

# **Operator Manual**

Assembly Code: TSC-EDGE

factrac





# System Overview

Factrac<sup>®</sup> SmartCount<sup>™</sup> Edge is an affordable, scalable and easy way to track and visually display your real-time throughput metrics. The plug and play setup is simple and secure. In less than an hour, have your screens showing critical numbers for a single process or operation wide performance. No programming required.

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### 1. Connections

#### SmartCount Edge Specs



Note: If using open lead cable, do not twist open wires together if plugged into SC Controller. Brown is live 12 Volts, and it will short power supply to SC Controller.

## 2. Run Screen Overview / Functions



- a. Keyboard in Run Screen Field: A keyboard symbol in the lower left corner of any field allows you to make changes to the value in that field. Simply click on the keyboard image, enter a new value, save. Field will display the new value.
- **b. Reset:** Right click with a mouse, or on a touch screen, double tap anywhere on the blank portion of the screen. A button will appear, "Clear Values". This will reset the displayed values.
- **c. Open Sidebar:** Click or press on the three lines in the upper right corner of the screen to open the sidebar.

### **3. Sidebar Functions**



- a. **Home:** Click or press on Home icon to close the sidebar and return to run screen. If in any screen other than the Run Screen, click or press the Home icon twice (2 x) to return to the Run Screen.
- b. Settings: Click or press on Settings icon to open the Settings Menu.
- c. Networking: See the Networking section.
- d. Security: See the Security Menu section.
- e. Languages: Click or press on Languages icon to open the Languages Setting Menu.
- f. System: Click or press on the System icon to open the System screen.
- g. **Pause:** Click or press on Pause/Resume icon to toggle between Pause and Resume modes. The accumulated time is displayed beneath the button.
- h. **Start Setup / End Setup:** Click or press on the Start Setup / End Setup icon to toggle between the two modes. The accumulated time is displayed beneath the button.
- i. **Open Data Fields:** When "Use optional data capture" has been enabled under settings, the fields will appear and can be edited on the sidebar. If data has initially been entered into an Open Data Field through the Settings Menu, the 3 open data fields will display on the sidebar. The 3 Open Data Fields can be edited from the Sidebar.

### 4. Settings

Click or press on the 3 lines in the upper right hand corner of the screen to open the Sidebar. Click or press on Settings on the sidebar to open the Settings Menu. Click or press the home button on the sidebar, and the SC run screen will display.

 a. Select Version: SmartCount has 23 preloaded display screens to select from (SC-0 thru SC-23). Select the one that best suits your application. Additional details of each screen and tutorial videos can be found at <u>www.factracpro.com</u>.

	SMARTCOUNT	=	ŵ	Home
		- T	ŝ	Settings
SC-00				
SC-01			2	Networking
SC-02				
SC-03			B	Security
SC-04				
SC-05				Languages
SC-06				
SC-07				System
SC-08				
Show Down time Status M			11	Pause
Rate Scale				00:00:00
per minute	~		Õ	Start Setup 00:00:00
Sensor 1 Count Multiplier				
1				
Count Direction				
l.				
0:14 am		FACTRACPRO.COM	Option	al Data Capture

### 5. Display Data



- a. **Round to Whole Numbers:** Single decimal point precision can be displayed on relevant data by disabling "Round to whole numbers" in the settings screen.
- b. **Alternative Text Forecolor:** The default red text in display fields can be changed to white by selecting "Alternate Text Forecolor" in the settings screen.
- c. **Show Total Time and Run Time:** This can be enabled on the settings screen with "Show Total Time and Run Time" in the upper row of each screen display.
- d. **Show Down Time Status:** (Available on SC-2,4,5,9,10,11,12,21). This can be enabled/disabled on settings page with the "Show Down Time Status".

### 6. Rate Scale

This is used for all SC Display Screens with a Rate Field. Simply, select the rate scale in units per second, minute, or hour. Rate fields like Actual Rate and Target Rate are displayed in the scale selected.

Display Data	
Round to whole numbers 🛛 🔽	
Alternate Text Forecolor 🛛 🔽	
Show Total Time and Run Time 🛛 💆	
per hour	
per minute	
per second	
1	
Count Direction	
up	,

### 7. Sensor 1 Count Multiplier (Input 1)

The Sensor 1 multiplier is used when the target object detected contains multiple pieces. For example, if you are detecting a box containing 12 cans of spray paint and you want to count the total number of cans, the value would be 12.

Value can be a decimal or whole number. Enter fractions as a decimal  $\frac{1}{2}$  as .50 etc. The value can be up to six digits before the decimal and twelve after the decimal.

### 8. Sensor 2 Count Multiplier (Input 2)

In models SC-7 and SC-9, Sensor 2 displays an independent second count. In models SC-8 and SC-17, the sensor is counting and subtracting waste or rejects as they are diverted off the line. If you keep them in line on the same process, it can be used to net the good product. (Sensor 1 counts all product and Sensor 2 counts the good product after any reject or waste has been removed from the line.)

### 9. Count Direction and Starting Count (SC-1,2,6,11)

a. **Count Direction:** Select the Count Direction up or down.

per minute	~	
Sensor 1 Count Multiplier		
1		
Count Direction		
up		
down		

b. Starting Count: Starting Count applies to the value in the Actual Count field. You can change the number to any number. Screen will reset to that number and then system will continue to increment the count from the new starting number. System will increment up or down for these models as selected in Settings Menu. You can also change the count value by using the keyboard in the lower left corner of the run screen Actual Count.

### 10. Actual Count, Actual Count 2, Target Rate, Total, Actual Total, Timeout, Reset Data



2:57 pm

FACTRACPRO.COM Optional Data Captu

Actual Count (Input 1): Shows value displayed on SC run screen for this Field. Value will increment while in the Settings Menu. To change the value, click or press on keyboard to right and enter new value and hit enter. New value will display and SC controller will increment starting from this value.

Actual Count 2 (Input 2): Shows value displayed on SC run screen for this Field. Value will increment while in the Settings Menu. To change the value, click or press on keyboard to right and enter new value and hit enter. New value will display and SC controller will increment starting from this value.

**Target Rate:** The Target Rate is the rate you set as your goal. Enter the number to be used with the desired rate scale (see #5).

**Total:** Shows value displayed on Run Screen for this Field. Value will increment while in the Settings Menu. To change the value, click or press on the keyboard to right and enter new value and hit enter. The new value will display and will increment starting from this value.

**Timeout (seconds):** Timeout is used for all screen displays with Down Time Fields. Enter the value for the amount of time in seconds, after pulses have stopped and before a model begins showing down time. Example: if you would like a model to wait 15 seconds from the stop of a line and before the screen shows down time, then you would enter 15 in the Timeout setting.

**Reset Data:** There are 4 ways to Reset the counts on the display. First, click the "Reset Data" button on the Settings Menu. Second, right click with a mouse, or on a touch screen, double tap anywhere on blank portion of the screen and a button will appear to "Clear Values", then click on the button. Third, push and hold the SC Controller button for 5+ seconds. Fourth, if using an SC model which only requires 1 input, a remote input can be connected to Input 2. Remote input can be on any length cable and be a push button, foot pedal, switch, or sensor; hold signal for 5+ seconds to Reset.

### 11. Sensor 1 (Input 1) De-bounce On/Off

**Sensor 1 De-bounce On:** This is the value in milliseconds (ms) that the input signal needs to be on before the SC controller accepts the signal. Default is 5 ms. If running at speeds over 1,000 pulses per minute, set value to zero ( '0').

**Sensor 1 De-bounce Off:** This is the value in milliseconds (ms) that the input signal needs to be on before SC controller will accept another signal. Default is 10 ms. If running at speeds over 1,000 pulses per minute, set value to zero ( '0').



### 12. Sensor 2 (Input 2) De-bounce On/Off (see image above)

**Sensor 2 De-bounce On:** This is the value in milliseconds (ms) that the input signal needs to be on before the SC controller accepts the signal. Default is 5 ms. If running at speeds over 1,000 pulses per minute, set value to zero ( '0').

**Sensor 2 De-bounce Off:** This is the value in milliseconds (ms) that the input signal needs to be on before SC controller will accept another signal. Default is 10 ms. If running at speeds over 1,000 pulses per minute, set value to zero ('0').

Sensor 2 Debounce On (millise	onds)	
5		i
Sensor 2 Debounce Off (millise	conds)	
10		3

### 13. Encoder Settings: (SC-5,15,22)

- a. **Encoder Pulses per Revolution:** Enter the number of pulses encoder sends for 1 revolution of the encoder wheel. If using the standard SmartCount encoder, the setting value is 2. Please note, higher resolution encoders can be provided. Maximum pulse rate of SC controller is 2,000 pulses per minute.
- b. **Encoder Distance per Revolution:** Enter the distance the wheel travels in one revolution (circumference) as measured in the selected Unit Scale. If using the standard SmartCount encoder the setting value is 12.
- c. Encoder Unit Scale: Select scale in inches for Imperial (feet or inches) or millimeters for Metric (meters or centimeters) that the distance of one wheel revolution is measured by. If using the standard SmartCount encoder, the setting is inches.

per minute	~	
Distance Scale		
meters	~	
Target Rate (per minute)		
60		
Timeout (seconds)		
2		
Distance Scale		
Distance Scale		
Distance Scale feet inches		
Distance Scale feet inches 60		
Distance Scale feet inches 60		
Distance Scale feet inches 60 Distance Scale		
Distance Scale feet inches 60 Distance Scale meters		
Distance Scale feet inches 60 Distance Scale meters centimeters		

#### 14. Date and Time

The Time and Date can be set to display or not display on the run screen. If System Time Enabled is checked it will display. If not checked it will not display. The SC controllers will display the date and time in the lower left hand corner of the screen. The SC controllers do not have battery back-up. Upon installation go to the Settings Menu and set time, date, and time zone. IMPORTANT - Click the Checkmark when done making a change. If power is turned off or unit is unplugged, the operator will need to reset the time and date.



### 15. Shifts

With System Time Enabled, this set of fields allows you to define up to four auto reset shift set points for the start of each shift. The count and timer fields will be reset to zero at each set point.



### 16. Changing Background Colors

This set of fields allows you to set the display field background color for a customer selected value range. After setting value range, be sure to click or press the checkmark to save. Colors are Gray, Green, Blue, Yellow, Red. When field value falls in this range, background color will automatically change to selected color.

#### a. Current Down Time

#### b. Total Down Time



a to the second

#### c. Count Percent



#### f. Rate Percent

#### Rate Percent Gray ..... то 0 Red ..... 0 TO 85 Yellow 85 TO 90 Blue 90 то 90 ..... Green TO

#### d. Percent Complete



#### g. Rate Percent

#### Shift Down Time Gray 0 00 TO hours : minutes Green TO 0 15 hours : minutes Blue 25 0 hours : minutes TO Yellow 0 30 hours : minutes TO Red hours : minutes TO

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# e. Net Percent



#### h. Current Run Time

#### i. Total Run Time

**Total Run Time** 

#### **Current Run Time** Gray hours : minutes TO 0 02 Red то 0 03 hours : minutes Yellow то 0 04 hours : minutes Blue 05 0 то 0 hours : minutes Green то hours : minutes

Gray					
0	00	то	0	02	hours : minutes
Red					
0	02	то	0	03	hours : minutes
Yellow					
0	03	то	0	04	hours : minutes
Blue					
0	04	то	0	05	hours : minutes
Green					
0	05	то	23	59	hours : minutes

#### j. Down Time Percent



### 17. Optional Data Capture

Optional Data Entry fields, up to 6 are only visible on navigation bar when user enables "Utilize Optional Data Entry" in the settings screen. SC units with integrated touchscreen display can view these fields by scrolling down on the navigation bar, sweeping up motion on touch screen will scroll the navigation bar.

Red 35 TO 100	
Optional Data Capture Utilize Optional Data Entry	Entry fields will appear in sidebar
Down Time Status	
Quality Total: 000000	
Color Yellow V Type Steady V	



If you are utilizing the barcode reader option with your SmartCount<sup>™</sup> device, you can now quickly add data to the Optional Data Capture Fields.

Start by scanning the "Optional Entry #1" (1) barcode with your barcode reader and then scan your actual barcode (2). The text / alpha data will automatically populate in that field. A confirmation message will be displayed on the screen momentarily.

Repeat for all remaining fields (3 & 4)

If you scanned the incorrect entry barcode, simply click the "cancel Entry" field and start over.



If you utilize a single barcode for multiple data/alpha fields, set your barcode to the format shown below. Using the barcode reader, scanning the barcode you <u>created</u> and it will automatically load each optional data field.

	Optional Data Capto	ure
Combo Field Entry Code	Open Field One	
	John Doe	
	Open Field Two	
	8914321564	
	Open Field Three	
Format:	Muffler Bearings	
	Open Field Four	
SETDATA_ENTRY01_ENTRY02_ENTRY03_ENTRY04_ENTRY05_ENTRY06	912315542	
	Open Field Five	
Example:	Second Shift Part Ru	
SETDATA_John Doe_8914321564_Muffler Bearings_912315542_Second Shift Part Run_56	Open Field Six	
	56 ×	

### 18. Downtime Status Color, Mode, and Timer

Downtime Status Color, Mode and Timer: For each of the 9 possible Downtime Statuses (states), you can select background display color from Gray, Green, Blue, Yellow, or Red. You can also select the color Mode – "steady" or "flashing". The color along with the mode allows each of the 9 Downtime Statuses to have a unique background visual on the run screen. Making it easy for staff to know the Downtime Status. After setting value range, be sure to click or press the checkmark to save. When a status is selected a timer will increment time for each event. The aggregated times can be seen in the status windows when the status is selected. You can view all down time status times on the settings page. The total is displayed under Down Time Status and each individual status will show its own aggregated value under the description.

### 19. Screen Shot

When enabled, you can save Screenshots to a customer provided External USB Drive. Enter the frequency of each save in minutes in the data entry box.

### 20. Demo Mode

Allows the user to simulate a live environment. The sensor input rates may be changed.

### 21. Networking

- a. **Device Name:** The default name is SmartCount. To change the device name select the on screen keyboard and enter your desired name. Select Save to apply the change.
- b. **Time Sync Server:** When connected to the internet and System Time is enabled. The SmartCount will sync the time with time.windows.com. To change the Time Sync Server, select the on screen keyboard and enter your desired internal or external network time server. Select Save to apply the change.
- c. **DHCP Configuration:** DHCP (automatic addressing) is Enabled is the default and is used to provide quick, automatic, and central management for the distribution of IP addresses within a network from the router. If you want a Static IP Address, change the setting to Disabled and enter the appropriate data for your network.
  - IP address
  - Subnet Mask
  - Default Gateway
  - Preferred DNS Server
  - Alternate DNS Server

d. Scoreboard: The default is Disabled. To Enable place a Check in the box next to Enabled. When enabled, you will see Unit ID, and you can select from ID 1-10. Each ID can display up to 16 SmartCounts for a total of 160. On the Scoreboard you can select the number of SmartCounts that can be viewed per screen; 2, 4, 6, 9, 12 or 16 per ID. The Position Index selection will direct which position on the ID that this SmartCount will display within. An individual SmartCount reports to one ID.

Enabled	
Unit ID	
1	~
Position Index	
1	~

ScoreBoard Enabled 🔽	
Jnit ID	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Disabled	~

ScoreBoard Enabled 🔽	
Unit ID	
1	~
Position Index	
8	
9	
10	
11	
12	
13	
14	
15	
16	
Disabled	~

- e. **Data Push:** The SmartCount Edge can stream real time data to a SmartCount CSV, MySQL, SQL, and the lioT Cloud. You can select the frequency in minutes by selection from the pull down menu in 1, 5, 10 or 15 minutes. The data stream will vary based on the display screen that is selected.
- f. **MQTT Data Push:** MQTT is available on all SmartCount units v3.1.0.0 and later. This means the SmartCount unit can stream real time data analytics to the IoT Cloud. The MQTT Client software within the SmartCount units currently supports QOS level 0 messages over an unencrypted TCP connection. SmartCount units do not support MQTT WebSocket or SSL/TLS encryption. The default setting is Disabled. Step by step directions are available on the factracpro.com website.
- g. **DSC CSV Push:** DSV CSV push is available on all SmartCount units v3.1.0.0 and later. The CSV generator is a plug and play solution for data collection and makes managing your data collection easy. Disabled is the default. When enabled, the DSC CSV Push Mode field will be shown.
- h. DSC CSV Push Mode: Auto is the default. When Auto is selected, DHCP (automatic addressing) is enabled. DHCP is used to provide quick, automatic, and central management for the distribution of IP addresses within a network from the router. If you want a Static IP Address, change the setting to Static and enter the appropriate Static IP address for your SmartCount CSV.

**Remote access and edit**In version 4.2.2.0 and above, you can now access and edit a SmartCount<sup>™</sup> device remotely from any supported browser\* on the same network.

(\*Supported browsers: Google Chrome for Windows Version 78 or greater, Google Chrome for Android Version 78 or greater, Mozilla Firefox for Windows Version 70 or greater, Microsoft Internet Explorer for Windows Version 11 or greater, Microsoft Edge for Windows Version 44 or greater, Mozilla Firefox IOS version 20 or greater, Safari on IOS 12 or greater.)

	SMARTCOUNT		Home
0000	[T.T.T.T.	٢	Settings
DHCP Configuration		Q	Networking
Disabled	×.	A	Security
Remote Interface Local network access available from your PC browser with th http://0.0.0.0/	e following oddress:	۲	) Languages
Username		0	System
factrac		_	
Password		- 11	Pause 00:00:00
remole		Ō	Start Setup
ScoreBoard Enabled			00:00:00
Unit ID			
1	×		
Position Index			
1	$\checkmark$		
26 pm	FACTRACPRO.C	ом	

Gather the information for Remote Interface (noted in the image below)

0.0.0.0	
DHCP Configuration	
Disabled	]
Remote Interface Local network access available from your PC browser with the follo http://0.0.0/	wing address:
Username	
factrac	
Password	
remote	

From your internet browser on a computer connected to the same network, enter *http:// ip address* (enter the actual ip address)

172.16.17.91	×	+		
$\leftrightarrow \   \ni \   G$	① 172.16.17.91			

You will be asked for the username and password. The default is; Username = factrac, Password = remote.

Sign in
http://172.16.17.91
Your connection to this site is not private
Username
Password

From here you can now make changes to the settings and parameters remotely just as if you were at the actual SmartCount<sup>™</sup> device.

factrac Remote Interface x +	
← → C (0) Not secure   172.16.17.91	\$
SMARTCOUNT	
271,547	Actual Count
60 Actual Rate	e (per minute)
7:57 am SMARTCOUNT SC-6	FACTRACPRO.COM

## 22. Security



- 1. To enable Security, check the box next to Enable Security.
- 2. To Enable Login on Startup, check the box next to Show Login on Start-up.
- 3. There are three User levels. Guest, Operator and Manager.
  - a. Guest can view the run screen
  - b. Operator can engage with the Run Screen and Sidebar fields.
  - c. Manager has full access to all fields and settings.

The SmartCount stores one four digit numerical password for each user level. You can choose to have a password for the Operator and Manager or the Operator or Manager. The Guest account does not have a password. If you have not set-up a password for the Operator or Manager accounts, simply click on Sign In. When Security has been enabled you will see Switch User and the User Level that is currently logged in on the sidebar.

A Security bypass can be triggered with a USB keyboard by holding CTRL and P on startup when you see the factrac logo on the screen, this disables security. When activated you will see the Security feature disabled - Release Keys to Continue message, you have bypassed Security. If the password has been forgotten, you will need to reset the SmartCount to its factory image to reset the device and the software.

### 23. Languages



To change a default label text, scroll down to the default Label and click or press on the keyboard to the right of the Label. Enter the new customer specific text in any language. The new text string will display and save in the box to the right of the default Label. Click or press the Home button on the Sidebar. The SC run screen will display the new text label. Please note this menu will show all possible default Labels for all SC models. Many Labels will not be available for your specific SC model. Making a change to a Label not available for your Model will have no impact on the Run Screen.



#### 24. System



**Device Name:** This field displays the Device Name as entered in the Networking Tab. **Version:** This is the current version of software.

**Internet:** This field will show Not Connected or Connected (if it can reach the Time Sync Server) **MAC Address:** 

**Networking Data:** These fields show the current status of your device.

- IP Address
- Default Gateway
- Subnet
- Preferred DNS
- Alternate DNS
- Time Sync Server
- MySQL Push
- MQTT Push
- Refresh This update the network settings of your device

**System Information:** System screen provides software version number and SC Controller MAC Address.

**Update:** If SC Controller requires an update or new model number upgrade, you will be sent a USB drive. Leave controller powered on and insert USB drive in any of the 4 USB ports on the SC Controller. Press the "Update" button on the System Screen. Controller will auto load the update or upgrade. Screen will go black, then the controller will restart. When done restarting, the update or upgrade will be active.

**Reset Device to Factory settings:** To reset your SmartCount to the original factory image you will need an USB keyboard connected to your SmartCount. This will wipe all saved settings and languages. The activation and unit version is retained. Restart the SmartCount by power cycling the device with the power switch. When you first see the Factrac logo, hold down the CTRL and W key until the following message is displayed "Data Clear Successful - Release Keys to Continue". If no confirmation is displayed, power-cycle the unit and try again.

### 25. Pause / Resume

This feature allows the device to be paused, the Total time will continue to increment but the Target Count will not increment when in Pause mode. Examples for use would be after set-up and before production starts or for operators to pause and resume the system during break times. This is typically used if operations don't want breaks and lunch times to impact the target count through-out the shift. An alternative way to put the SmartCount into Pause mode is to use an input on Input 2. Contact of less than 5 seconds will pause the device, if longer than 5 seconds the SmartCount will reset.



With the barcode reader option, you can pause/resume the SmartCount<sup>™</sup> from a simple scan of the barcode. Simply scan the Pause/Resume barcode to pause and then click it again to resume.



### 26. Start and Stop Setup

This field captures the amount of time each job requires for setup and reports the data along with all operation data.



With the barcode reader option, you can start and stop setup of the SmartCount<sup>™</sup> from a simple scan of the barcode and reset the values for each new job. Simply scan the Setup Start/Stop barcode to start setup and scan again to stop.



### 27. Downtime Status from Barcode Scan

With the barcode reader option, you can pause/resume the SmartCount<sup>™</sup> from a simple scan of the barcode. Simply scan the Pause/Resume barcode to pause and then click it again to resume.

Simply rename your downtime reasons by going to the Languages menu and entering the appropriate text in each field (sample shown below.)

Out of Product **Down Time Description 1** ..... Machine Maintenance **Down Time Description 2** Machine Down **Down Time Description 3** Waiting on Packaing Materials **Down Time Description 4**  $\times$ **Down Time Description 5 Down Time Description 6** .....

Then, when a downtime event occurs, simply use the barcode reader to scan the appropriate barcode.

**Down Time Selection Codes** 









Down Time Status 0

Down Time Status 1

Down Time Status 2

Down Time Status 3









Down Time Status 4

Down Time Status 5

Down Time Status 6

Down Time Status 7



Down Time Status 8

Notes		