E-Flo iQ Software Upgrade Bulletin

Overview

This document contains information regarding a software revision for E-Flo iQ. The E-Flo iQ software is not reverse compatible and will require an upgrade, a new map, and an update to the PLC integration.

Reference the *E-Flo iQ Dispense System Operation* (333587[1] revision D) for information on the improvements added to the E-Flo iQ software.

Software Upgrade Revision

System Version: **2.03.007**
Release Date: 5 October 2021
Software Upgrade Token: 18A921 Series P

Component	Part Number	Version
Advanced Display Module (ADM)	18A900	2.04.002
USB Configuration	18A903	2.01.001
Motor Control Module (MCM)	18A904	2.03.007
Auto Mult-Zone (AMZ)	17L866	1.03.007
I/O Daughter Board (DB)	18A907	2.02.003
Communications Gateway Module (CGM)	17P796	3.01.004

Software Upgrade Improvements

- Improved bead dispensing performance.
- Created two new maps (18E217 revision A - Ambient & 18E223 revision A - Heated).
- Obsoleted maps (18A909 - Ambient & 18A915 - Heated).
- Added style delay control to the maps.
- Increase number of styles to 999. However 17 and over, information must come from the fieldbus.
- Added multi-level password protection.
- Added flow rate, pre-charge, and delay commands to pump data exchange.
- Added tenths decimal resolution to the heat data exchange temperature elements.
- Added heat status to the pump system ready status. The pump system ready signal will remain low if the heat is not up to temperature.
- Added the capability for E-Flo iQ to run as an E-Flo SP Warm Melt.
- Added the ability for each zone type to have individual temperature offsets.

[1] https://www.graco.com/us/en/search.html?q=333587&group=&spellcheck=off&tab=document

Software Fixes

- Job Log on ADM and USB logs small shots more accurately.
- A high flow rate is now displayed correctly on the ADM.
- Resolved Temperature Offset screen error of displaying ºF.
- Resolved Globalizing Heat Temperatures rounding error.
- Heat alarms and deviations now persist after an “over temperature” error.

Important Steps Before Upgrading Software

When upgrading software, specific data will be cleared and defaulted. Graco recommends that you record the desired information before upgrading software either by taking a picture or writing down the information. After completing the software upgrade, you must manually enter the information below back into the ADM.

The following list of information will be cleared and defaulted once the upgrade is completed. Record all wanted information before starting upgrades.

- Individual Styles Definition Information (Flow Rate, Pre-charge, Delays)
- Zones Temperature Setpoint(s)
- Zones Temperature Setbacks
- Zones Heat Soak Timers
- Heat Idle Timeout
- Heat Rate Option
- Drum Size

Upgrading System Software

When upgrading the E-Flo iQ system software, you need the following items:

- Customer supplied USB stick.
  Note: For the ADM to read the USB stick, the USB stick must contain less than 2GB of data
- Black Token (15M121).
  Note: Each E-Flo iQ system ships with a Black Token. The Black Token is located in the ADM Token reader.
- Upgrade E-Flo iQ Software (18A920)
  Click here[2] to open the software history page of E-Flo iQ on help.graco.com. Download the series P upgrade software GTI.
- *ADM Token In-System Programming Manual* (3A6321)
  Click here[3] to obtain revision A of the ADM Token-In-System Programming manual. This will be used when upgrading software.

Once the items are gathered, follow the instructions below to upgrade the E-Flo iQ software.

1. Remove the ADM token reader cover.

[2] http://help.graco.com/en/software-history/e-flo-iq-software-change-history.html
[3] https://www.graco.com/us/en/search.html?q=3A6321&group=&spellcheck=off&tab=webpage

2. Remove the blue token from the ADM token reader.
    - **Note**: The blue token unlocks the E-Flo iQ software. Removing the blue token will force a restart and will switch to the E-Flo SP Warm Melt software. This is expected when upgrading.
3. Follow manual *ADM Token In-System Programming Manual* to complete the software upgrade.
    - Once upgrade is completed, proceed to the next step.
4. Place blue token back into ADM token reader.
    - **Note**: The system will force a restart and will switch to the E-Flo iQ software. Once the restart is completed, the E-Flo iQ system will be ready to operate.

Upgrading Map Software

When upgrading the E-Flo iQ map software, you need the following items:

- Customer supplied USB stick.
  Note: For the ADM to read the USB stick, the USB stick must contain less than 2GB of data
- Black Token (15M121).
  Note: Each E-Flo iQ system ships with a Black Token. The Black Token is located in the ADM Token reader.
- Map Token Software
  Click here[4] to open the E-Flo iQ fieldbus page on help.graco.com. Download either the Ambient (18E218) or Heated (18E224) map.
- *ADM Token In-System Programming Manual* (3A6321)
  Click here[5] to obtain revision A of the ADM Token-In-System Programming manual. This will be used when upgrading software.

Once the items are gathered, follow the instructions below to upgrade the E-Flo iQ map.

1. Remove the ADM token reader cover.
2. Remove the blue token from the ADM token reader.
    - **Note**: The blue token unlocks the E-Flo iQ software. Removing the blue token will force a restart and will switch to the E-Flo SP Warm Melt software. This is expected when upgrading.
3. Follow manual *ADM Token In-System Programming Manual* to complete the map upgrade.
    - Once upgrade is completed, proceed to the next step.
4. Place blue token back into ADM token reader.
    - **Note**: The system will force a restart and will switch to the E-Flo iQ software. Once the restart is completed, the E-Flo iQ system will be ready to operate.
5. Follow the *Upgrading PLC Integration* to update the PLC Integration.

[4] http://help.graco.com/en/e-flo-systems/e-flo-iq-fieldbus.html
[5] https://www.graco.com/us/en/search.html?q=3A6321&group=&spellcheck=off&tab=webpage

Upgrading PLC Integration

Below are instructions to upgrade the PLC Integration to communicate with the improved software and new maps.

1. The input and output instance size has changed.

OLD MAPS

E-Flo iQ Heated Map	
Gateway Map Token: 18A915 Map Name on ADM: E-Flo iQ Adv Heat	
Comm. Format:	Data - SINT
Input Assembly Instance:	100
Input Instance Size:	**78**
Output Assembly Instance:	150
Output Instance Size:	**32**

E-Flo iQ Ambient Map	
Gateway Map Token: 18A909 Map Name on ADM: E-Flo iQ Adv	
Comm. Format:	Data - SINT
Input Assembly Instance:	100
Input Instance Size:	**54**
Output Assembly Instance:	150
Output Instance Size:	**16**

NEW MAPS

E-Flo iQ Heated Map	
Gateway Map Token: 18E224 Map Name On ADM: EFlo iQ Heated	
Comm. Format:	Data - SINT
Input Assembly Instance:	100
Input Instance Size:	**94**
Output Assembly Instance:	150
Output Instance Size:	**40**

E-Flo iQ Ambient Map	
Gateway Map Token: 18E218 Map Name on ADM: EFlo iQ Ambient	
Comm. Format:	Data - SINT
Input Assembly Instance:	100
Input Instance Size:	**70**
Output Assembly Instance:	150
Output Instance Size:	**24**

2. The new maps include the capability of controlling the valve and motor delays directly through the CGM. These Tags have been added at the end of the ambient map, which changes all other tag locations after, requiring remapping.

E-Flo iQ Maps 18E218 and 18E224 for Ambient and Heated Systems

Automation Outputs (signal from PLC to E-Flo iQ)

Tag ID	Description	Data Type	Min Value	Max Value	Bit	Byte	Heat
1	SYS - Data Exchange Element Command	uint16	0	32767	0-14	0-1	A
2	System Enable/Remote Start Request	Boolean	0	1	0		A
3	System Disable Request	Boolean	0	1	1		A
4	Pump PLC Lockout/Control Request	Boolean	0	1	2		A
5	Style Enable Request	Boolean	0	1	3		A
6	***Go Signal Request*** ***(use discrete signal for proper timing!)***	Boolean	0	1	4	2	A
7	Dispense Complete Request	Boolean	0	1	5		A
8	Tandem Crossover Request	Boolean	0	1	6		A
9	Prime Pump Request *(Tandem Unit sent to Inactive Pump)* *(Ram Unit sent to Active Pump)*	Boolean	0	1	7		A
10	Valve Depressurization Request	Boolean	0	1	0		A
11	Platen Depressurization Request	Boolean	0	1	1		A
12	Auto Depressurization Cancel Request	Boolean	0	1	2		A
13	Acknowledge / Clear Errors Request (both pumps)	Boolean	0	1	3	3	A
14	*Reserved Bit 1*	Boolean	-	-	4		A
15	*Reserved Bit 2*	Boolean	-	-	5		A
16	*Reserved Bit 3*	Boolean	-	-	6		A
17	*Reserved Bit 4*	Boolean	-	-	7		A
18	Desired Style Number Request	uint16	0	16	0-14	4-5	A
19	Style Fieldbus Pre-charge Target (xxx.x bars)	uint16	0.0	413.6	0-14	6-7	A
20	Style Fieldbus Flow-rate Target (xxxx cc/min)	uint16	0	6000	0-14	8-9	A
21	*Reserved Word 1*	uint16	-	-	0-14	10-11	A
22	Prime Pressure Target (xxx.x bar) *(Tandem Unit sent to Inactive Pump)* *(Ram Unit sent to Active Pump)*	uint16	0	413.6	0-14	12-13	A
23	Prime Flow Target (xxxx cc/min) *(Tandem Unit sent to Inactive Pump)* *(Ram Unit sent to Active Pump)*	uint16	0	6000	0-14	14-15	A
24	Valve On Delay Target (xxxx ms)	uint16	0	5000	0-14	16-17	A
25	Valve Off Delay Target (xxxx ms)	uint16	0	5000	0-14	18-19	A
26	Motor On Delay Target (xxxx ms)	uint16	0	5000	0-14	20-21	A
27	Motor Off Delay Target (xxxx ms)	uint16	0	5000	0-14	22-23	A

Transition To Heated Map 18E224

3. Re-map *Heat Data Exchange* to include moving the temperature offset from a global setup variable to individual zone variables. Added tenths decimal resolution to the zone resolution of actual temperature, set point temperature, setback temperature and temperature offset. Items that have changed in resolution are highlighted in yellow

E-Flo iQ Heat Data Exchange (18E224)					
Note: the "z" in the command value corresponds to the zone you are wanting to read					
Command Value (hexadecimal)	*Name*	*Units/Format*	*Read/ Write*	*Min Value*	*Max Value*
0	AMZ Active Module Alarms	Bitfield	Read	0	2,147,483,647
1	AMZ Active Module Deviations	Bitfield	Read	0	2,147,483,647
2	AMZ Active Module Advisories	Bitfield	Read	0	2,147,483,647
3	I/O Daughter Board Active Module Alarms	Bitfield	Read	0	2,147,483,647
4	I/O Daughter Board Active Module Deviations	Bitfield	Read	0	2,147,483,647
5	I/O Daughter Board Active Module Advisories	Bitfield	Read	0	2,147,483,647
6	Drum Sizes	**Enum Number:** 0: 20 Liters 1: 200 Liters	Read/ Write	0	1
7	Heat Idle Timeout	xx hours	Read/ Write	0	24
8	Line Voltage, Leg #1	xxx.x Volts	Read	0.0	400.0
9	Line Voltage, Leg #2	xxx.x Volts	Read	0.0	400.0
A	Line Voltage, Leg #3	xxx.x Volts	Read	0.0	400.0
Transition to Zones					
z000	AMZ Active Zone #z Alarms	Bitfield	Read	0	2,147,483,647
z001	AMZ Active Zone #z Deviations	Bitfield	Read	0	2,147,483,647
z002	AMZ Active Zone #z Advisories	Bitfield	Read	0	2,147,483,647
z003	Zone #z Heat State	**Bit Number:** 0: Heat Zone Off 1: Heat Zone On 2. Heat Zone Warming up 3. Heat Zone At Temperature 4. Heat Zone is Heat Soaking 5. Heat Zone is in Setback 6. Heat Zone has a Deviation 7. Heat Zone has an Alarm	Read	0	127
z004	Zone #z Actual Temperature	xx.x deg C	Read	0	100.0
z005	Zone #z Actual Current Usage	xx.xxx A	Read	0.000	25.000
z006	Zone #z Actual Duty Cycle	xxx.xx %	Read	0.00	100.00
z007	Zone #z Soak Time Remaining	xx seconds	Read	0	7200
z008	Zone #z Setpoint Temperature	xx.x deg C	Read/ Write	15	70.0
z009	Zone #z Setback Temperature	xx.x deg C	Read/ Write	15	70.0
z00A	Zone #z Heat Soak Time	xx.x minutes	Read/ Write	0	120

z00B	Zone #z Heat Enabled/ Installed State	boolean	Read/ Write	0	1
z00C	Zone #z Other Tandem Heat Enabled/Installed State	boolean	Read/ Write	0	1
z00D	Zone #z Type State	**Enum Number:** 0: Hose 1: Valve 2: Manifold 3: PGM 4: Flowmeter 5: Press Regulator 6: Other 7: Pump 8: Platen	Read/ Write	0	8
z00E	Zone #z High Temperature Alarm Offset	xx.x deg C	Read/ Write	0	30.0
z00F	Zone #z High Temperature Deviation Offset	xx.x deg C	Read/ Write	0	30.0
z010	Zone #z Low Temperature Alarm Offset	xx.x deg C	Read/ Write	0	30.0
z011	Zone #z Low Temperature Deviation Offset	xx.x deg C	Read/ Write	0	30.0