

OSG

# Quick Start Guide: LIB-225

Quick Start guide for Liberator™ CE



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## Revision History

Rev	Date	Description
A	1 <sup>st</sup> July 2015	Initial Release
B	6 <sup>th</sup> April 2016	Re-Branded and Re-issued
C	20 <sup>th</sup> April 2016	Updated to include latest VLAN update



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## 1. Introduction

The Liberator™™ CE combines Circuit Emulation functionality with Carrier Ethernet capabilities, which allows the user to transmit TDM data across a packet switched network.

## 2. Applications

The Liberator™ CE units need to be configured in order to communicate and work with each other. The setup requires a minimum of 2 units to set a communication link (or Logical link as referred to in the units' management menu).

## 3. Features

The Liberator™ has the following Hardware Features:

- 3 x 1Gb packet ports (front panel)
- 2 x SFP cages (front panel)
- 1 x TDM port (front panel)
- 1 x Smart serial port (front panel)
- 1 x console port (rear panel)
- 1 x management USB port (rear panel)
- 1 x alarm port (rear panel)

## 4. Initial Configuration / Setup

### 4.1 Local IP Address / Subnet Mask / Default Gateway

The Liberator™ CE can be configured initially by connecting using either the CLI interface or via a web browser using the default IP address: **192.168.0.1**

It is recommended to connect via the CLI interface in the first instance to verify the IP address set up on the unit.

#### 4.1.1. CLI Connection

First you will need to connect to the unit's MGMT port (located on the rear panel) using a standard USB A-B cable (a standard printer cable will also suffice).

Once connected, your PC / laptop should have allocated a COM port to the cable – you will need this COM number for connecting to the box so it is advised you find this by going via the Control Panel / Device manager menu on your machine (computers running Windows® only).

Next you will need to use terminal emulation software to connect to the units CLI interface – this can be either HyperTerminal or PuTTY.

Once connected, you will need to enter the default login details as below:

**User: admin**  
**Pwd: <blank>**

To verify the IP address, type in the following command:

**Show IP interface brief**

This should show you the current IP setup on the device; as well whether it is static or dynamically generated.

Once you have the IP, you can use a web browser to access the Web User Interface. If there is no IP set then an IP address can be assigned, as follows:

Firstly you must put the unit into configuration mode by typing the following:

**Configure Terminal  
Interface Vlan 1**

Next either set up a static IP address can be assigned or the DHCP client enabled with a fallback IP address as well.

To establish a static IP address, type in the following:

**IP Address <IPV4 address> <subnet mask>**

To enable DHCP and a fallback IP address, type the following:

**IP address dhcp fallback <IPV4 address> <subnet mask>**

### 4.1.2. Web UI Connection

Access to the unit’s management system can be gained from its IP address - simply enter the IP address into the address bar of a web browser – if your computer is on the same subnet as the Liberator™ CE, then the browser should ask for login details.

Enter ‘Admin’ as a username and leave the password blank to access the UI.

Once the management system has been accessed, the unit’s IP address, subnet mask and gateway address can be changed by going to the following submenu:

**Configuration > System > IP**

#### IP Configuration

Mode	Host	<input type="checkbox"/>
DNS Server 0	No DNS server	<input type="checkbox"/>
DNS Server 1	No DNS server	<input type="checkbox"/>
DNS Server 2	No DNS server	<input type="checkbox"/>
DNS Server 3	No DNS server	<input type="checkbox"/>
DNS Proxy	<input type="checkbox"/>	<input type="checkbox"/>

#### IP Interfaces

Delete	VLAN	DHCPv4			IPv4		DHCPv6			IPv6	
		Enable	Fallback	Current Lease	Address	Mask Length	Enable	Rapid Commit	Current Lease	Address	Mask Length
<input type="checkbox"/>	1	<input type="checkbox"/>	0		172.16.20.220	24	<input type="checkbox"/>	<input type="checkbox"/>			

Add Interface

From there you can modify the IP details – please note that if you change the IP address, you will then have to close your web session and open a new one with the new IP.

**PLEASE NOTE: Any changes you make, you will have to ensure they are saved as a running config – otherwise these changes will be lost once the unit has been powered down. To save the config you must go to the following submenu:**

**Maintenance > Configuration > Save startup-config**

## 4.2. Single IP vs Dual IP addressing

The Liberator™ CE supports Dual IP addresses – this means that it can maintain one IP for accessing the unit's management UI and a separate IP for CES data. By default the unit will be set to a Single IP set up which means you can use the same IP for management and CES traffic

To configure the CES IP you must go to the following submenu:

### [Configuration > CES > Protocol](#)

Under Local IPv4 address you can enter your preferred IP for the TDM data traffic to use; this should also be followed with the subnet mask length under the IPv4 prefix.

Please note:

- If you are going to use the Single IP set up, then you should do the following:
  - The Local IPv4 address must be the same as the management IP you are using
  - Allow Management on CES IP should be set to 'Yes'
- If you are going to use the Dual IP set up, then you should do the following:
  - The Local IPv4 address must be on a different subnet to the management IP
  - Allow Management on CES IP can be set to either 'No' or 'Yes' – if set to Yes then the unit GUI can be accessed by either the management IP or the CES IP.

## 4.2.1 VLAN Settings

In the dual IP scenario, it will be necessary to set up a new IP (VLAN) interface for the CES IP – please note that even in a single IP scenario, if you are not planning on using VLAN 1 then you will need to set up a different VLAN interface as well.

To set up a new VLAN interface you will need to do the following:

- Go to the [Configuration > System > IP](#) page

### IP Configuration

Mode	Host
DNS Server 0	No DNS server
DNS Server 1	No DNS server
DNS Server 2	No DNS server
DNS Server 3	No DNS server
DNS Proxy	<input type="checkbox"/>

### IP Interfaces

Delete	VLAN	DHCPv4			IPv4		DHCPv6			IPv6	
		Enable	Fallback	Current Lease	Address	Mask Length	Enable	Rapid Commit	Current Lease	Address	Mask Length
<input type="checkbox"/>	1	<input type="checkbox"/>	0		172.16.20.220	24	<input type="checkbox"/>	<input type="checkbox"/>			
Delete	0	<input type="checkbox"/>	0				<input type="checkbox"/>	<input type="checkbox"/>			

Add Interface

### IP Routes

Delete	Network	Mask Length	Gateway	Next Hop VLAN
--------	---------	-------------	---------	---------------

Add Route

Save Reset

Once there, you can click on the [Add Interface](#) button which will allow you to add a new IP interface. Please note:

- You can only have one Interface per subnet
- You can't use the same VLAN ID twice



Once the new interface is set up, you will have to configure the port VLAN settings to complete the process. To do this you must go to [Configuration > VLANs](#).

### Global VLAN Configuration

Allowed Access VLANs	1,2	x
Ethertype for Custom S-ports	88A8	

### Port VLAN Configuration

Port	Mode	Port VLAN	Port Type	Ingress Filtering	Ingress Acceptance	Egress Tagging	Allowed VLANs	Forbidden VLANs
*	<>	1	<>	<input checked="" type="checkbox"/>	<>	<>	1	
1	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
2	Trunk	2	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag Port VLAN	1-4094	
3	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
4	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	
5	Access	1	C-Port	<input checked="" type="checkbox"/>	Tagged and Untagged	Untag All	1	

Save Reset

- For the management traffic the port you intend to use should be set to **'Access'** – the 'Port VLAN' field should contain the ID you set up under the IP interface. Please ensure that you add the VLAN ID to the **'Allowed Access VLANs'** field at the top of the page
- In the event you are using Dual IP and have a separate IP interface set up for the CES traffic, you will need to set the port you want to use to the following;
  - **Mode:** Trunk
  - **Port VLAN:** <ID you used to set up the IP interface>
  - **Port Type:** C-Port (can't be changed under this Mode)
  - **Ingress Filtering:** Selected (can't be changed under this Mode)
  - **Ingress Acceptance:** Tagged and Untagged (can't be changed under this Mode)
  - **Egress Tagging:** Untag Port VLAN
  - **Allowed VLANs:** 1-4094 (this can be shortened to match your VLAN ID)

**Please note:** If you need to customise the port type or the Ingress filtering and acceptance, you can do so by setting the mode to **'Hybrid'**.

## 4.3. Setting up a logical link

To use the Circuit Emulation features, the first setup step is to set up a logical link between a minimum of two PacketBand units – this link will carry the TDM data across a packet switching network.

To do this you must go to the logical link sub menu which is located here:

[Configuration > CES > Link > Settings](#)

### CES Link Configuration

Start from Link  with  entries per page.

Link	Settings				Remote IPs		Jitter	
	Name	Direction	Remote Link	FPP	1	2	Buffer Length	Packets
*		<>	1	20	172.16.20.186		50	
1		Disable	1	20			50	20
2		Disable	2	20			50	20
3		Disable	3	20			50	20
4		Disable	4	20			50	20
5		Disable	5	20			50	20
6		Disable	6	20			50	20
7		Disable	7	20			50	20
8		Disable	8	20			50	20
9		Disable	9	20			50	20
10		Disable	10	20			50	20
11		Disable	11	20			50	20
12		Disable	12	20			50	20
13		Disable	13	20			50	20
14		Disable	14	20			50	20
15		Disable	15	20			50	20
16		Disable	16	20			50	20

From here you can assign a name to the logical link and set up the destination address (Remote IP) for the unit with which you are trying to set up a link. Please ensure:

- You enter the destination under **Remote IP** column 1
- The IP you use is the local IP set up under **Protocol (See section 4.2)**
- You enable the direction so the link is active

Once you are satisfied with the link, click on the save button to commit your changes. This setup must be repeated on the destination box (using the originator’s IP address under the Remote IP box) to complete the setup.

Please ensure that the Link numbers (first column) match up on both boxes – i.e. if you set up the link under link 3, then you must do the same on the destination box.

**PLEASE NOTE: As mentioned above, please ensure you save your running configuration otherwise your changes will be lost once the unit has been powered down.**



## 4.5. Clocking Configuration

The final setup step is to configure the priorities of your clocking source – the Liberator™ CE offers the following options:

- You can receive clock from the units own internal clock (by leaving all priorities as 19)
- You can receive clock from either the TDM or the Serial port (where available)
- You can receive clock from a logical link

To access the clock priorities submenu, you should go to the following:

[Configuration > CES > Clock Priorities](#)

### CES Clock Priority Configuration

Clock Source	Clock Priority	
Internal	0	▼
TDM port 1	19	▼
Serial port 2	19	
Logical link 1	6	▼
Logical link 2	7	▼
Logical link 3	8	▼
Logical link 4	9	▼

Clock priorities range from zero (highest priority) to nineteen (lowest priority).

Save

Reset

The lowest number (0) indicates the highest priority, whereas the highest (19) indicates the lowest priority. The unit will attempt to use the highest priority clock first and, if it can't get a stable connection, it will move to the next priority in the list until it eventually gets a stable clock connection.

In a scenario where there is a Liberator™ unit at each end of a logical link with no external clock source, then you should set one unit to clock from its internal clock (making it the Master) and the set the second unit to clock from the logical link (making it the slave). You can verify the clock connection by going to:

[Monitor > CES > Clocking > Summary](#)

### CES Clocking Status

Lock Mode	Normal
Mode Type	Slave
Clock Source	LL 1

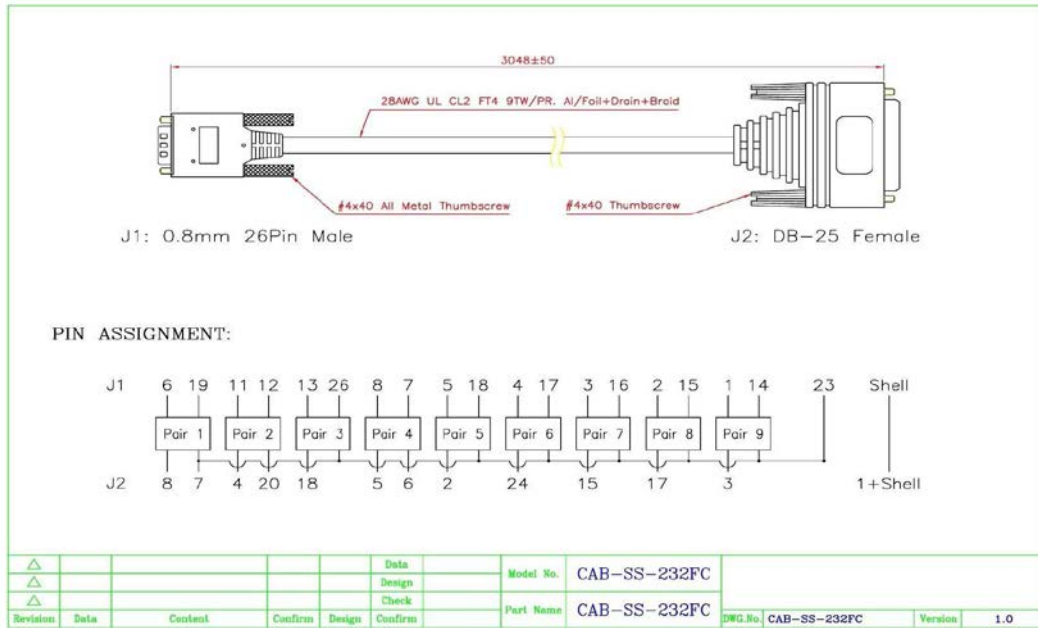
### CES Clocking Streams

Stream	Status	Mode	DCO	Min DCO	Max DCO	Average DCO
1	Acquired	1 (Adaptive )	-2473	-2619	20000	-2472
2	Acquired	1 (Adaptive )	-2473	-20000	0	-2472
3	Acquired	1 (Adaptive )	-2473	-20000	0	-2472
4	Acquired	1 (Adaptive )	-2473	-20000	0	-2472

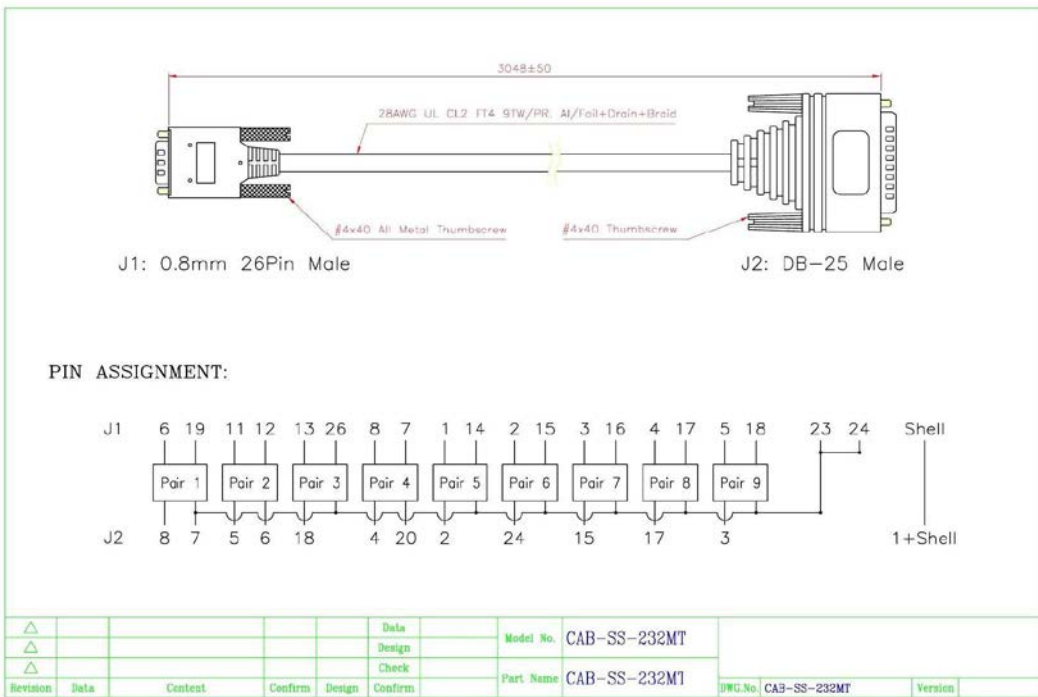
The **Status** column shows the state of the clocking data transmission:

- **Freerun:** Clock isn't synchronised with any source or destination
- **Acquiring:** Clock source has been identified and is in the process of synchronising
- **Acquired:** Clock source has been synchronised and locked
- **Holdover:** Clock data is using the last known value as insufficient data is being received from the source/destination.

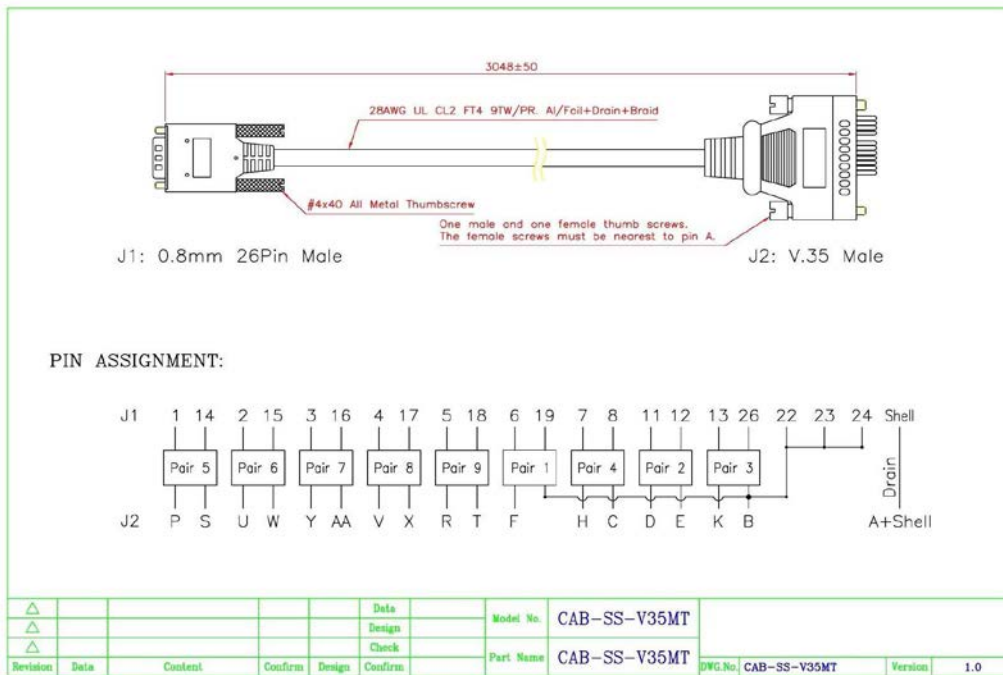
## 5. Cable Pinouts



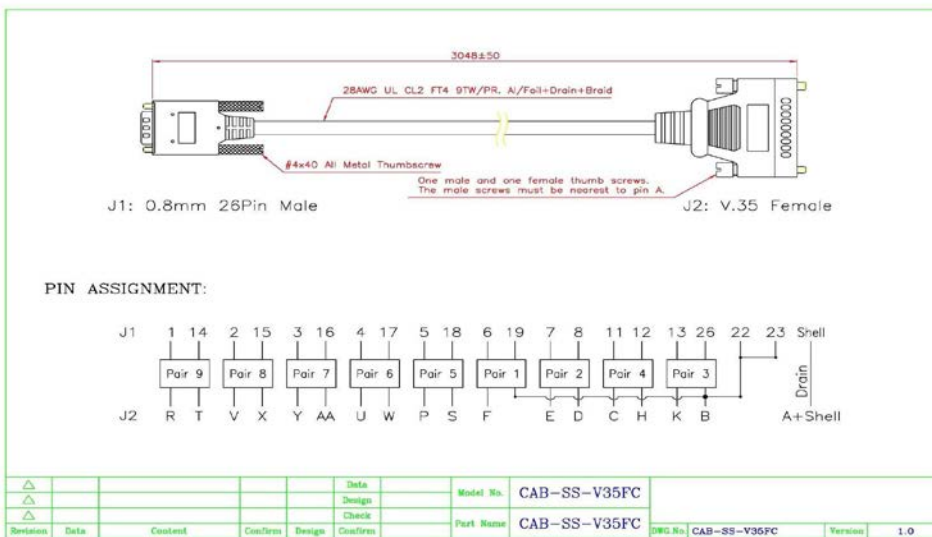
RS-232 FM



RS-232 M

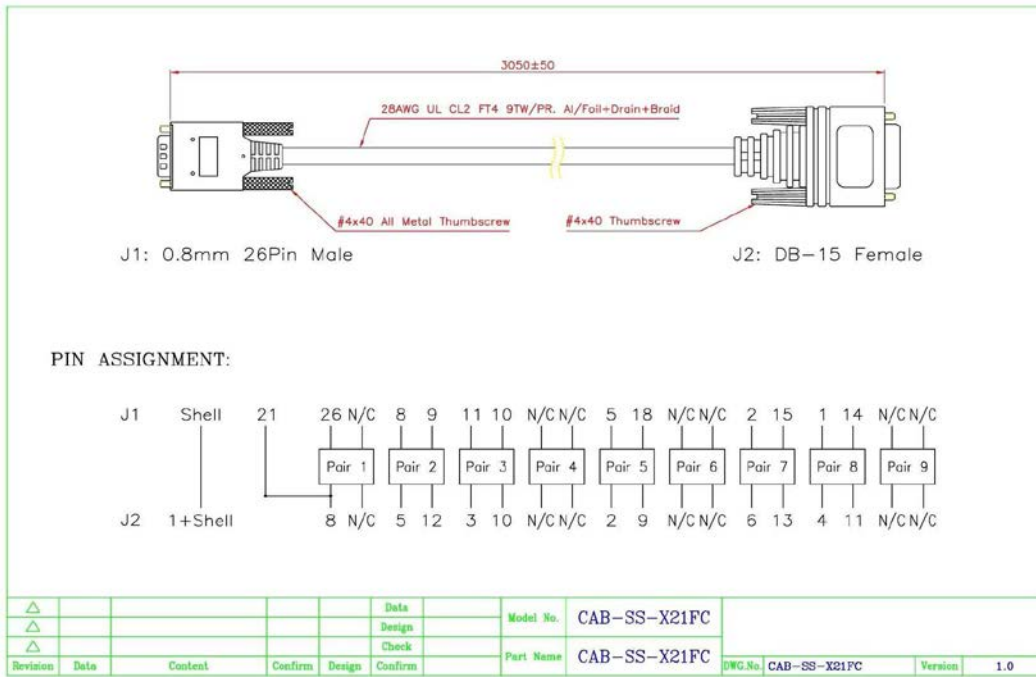


V35 M

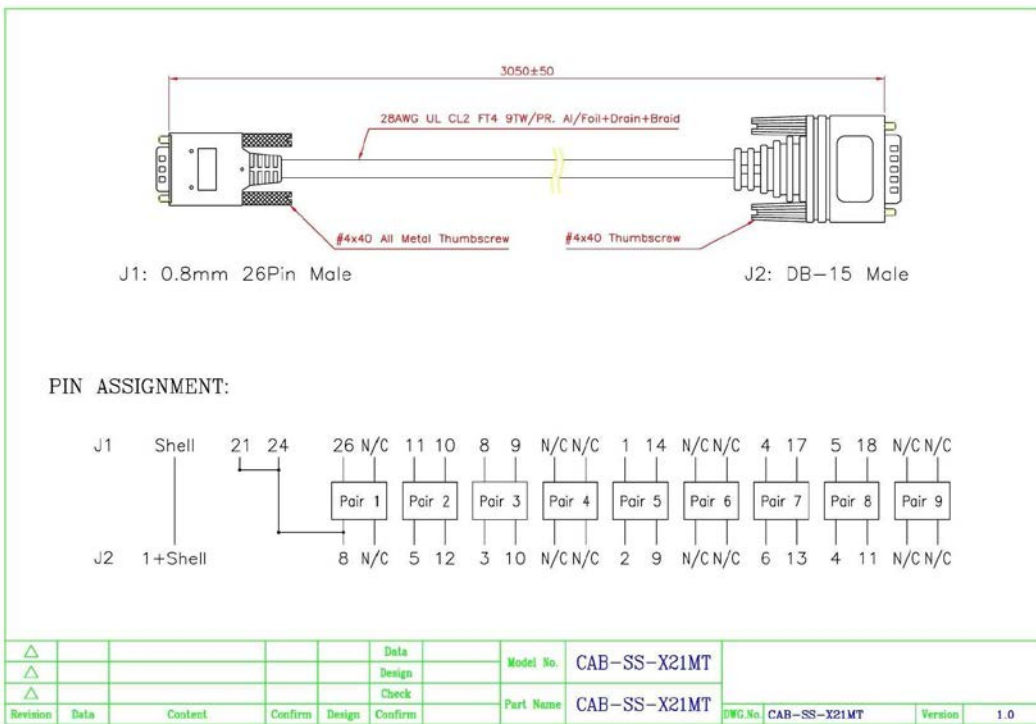


V35 FM





## X21 FM



## X21 M



## 6. Contacts

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