INTEGRATED VISUAL DATA TECHNOLOGY INC.
Solutions that lift your business

BS400 Base Station Setup and Configuration

Wireless Data Communication Hub with IS Fleet Manager

Compatible with

- Defender IM3
- SkidWeigh Plus ED4-IM
- SkidFleet ED5

Version 2.1

BS400 Base Station Overview

The BS400 Base Station is an RF communication hub designed to retrieve, store and provide various data output sources specific to the BS400, FTP standard network connection, email notification, and LAN web page.

BS400 Base Station Specifications and Features

Dimensions

- Housing Enclosure: (7” x 51/4” x 2” / 175 x 130 x 45mm) ABS
- 5.7” TFT Color touch screen with high contrast LED back light

Power Supply

- Mode Electronic AC Adapter
- Class 2 Transformer
- Input: 120VAC 60 Hz 260mA
- Output: 12 VDC 1000 mA
- UL, CSA, RoHS

Ethernet Connectivity

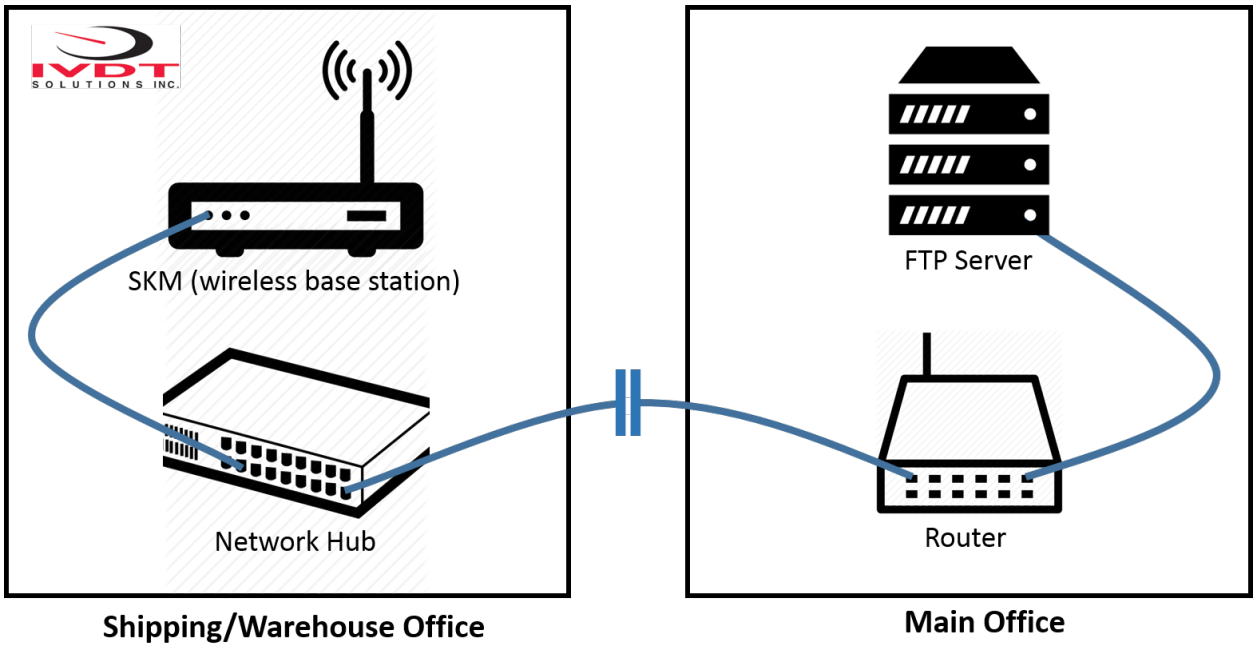
- Digi Connect ME9210 Low-emission design (FCC Class B)
- 32-bit Digi NS921-processor
- Power requirements maximum 450 mA, typical 346 mA (Ethernet activated)
- UL 60950-1 EN 60950 (EU)
- CSA C22.2 No. 60950
- EN 55024

RF Long Range Module XBee-Pro 900 MHz

- Long range (28 miles / 45 km) line of site, Indoor urban (.5 miles / .8 km)
- DigiMesh network protocol
- 900 MHz license free ISM band operation
- Antenna, RPSMA (A09-HASM-675 A)
- FCC Approval MCQ-XBPS3B
- IC Approval 1846A-XBPSB

BS400 Base Station Setup

Summary: As part of your system we will be providing you with a wireless base station (BS400) unit that captures information (via RF serial communication) from each lift truck that is equipped with an on-board device. This unit stores the information so that it can be retrieved and sorted through a LAN navigation page. This unit will also archive data through FTP to a designated file and be used to trigger email notification for selected events.



Base Station Connection Details (see illustration):

- The SKM will need to communicate with a FTP server, which is expected to be somewhere physically on your company's premises.
- The SKM should be located in the shipping office (or some central location with clear lines of sight for the lift trucks) and connected to the local switch with an Ethernet cable.
- The SKM will obtain an IP (network) address from the network's DHCP server, that is, will be on the same local network as other computers in the shipping office.
- That local network must, in turn, have access to the FTP server, either directly or via a router.

FTP Requirements

- IP address of FTP server
- Username of FTP account on server
- Password for same
- Folder where the uploaded files will be written (this is for archived data that is no longer stored on the base station.

LAN Webpage

- Assignment of an designated IP address on network

Email Notification

No Authentication

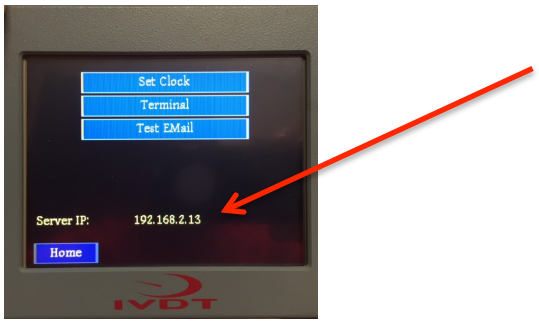
- Mail Server IP: should be a server listening on port 25
- Mail Sender: A valid email account that is configured and known to the server. ex, forklifts@abc.com

Authentication Required

- Some details required depending on whether Plain, Authlogin, or MD5 authentication is used.

Network Connection

Once you have plugged in the Ethernet cable and turned on the BS400, the IVDT logo screen will appear. After four seconds the system will automatically default to terminal mode and run a series of checks while validating the I.P. address. Once this has been completed the I.P. address will appear on the screen in terminal mode. You can verify by pressing the **'Home'** button, bottom left of screen then **'Clock & More'** This screen will confirm and display the functioning I.P. address of the unit.



I.P. address confirmation

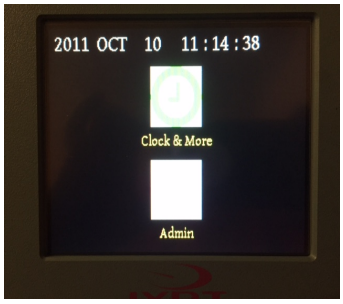
Terminal Mode, Home, Clock & More, and Admin

Regular operation of the base station will allow users to toggle between 4 screens with specific functions applied to each. The system upon start up will always default to **'Terminal Mode'.**

Terminal Mode

Terminal mode is the systems activity display in continual script. Upon start up it displays system checks and the functioning I.P. address. Once this is complete the screen in terminal mode will display communication events as they are received from the on-board units.

Home

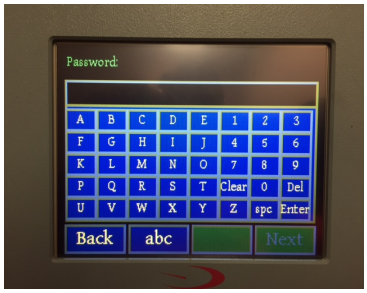


Home provides the user of the base station with the ability to enter either the Clock & More or the Admin functions

Clock & More

Clock & More allows the user to Set Clock, return to Terminal mode or Test Email connections for event notification. It also displays the functioning I.P. address of the unit. ***See Clock & More Functions for more information.***

Admin



The Admin section is password protected and where those responsible for setting up the base station, enter the network information to send emails and archive information through FTP. ***See Admin Functions for more information***

Clock & More Functions

3 Functions: Set Clock, Return to Terminal, and Test Email.

Set Clock

Step 1: Select **'Set Clock'**
Step 2: Press **'Set'** to activate time/date change cursor.
Step 3: Beginning with the hour, bottom left, use the arrow buttons to change the value. When you have reached your desired value, press '**Set'** to move to the next part of the date, until complete.
Step 4: When you have entered all time/date values the time will show the counting seconds, press '**Home'** to exit.

Terminal

This function key, returns the base station to the visible activity screen of the '**Terminal Mode'.**

Test Email

'**Test Email'** allows users to test the connectivity of the network information entered into **'Setup Email'** function of the password protected **'Admin'** menu. ***See Admin Functions for setup.*** Pressing '**Test Email'** will show no activity on the base station screen, however all recipients entered into '**Setup Email'** will receive a test message email upon an successful test.

Admin Functions

3 Functions: Setup Email, Archive Server Setup, and Archive to FTP Server.

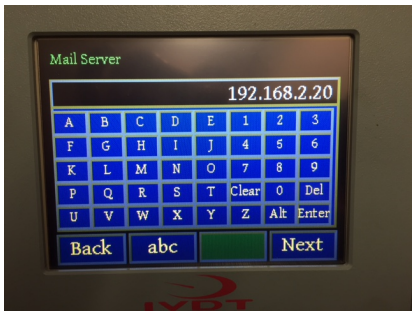
To access the Admin Function Menu you will need to enter the correct password when **'Admin'** is selected in **'Clock & More'.**

Setup Email

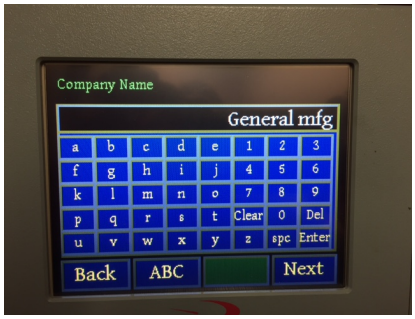
Step1: Having entered the **'Setup Email'** function the system will bring you to 2 **'Base Station – Email Notification'** screens. Select the appropriate notifications applicable to your system and press next.
Note: Only select the event notifications that are optioned in your system and are configured in the on-board units.

Applicable notifications for Tenneco product Suite:

- High Impact
- Recycling (Custom)



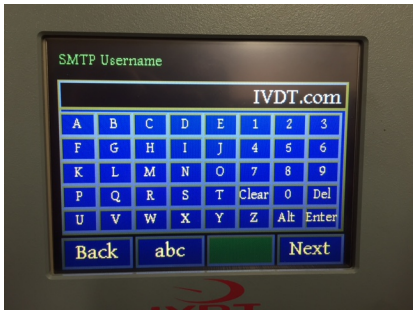
Step 2: The system will ask you to input the I.P. address of the **'Mail Server',** enter and press next.



Step 3: The system will ask that you enter a **'Company Name'**, enter the appropriate information for purpose of configuring the email and the LAN webpage.

Step 4: The base station communicates without encryption, enter the Mail Port, typically port 25.

Step 5: Enter the SMTP mode.
0 for no authentication
1 for Plain
2 for Loggin

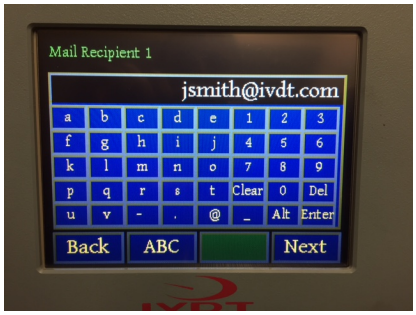


Step 6: If authenticated a Username will need to be entered.

Step 7: If authenticated a Password will need to be entered.

Step 8: Enter the email that is setup on your SMTP server.

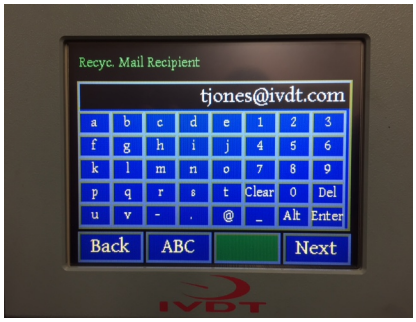
Step 9: Enter the number of mail recipients, up to 20.



Step 10: Enter the email addresses.

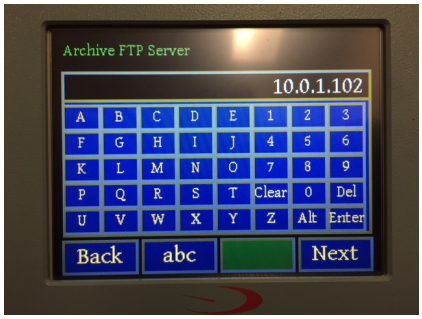
Recycling Mode

Step 11: Repeat steps 9 for the Recycling mode. If recycling mode is not required just enter 1 to move forward.

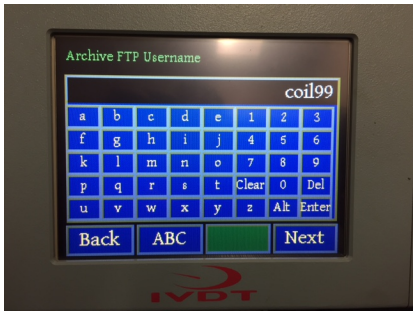


Step 12: Repeat step 10 for the Recycling mode. If recycling mode is not required just enter an address to move forward.

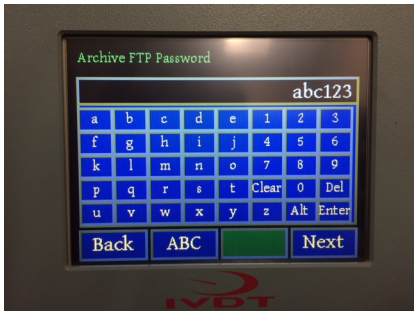
Archive Server Setup



Step 1: Enter the IP address of the FTP server.



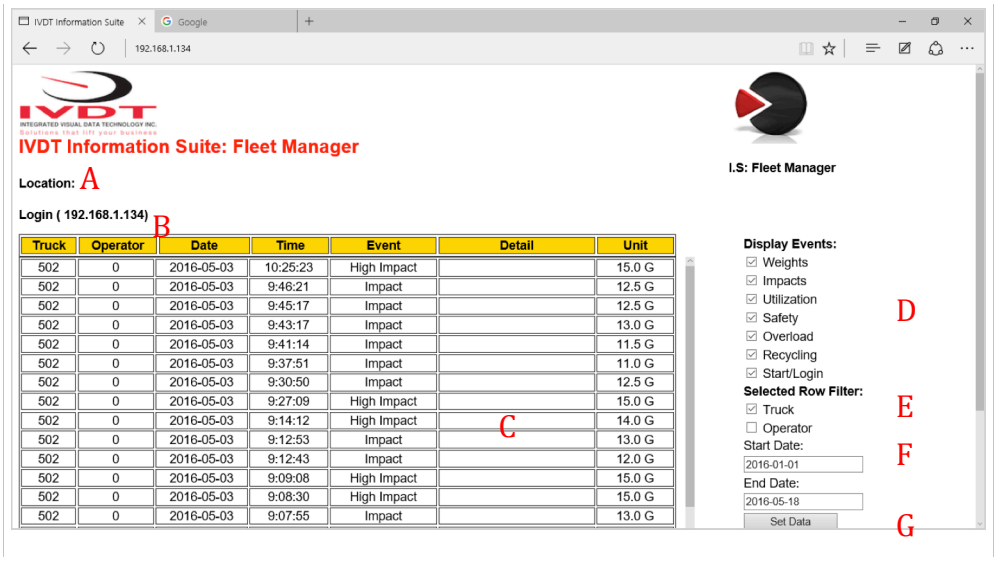
Step 2: Enter the FTP server username.



Step 3: Enter the FTP server password.

Step 4: The system will automatically archive the files to the default folder of the FTP server. It is advised for convenience and ease of use to create a designated folder.

I.S. Information Suite: Fleet Manager



The BS400, base station provides a LAN webpage that allows users to view and sort data that is present in the activity window. To access the LAN webpage enter the DHCP or static IP address in the browser this will take you to a login page. User Name: Admin

Password: SkidWeigh

A: Location

Function: This is a title that you can assign to the LAN webpage to describe the company, department or working area for the group of lift trucks communicating with that particular base station.
Instruction: Step 3 of "Setup Email' is a free format field that will ask you input this information.

B: Login

Function: This is the I.P. address of the base station.
Instruction: In your web browser type in the I.P. address of the base station. Provided you are connected to the LAN or a subnet of you will have access to the web page.

C: Activity Window

Function: The activity window is a continuous scroll that details the events on the web page as they are captured on the base station from the on-board units.
Instruction: This is an automatic function. To update the web page at any time press **F5.**

D: **Display Events**
Function: Depending on the configuration of the on-board units and the events that are specific to your system, **Display Events**, allows you to select all available or specific events that you would like to see.
Instruction: The webpage will automatically load with all events selected. Unselect the evens that you do not wish to see to narrow your search. Move your cursor over the **Set Data** button G, Press **F5.**

E: **Selected Row Filter**
Function: This allows you to select a specific operator or truck that you would like to see the data arranged according to your **Display Event** selections.
Instruction: Select either Truck or Operator, by unselecting the one you do not wish to see. Move your cursor to the **Activity Window,** select an event that has the truck or operator, press the **Set Data** button G**,** then **F5.**

F: **Start Date / End Date**
Function: Allows you to access specific data on the base station, not yet archived to the server, by date.
Instruction: Enter the start date and the end date as per the arrangement on the web page and press the **Set Data** button G**,** and press **F5.**

G: **Set Data**
Function: Organizes and compiles the data based on the query selections above. Works in conjunction with **F5.**
Instruction: Each time a selection has been made before the screen will sort move your cursor over **Set Data**, left click and press **F5.**

Note: Newer versions of the IS: Information Suite Fleet Manager (May 25th, 2016) have an onscreen download function.
I.S. Fleet Manager is best viewed in Explorer 11, and Firefox 36.

Phone: (905) 469-0985
Fax: (905) 825-9494
E-Mail: sales@skidweigh.com
Internet: www.skidweigh.com

Troubleshooting

Power On / Boot up

Note: The Base Station does not have an on/off button for the purpose of always being connected. Therefore it is important that you always plug and unplug the Base Station to engage the Digi Ethernet module and boot up the system properly. Failure to do so will power on the Base Station and bypass the boot up protocol forfeiting connection.

1. Plug the adapter into the Base Station. (before plugging into outlet)
2. With the adapter plugged into the Base Station plug into outlet.
3. Check that boot up protocol takes place. (Immediately after IVDT software screen)
4. During the boot up process, approximately 25 seconds, the static or DHCP IP will show 3 times.

Note: You will know that the system did not boot correctly in that immediately after the IVDT software screen the system will default to a blank terminal mode screen with [Home] at the bottom right. Due to power outages, temporary removal it may be necessary to check power on / boot up procedures from time to time.

Resetting the Flash File System and Data Recovery

Note: On occasion during power surges / outages when the Base Station is performing a power cycle during a write acknowledgement the flash file system may become corrupt and freeze. The following process will reset the flash file system and reset the data the system has collected.

Resetting the Flash File System

1. Go to Admin Menu and enter **DGFR** as password.
2. Press **'Erase Flash'** and then tap **'CONFIRM Erase'**.

Wait for screen to come back and reboot the power up cycle, unplug the power adapter at the Base Station, wait 5 seconds and re-power. Upon reboot a new file allocation table will be created.

IP Address and SMTP Mail Reset

Resetting the Flash File System will require that the static IP and SMTP mail server information be reset in the system. The information will remain intact in the field allocations on the Base Station but require you to press enter on each field to transfer to the DIGI communication module, which populates data and sends emails. No need to change or input data unless I.T. coordinates have changed.

1. Go to Admin Menu and enter **A123** as password.
2. Ensure that **'Static'** is selected and then tap **'Setup'**.
3. Press **'Enter'** on all six fields till the Base Station changes to terminal mode.

The following message will show on the screen.

```
DIG1: Saved IP Configuration.  Reboot system now
```

Unplug the power adapter at the Base Station, wait 5 seconds and re-power. Upon reboot the static IP coordinates will have been saved to the DIGI communication module.

4. Go to Admin Menu and enter **A123** as password.
5. Press **'Setup'** next to Email selection.
6. Press **'Enter'** on all fields till Base Station changes to terminal mode.

Unplug the power adapter at the Base Station, wait 5 seconds and re-power. Upon reboot the SMTP Mail coordinates will have been saved to the DIGI communication module.

Data Recovery

1. Go to Admin Menu and enter **'D1G1'** as password.
2. Ensure that **'Save'** is checked and tap **'Replay Data'.**

The replay count will then begin to show record accumulation as data is repopulating the DIGI communication module. This could take some time depending on the records. Once the counter has stopped exit with **'Done'**.

You can verify successful Flash Recovery by checking the web page.

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NOTES: