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TECHtalk

A TECHNICAL PRODUCT PUBLICATION

NEW!

Version 3.11 Software

for IQ plus® 800/810 Indicators

CONTENTS

This Tech Talk provides a summary of the changes included in Version 3.11 of the IQ plus® 800/810 indicator software. Release 3.11 will begin shipping in September 1997.

Read This First!

Warning

If you are upgrading to Release 3.11 or are familiar with prior releases of the IQ plus® 800/810 software, please note the following changes before using the software.

The digital output of continuous setpoints using the TRIP parameter with InBand or OutBand specified is reversed in this release. Existing setpoints using these values must be redefined for use with Release 3.11. See pages 4 and 5 for more information about this and other setpoint processing changes.

When the indicator is placed in setup mode:

- Analog outputs are set off (0 VDC or 4 mA)
- Batching stops automatically

When the indicator is returned to operating mode, the interrupted batch must be manually restarted.

The BATSTRT digital input no longer requires an active BATRUN digital input to start and run a batch sequence. If no digital input is assigned to BATRUN, batching proceeds as if BATRUN were always on. See page 5 for more information.

COMING SOON!

New Stainless Steel Enclosure

for IQ plus® 800 Indicators

The IQ plus 800 stainless steel enclosure has been redesigned to provide easier access to internal components: Boards are now mounted to a backplate, rather than to the front of the enclosure. For desktop models, this mounting allows removal of boards while the enclosure remains attached to the mounting bracket.

Dimensions for panel mounting remain the same as for the old enclosure, so existing units can be replaced without changing cutouts.

The setup switch is now accessed by removing a single screw on the backplate. Switch position can be changed using the same screwdriver used to remove the screw. A guard plate surrounding the switch prevents accidental contact with internal components.

Perhaps best of all, the new enclosure is almost 30% lighter than its predecessor, making the trip from the truck to the installation site that much easier.

Watch for the new IQ plus 800 enclosures to start shipping in August 1997. See *Tech Talk Volume 15* for more information about the new enclosure.

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Front Panel Keys and LEDs

Lb/Kg LEDs

In software versions prior to Release 3.11, the Lb and Kg LEDs were used as primary/secondary units indicators. The function of these LEDs has been changed in Release 3.11 to better reflect the actual units being displayed:

- If the displayed weight is in pounds, the Lb LED is lit; if kilograms, the Kg LED is lit.
- If the primary unit of weight is pounds, the Kg LED is lit for secondary units—or, if the primary unit is kilograms, the Lb LED is lit for secondary units—unless the secondary unit of weight is the same as the primary.
- If neither primary nor secondary units are pounds or kilograms, the Lb LED is used as a primary units indicator and the Kg LED is used as the secondary units indicator.

If stickers or other labels have been used to change the LED labeling on the indicator front panel, these may need to be removed for Release 3.11.

Setpoint Key

In Release 3.11, pressing the **SETPOINT** key now displays only defined setpoints: setpoints of KIND = OFF are not shown.

Setpoints that have been set off at the front panel using the **SETPOINT** and **CLEAR** keys can now be set back on. Press the **SETPOINT** key to display the "OFF" status of the setpoint, then press **ENTER** to turn the setpoint back on.

Tare Key

A keyed tare of zero now puts the indicator in gross display mode and clears the tare. See the description of the LGLMODE parameter for more information.

NOTE: In Release 3.11, if the gross weight is not positive when the **TARE** key is pressed, the tare is cleared and the indicator set to gross display mode. In prior releases, the **TARE** key was ignored if the gross weight was not greater than zero.

Alphanumeric Character Entry

The procedure for entering alphanumeric characters is changed in this release. See the description of the P FORMT menu on page 8 for more information.

Configuration Menus

Several of the configuration menus are changed in Release 3.11, including the CONFIG, SET ALG, FORMAT, SERIAL, P FORMT, and DIGIN menus. Changes to these menus are summarized in the following pages.

NOTES:

- In Release 3.11, analog outputs are set off (0 VDC or 4 mA) when the indicator is placed in setup mode.
- New parameters added for Release 3.11 (LGLMODE on the CONFIG menu, UNITS and SPNAME on the FORMAT menu) cannot be set using the Hotline™ Version 3.0+ configuration utility.

CONFIG Menu

Several new parameters and values have been changed or added to the CONFIG menu for Release 3.11:

- PWRUP parameter name changed to PWRUPMD.
- 200TARE parameter name changed to TARE200.
- New LGLMODE parameter added between TARE FN and CONSNUM parameter. See detailed description below.
- New A/B value added under FEATURE parameter allows the Allen-Bradley® Remote I/O feature to be turned on with a valid access code.

  NOTE: The Hotline™ configuration utility cannot be used when the A-B feature is enabled.

Figure 1 on page 3 shows the CONFIG menu for Release 3.11.

LGLMODE Parameter

The LGLMODE parameter on the CONFIG menu (see Figure 1 on page 3) sets the display characteristics of the indicator when a tare of zero is entered in gross mode.

- If LEGAL (the default) is specified for the LGLMODE parameter, the display returns to gross mode when a zero tare is entered.
- If INDUST is specified, the display switches to net mode when a zero tare is entered.

SET ALG Menu

The default value for the TOTALS parameter is now OFF, regardless of the number of channels configured. See Figure 2 on page 3.

FORMAT Menu

Several parameters have been changed or added to the FORMAT menu for Release 3.11:

- TOTAL parameter is moved between SCALE4 and DATE. SCALE1 is now the first second-level parameter under FORMAT.
- New UNITS parameter added after the TIME parameter to allow customizing of the units designators.
- New SPNAME parameter added after UNITS. SPNAME allows modification of setpoint names at the front panel, similar to function of SPNAME#x EDP command.

Figure 3 on page 3 shows the changed parameters on the FORMAT menu for Release 3.11. UNITS and SPNAME parameters are described on page 4.

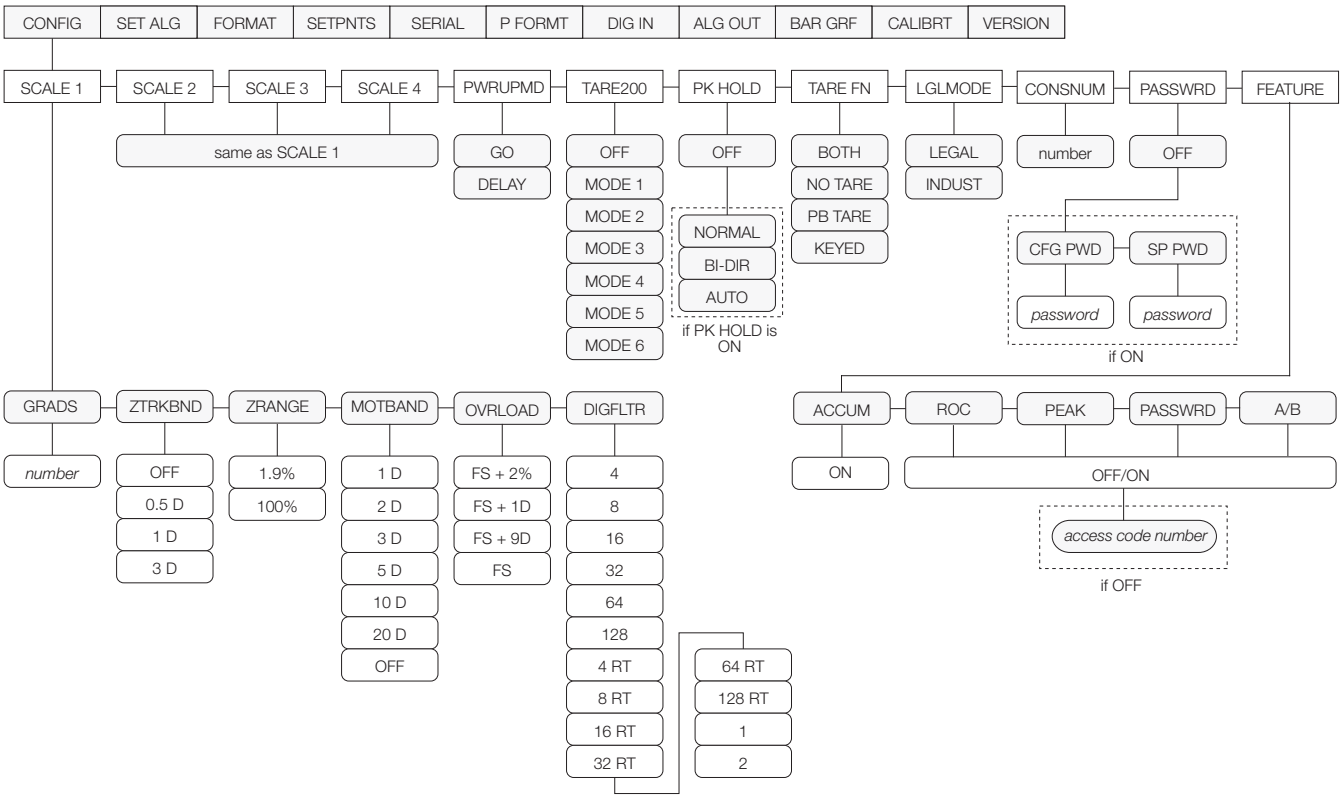

Figure 1. CONFIG Menu

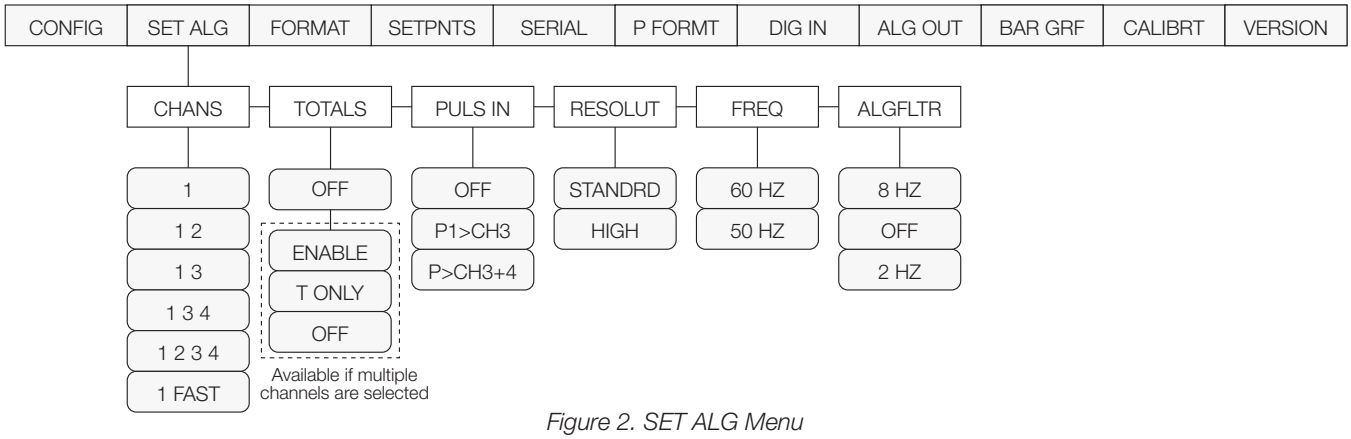

Figure 2. SET ALG Menu

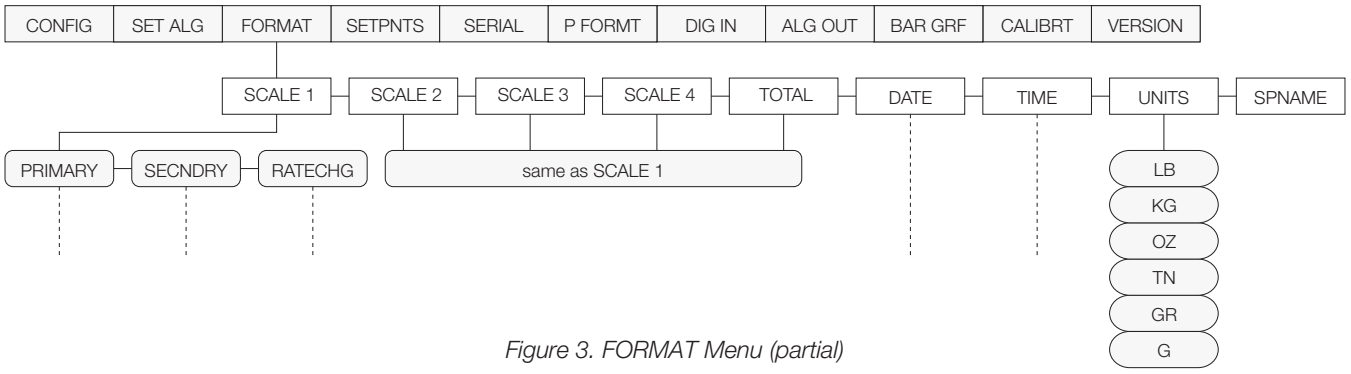

Figure 3. FORMAT Menu (partial)

UNITS Parameter

The UNITS parameter allows units identifiers to be customized. Default identifiers (LB-KG-OZ-TN-GR-G) can be changed using the procedure described under the P FORMT menu. Once changed, the custom units identifiers appear as selections for the UNITS subparameters on the FORMAT menu, PRIMARY and SECNDRY parameters.

Modified units identifiers can be from one to seven characters long and use both upper and lower case letters. The maximum length allowed for the entire identifier string (including all units identifiers and the dashes used as separator characters) is 30 characters.

NOTE: Displayed unit identifiers are shown in upper-case only; printed unit identifiers show both upper and lower case letters.

SPNAME Parameter

The SPNAME parameter allows setpoint names to be modified at the front panel. The function of this parameter is identical to the SPNAME#x EDP command. Use the procedure described under the P FORMT menu to edit setpoint names.

SERIAL Menu

An optional parameter, ABSTRM, is added between the STREAM and PRNDEST parameters to allow selection of the port used for streaming to the Remote I/O Interface (see Figure 4, below). ABSTRM is only shown if the A/B option is enabled (FEATURE parameter on the CONFIG menu).

P FORMT Menu

The P FORMT menu is changed to allow character editing at the first level (see Figure 9 on page 8). The procedure shown in Figure 9 is used for all parameters that allow editing of alphanumeric character strings.

DIGIN Menu

The default values for DIGIN 1 and DIGIN 2 are changed for Release 3.11 as shown in Figure 5, below.

Also, the BATSTRT digital input no longer requires an active BATRUN digital input to start and run a batch sequence (see *BATSTRT DIGIN Dependency on BATRUN Removed* on page 5). For applications that do not require the capability to stop or reset the batch, batching can be started using a single digital input.

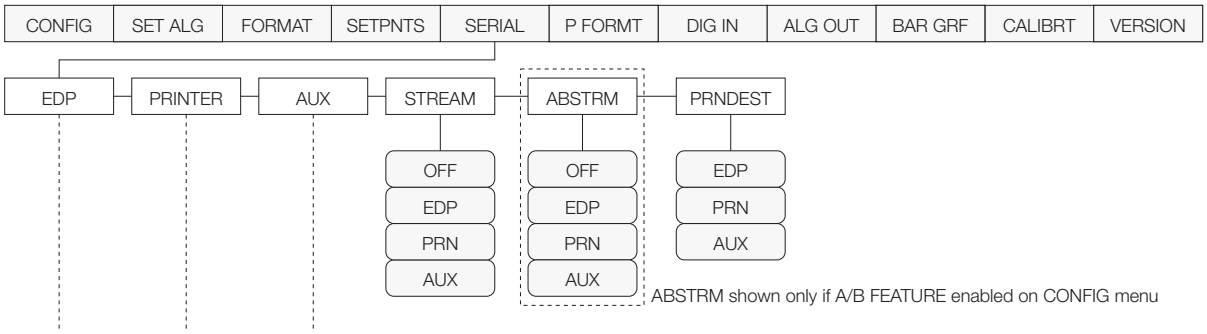

Figure 4. SERIAL Menu (partial)

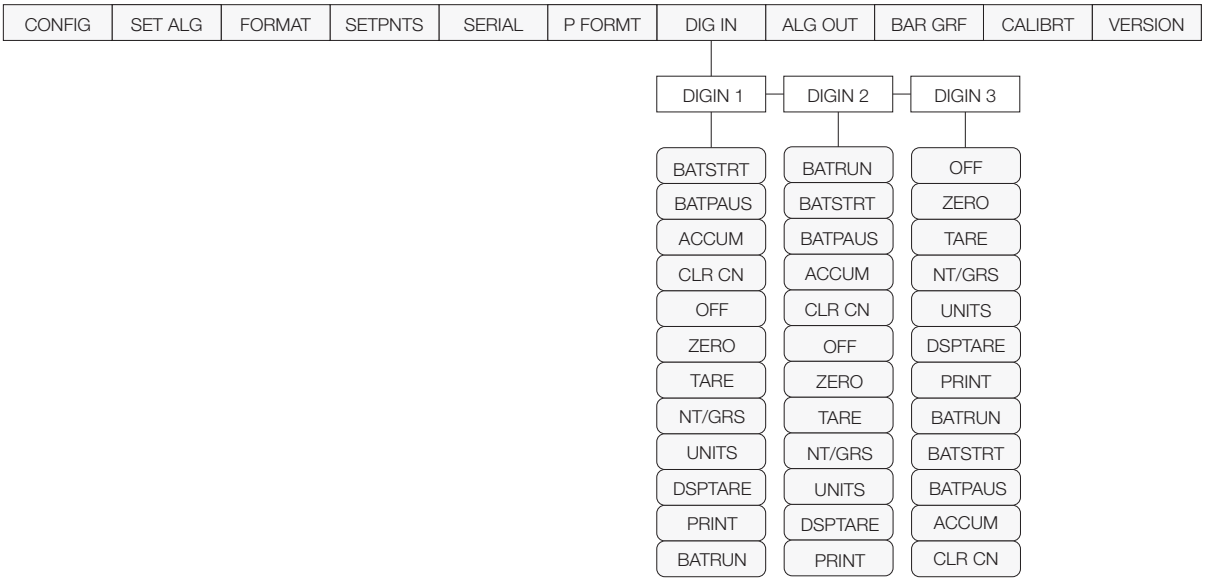

Figure 5. DIGIN Menu

Setpoint Processing

Automatic Reset for COUNTER Setpoints

The counter setpoint is changed in Release 3.11 to automatically reset to its initial value when a batch is restarted. Prior to this release, the counter value had to be manually re-entered.

No Limit to Number of TIMER and CONCUR Setpoints

The limitation of no more than five timer and/or concur setpoints is removed in Release 3.11.

Front Panel Entry of Setpoint Names

Setpoint names can be changed using the SPNAME parameter on the FORMAT menu.

Changing Setpoint KIND Resets All Setpoint Values

For Release 3.11, if a setpoint is changed from one kind to another (in SETUP mode or using the KIND EDP command), all parameters for that setpoint are reset to their default values.

DIGOUTs Changed for Continuous Setpoints Using TRIP Parameter with InBand/OutBand

Digital outputs for continuous setpoints using TRIP=INBAND and TRIP=OUTBAND are changed in Release 3.11 to function as follows:

- For TRIP = INBAND, the digital output is active when the weight value is inside the band set by the BANDVAL parameter.
- For TRIP = OUTBAND, the digital output is active when the weight value is outside the band set by the BANDVAL parameter.

Warning **This change reverses the digital output states for setpoints using InBand/OutBand. Existing setpoints using these values must be redefined.**

BATSTRT DIGIN Dependency on BATRUN Removed

The BATSTRT digital input no longer requires an active BATRUN digital input to run. If no digital input is assigned to BATRUN, batching proceeds as if BATRUN were always on.

In prior releases, the BATSTRT digital input would not go active unless a second digital input, assigned to BATRUN, was active. Release 3.11 removes this requirement for a second digital input.

Warning **If your application requires the indicator to provide a means of stopping or resetting the batch, a digital input must be assigned to BATRUN.**

ALARM Parameter for Batch Setpoints

The ALARM parameter is redefined for batch setpoints in Release 3.11 to hold the alarm message active until the setpoint is satisfied. The alarm message *does not* flash when waiting for standstill as in prior releases.

HYSTER Parameter for Batch Setpoints

The HYSTER parameter is redefined for batch setpoints in Release 3.11 to allow an assigned digital output to control an automatic refill/discharge cycle, based on the scale weight relationship to the setpoint VALUE and TRIP setting.

Using this capability, a batch setpoint can be configured to check that a scale vessel contains a minimum amount of material and, if the weight is less than the setpoint VALUE, refill the vessel to the weight specified by VALUE + HYSTER before continuing to the next setpoint.

For example,a setpoint configured with the following values will check whether the vessel contains more than 200 lb of material.

```
GROSSSP … VALUE = 200
TRIP = HIGHER
HYSTER = 1800
BATCH = ON
```

If the weight is greater than 200 lb (TRIP = HIGHER), the setpoint trips (digital output goes inactive) and the batch routine continues to the next setpoint. If the weight is 200 lb or less, the digital output stays active until the hopper is refilled to 2000 lb (200 + 1800 HYSTER parameter value).

Enhanced Batch Status Messages

Figure 6 (below) shows the status messages used for interrupted batches in Release 3.11.

Batch sequence stopped by…	Status message	Batch sequence restarted by…
BATPAUS DIGIN set low	HELD	BATPAUS DIGIN set high
PAUSE setpoint	PAUSED	BATSTRT DIGIN or BATSTART EDP command
Emergency stop switch	STOPPED	
BATPAUSE EDP command		
COUNTER setpoint		
Indicator in setup mode*		
* Indicator flashes STOPPED status message when returned to operating mode.		

Figure 6. Batch Status Messages

Additional Batch Setpoint Processing Changes

Note the following changes to batch setpoint processing for Release 3.11:

- Batching is automatically stopped when the indicator is placed in setup mode.
- When a batch setpoint trips, subsequent setpoints are evaluated immediately. In prior releases, evaluation was deferred to the next A/D cycle.

(continued on next page)

- Digital outputs set in two consecutive batch setpoints no longer toggle off and back on between setpoints.
- The default values for DIGIN 1 and DIGIN 2 are changed for Release 3.11. See page 4 for more information.

Truck Modes

Accumulator Function for Truck Program

The accumulator now accumulates net values while in truck mode.

Single-Transaction Tare Weights and IDs Supported in Stored-ID Truck Modes

Release 3.11 supports temporary tare weights for indicators configured to use stored IDs (TARE200 MODEs 3–6). This function allows one-time weighing of trucks without adding the Truck ID and tare weight to the indicator database.

To use this function, enter a Truck ID containing a decimal point, then press **NEW ID**.

Tare weights and Truck IDs entered using decimal Truck IDs are erased when the transaction is complete.

Print Formatting

NOTE: The P FORMT menu is changed to allow character editing at the first level as shown in Figure 8 on page 7. This procedure is used for all parameters that allow editing of alphanumeric character strings.

Extended Print Format Commands for Printing Using Display, Alternate, Primary, and Secondary Units

Release 3.11 allows specification of the units identifier used to print the demand, truck, and push print tickets listed in the Figure 7 (below). Units are specified by adding a slash and the units identifier after the command.

Print Format Command		Default Units	Optional Units
G	Gross	/D	/D = Display /A = Alternate (*not* displayed) /P = Primary /S = Secondary
T	Tare		
N	Net		
A	Accumulator		
TR1	Truck 1/Gross		
TR2	Truck 2/Tare		
TR3	Truck 3/Net		
SV1	Setpoint Value	/P	

Figure 7. Extended Print Format Command Syntax

For example, the following command is used to print a gross weight ticket using secondary units: **<G/S>**

Resetting ID, Consecutive Number, and Accumulator Values for Print Commands

ID, consecutive number, and accumulator values can be reset by specifying the value directly on the print format string. The format for these commands is:

<ID=n> **<CN=n>** **<A=n>**

where **n** is the number that the ID, consecutive number, or accumulator is reset to. The values are reset immediately.

NOTE: The consecutive number is now updated only once per print. In prior releases, the consecutive number was incremented every time it was printed.

EDP Commands

The following EDP commands are new for release 3.11:

LOCKON/LOCKOFF Commands

The LOCKON/LOCKOFF EDP commands provide the capability to lock and unlock the indicator front panel keys. The LOCKON command locks the front panel in operating mode only; all keys are functional in configuration mode.

DON/DOFF Commands

The DON/DOFF commands allow individual digital outputs to be set on or off. Once a digital output is set on, it remains on until set off or until the indicator is powered off.

Command format is as follows:

DON#nn or **DOFF#nn**

where **nn** is the number of the digital output, 01–16, being set on or off. The command **DOFF#0** can be used to turn off all digital outputs.

Batching Control Commands

Four new commands have been added to allow batching control through the EDP port:

BATSTART
If the BATRUN digital input is on, or if no digital input is assigned to BATRUN, the BATSTART command can be used to start the batch program.

BATRESET
Resets the batch program to the first batch step and stops the program.

BATPAUSE
Stops the batch program at the current step. All batch digital outputs set on by the current step are set off. The BATSTART command can be used to restart the batch program at the current step.

BATSTATUS

The BATSTATUS command is used to check the current status of various setpoint and batching conditions. BATSTATUS returns 14 bytes of status data as described in Figure 8 (below).

Status information returned in bytes 3–12 is coded as ASCII characters @ (hex 40) through O (hex 4F); only the low order bits of these characters are significant. The first table shows the low order bit assignments for bytes 3–12. Use the table at the bottom of the page (*Translating ASCII Status Data*) to interpret the status of the low order bits for a given ASCII character.

Batch Status Data	Byte	Values
Batch Status	0	"S" = stopped
		"R" = running
		"P" = paused
Current Batch Step	1 – 2	00 – 20

		Low Order Bit Assignments for Bytes 3 – 12				ASCII Values
Continuous Setpoint Status *Low order bits of bytes 3–7 are set on to indicate continuous setpoints for which conditions are being met. Bits are assigned to setpoint numbers as shown at right.*	3 – 7	Bit 3	Bit 2	Bit 1	Bit 0	@@@@@ – OOOOO
	3	SP 1	SP 2	SP 3	SP 4	
	4	SP 5	SP 6	SP 7	SP 8	
	5	SP 9	SP 10	SP 11	SP 12	
	6	SP 13	SP 14	SP 15	SP 16	
	7	SP 17	SP 18	SP 19	SP 20	
Digital Output Status *Low order bits of bytes 8–11 are set on to indicate active digital outputs. Bits are assigned to digital outputs as shown at right.*	8 – 11	Bit 3	Bit 2	Bit 1	Bit 0	@@@@ – OOOO
	8	DIGOUT 1	DIGOUT 2	DIGOUT 3	DIGOUT 4	
	9	DIGOUT 5	DIGOUT 6	DIGOUT 7	DIGOUT 8	
	10	DIGOUT 9	DIGOUT 10	DIGOUT 11	DIGOUT 12	
	11	DIGOUT 13	DIGOUT 14	DIGOUT 15	DIGOUT 16	
Digital Input / Alarm Status *Low order bits of byte 12 are set on to indicate active digital inputs and setpoint alarm status. Bits are assigned as shown at right.*	12	DIGIN 1	DIGIN 2	DIGIN 3	Alarm	@ – O
Carriage Return	13	N/A				(CR)

Translating ASCII Status Data

Use the table at right to evaluate the ASCII character output for bytes 3 – 12 and determine which of the low order bits are set on.

For example, if the Digital Output Status returned in bytes 8 – 11 is H@@N, the table at right can be used with the bit assignments described above to determine that digital outputs 1, 13, 14, and 15 are active:

• H (byte 8) indicates that bit 3 is on (DIGOUT 1);

• @ in bytes 9 and 10 indicates that DIGOUTs 5 through12 are all off;

• N (byte 11) indicates that bits 3, 2, and 1 are on. These bits represent DIGOUTs 13–15.

ASCII Value	Bit 3	Bit 2	Bit 1	Bit 0
@	0	0	0	0
A	0	0	0	1
B	0	0	1	0
C	0	0	1	1
D	0	1	0	0
E	0	1	0	1
F	0	1	1	0
G	0	1	1	1
H	1	0	0	0
I	1	0	0	1
J	1	0	1	0
K	1	0	1	1
L	1	1	0	0
M	1	1	0	1
N	1	1	1	0
O	1	1	1	1

Figure 8. BATSTATUS Command Structure and ASCII Translation Table

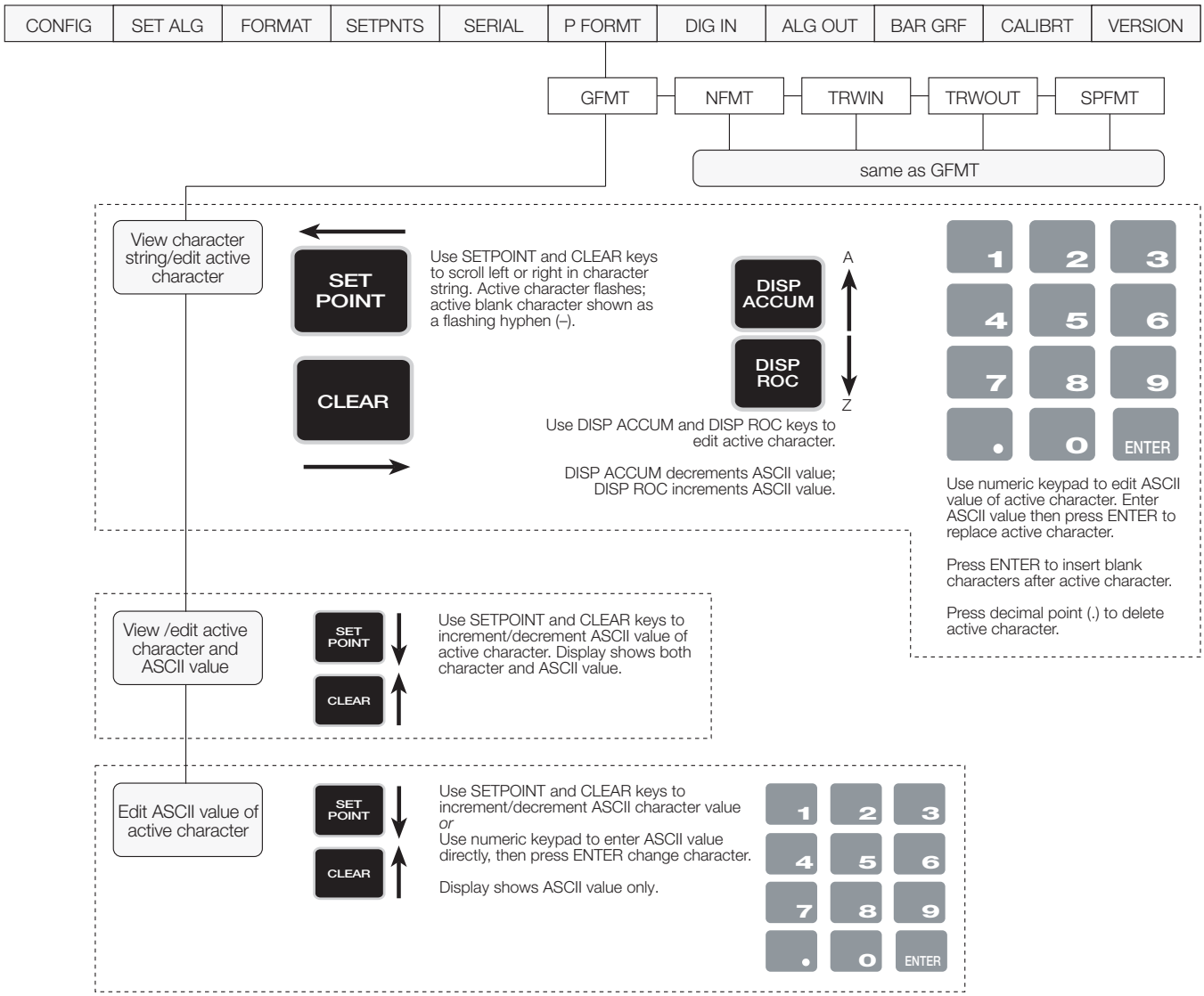

Figure 9. P FORMT Menu, Showing Alphanumeric Character Entry Procedure
The procedure shown above is used in Release 3.11 for all parameters that allow editing of alphanumeric characters.

Pass this Tech Talk along to share this technical information with your associates.

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