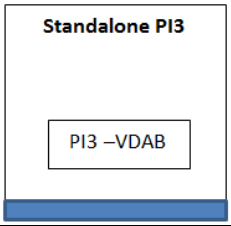
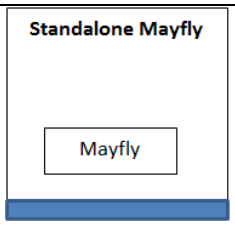
DESIGN: Monitoring Station Packaging

Great Lakes Data Watershed (gldw.org)
Instrument Toolkit Program
Revised: June 7, 2019

The Instrument Toolkit Program has been created to support the development of high quality monitoring devices based on commonly available hardware and utilizing VDAB dataflow programming and customized nodes for instrument construction.

This document describes the three different monitoring station packages that will be supported by the toolkit.

All of these stations will support acquisition from up to four different sensors. The Integrated and Standalone PI3 Stations based stations will include VDAB and would be capable of serving as a Hub for other stations in the vicinity. The standalone Mayfly station would include sketch components making it easy to communicate with VDAB running on another station or standalone hub.

	Integrated Station/Hub	Standalone PI3 Station/Hub	Standalone Mayfly station
Station Size	• Station size 6”x6”x3”	• Station size 4”x4”x2”	• Station size 3”x3”x2”
			
Power Consumption	• Moderate	• Moderate	• Low – Very Low
Battery	• Rechargeable Large	• Rechargeable Moderate	• Disposable • Rechargeable Small
Solar Power	• 12x12 panel	• 6x6 panel	• 3x3 panel
Uplink Radio	• Lora Wan • 4 G LTE	• Lora Wan • 4 G LTE	• Lora Wan • 4 G LTE • WiFi (requires hub) • ZigBee (requires hub)
Downlink Radio (as Hub)	• Lora Wan • WiFi • Zigbee and ZWave	• Lora Wan • WiFi • Zigbee and ZWave	NA
Link Protocol	• VDAB • MQTT • HTTP	• VDAB • MQTT • HTTP	• MQTT • HTTP
Software	• VDAB	• VDAB	• C Sketches
Acquisition channel	• 4 Analog • IC2	• 4 Analog • IC2	• 4 Analog • IC2
Optional Features	• Fluid Control • Serial Control • Mechanical Control	• Fluid Control • Serial Control • Mechanical Control	