CHAPTER

3

CONTROL FIREWALL OVERVIEW

- About CF9

3.1 About CF9

The nine-port, Control Firewall (CF9) serves as the Fault Tolerant Ethernet (FTE) communications center for a given Series C control network. It consists of a Control Firewall module that plugs into its associated CF9 input/output termination assembly (IOTA) as shown in the following figure.

Figure 3.1 Control Firewall (CF9) and IOTA

Control Firewall (CF9) with Series C IOTA



Control Firewall (CF9) with Series C Mark II IOTA



The CF9 provides eight ports for FTE connections to C300s and Series C FIMs within a Series C cabinet as well as FTE Bridge modules (FTEB) in a Series A Chassis I/O chassis. It has a ninth port for an uplink connection to the supervisory FTE network and level 2 control area. It provides network security by

- Rejecting all Ethernet messages not needed for control,
- Giving priority to traffic on downlink ports over ingress traffic on the uplink port, if the fabric becomes saturated, and
- Allowing only valid C300-compliant messages to pass on to the C300 domain.

CHAPTER

4

CONTROL FIREWALL PLANNING AND DESIGN

This chapter contains the following topics.

- General Planning References
- Identifying Control Firewall Components

4.1 General Planning References

Please refer to the following documents for planning and design details for the Experion system in general and the Fault Tolerant Ethernet supervisory network. For the sake of brevity, this Guide does not repeat the applicable general guidelines, considerations, cautions, and so on that are covered in these other Guides.

- Control Hardware Planning Guide
- Server and Client Planning Guide
- Fault Tolerant Ethernet Overview and Implementation Guide

4.2 Identifying Control Firewall Components

The following table identifies the Control Firewall components that will be needed to provide a FTE interface with a Series C control system. The CC/DC prefix in a model number means the component's printed wiring boards are coated to provide additional protection from the environment and the CU prefix means the boards are uncoated.

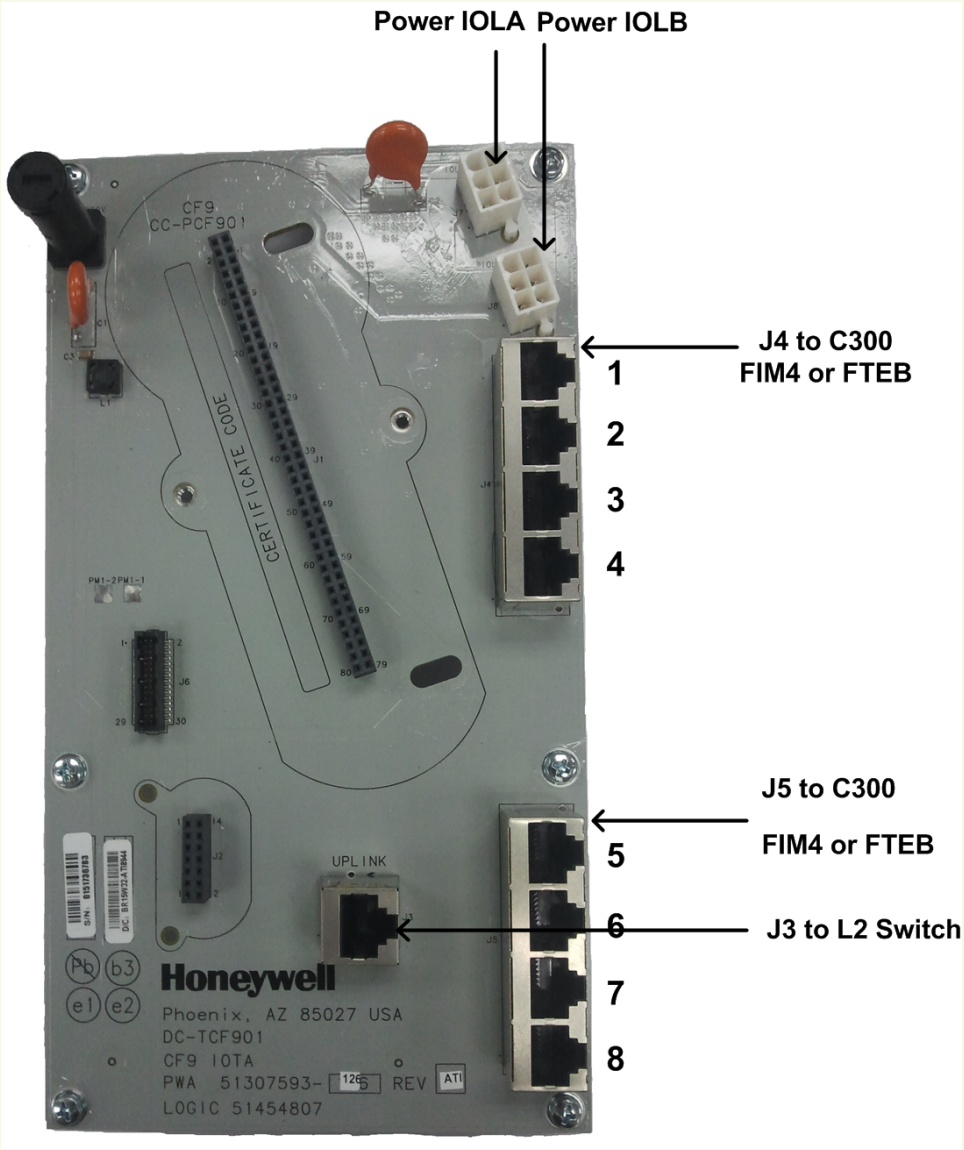
Component	Description	Honeywell Model Number
Control Firewall Module (CF9)	Module mounts on CF9 Input/Output Termination Assembly (IOTA).	CC-PCF901
CF9 Input/Output Termination Assembly (IOTA)	Provides physical connection to Control Firewall module and FTE cables. Mounts on carrier in Series C cabinet.	CC-TCF901
CF9 Input/Output Termination Assembly (IOTA) for Series C Mark II	Provides physical connection to Control Firewall module and FTE cables. Mounts on backplane in Series C Mark II cabinet.	DC-TCF901
Horizontal 9 Port FTE Control Firewall Input Output Termination Assembly (IOTA)	Provides connection for eight FTE cables from in-cabinet controllers. The 9th port provides an uplink to the FTE supervisory network.	CC-HCN911
Ethernet Cables	Please see Planning Your Series C Control System In Control Hardware Planning Guide for information about Ethernet cables.	
Single Mode Fiber Module	FTE Single-Mode Fiber Module that plugs into one	CC-

Component	Description	Honeywell Model Number
(SMFIO)	port of IOTA.	FSMX01
Multi-Mode Fiber Module (MMFIO)	FTE Multi-Mode Fiber Module that plugs into one port of IOTA.	CC-FMMX01

ATTENTION

A combined IOTA is introduced for C300 and CF9 modules for use with the UHIO in TDC Basic cabinet migrations. For more information about the UHIO IOTA, see *Series C I/O User's Guide*.

Figure 5.3 Typical Connector Locations on CF9 IOTA for Series C Mark II



5.3 Installing Control Firewall CC- PCF901

- To install CF9

5.3.1 To install CF9

The following caution is not applicable for Series C Mark II.

> **CAUTION**
>
> Use only a #2 Phillips screw driver to carefully tighten the long gray plastic screw on the Module's face. **Do not use** either a #1 Phillips screw driver or a battery powered screw driver to remove or install the plastic screw as this can damage the screw head.

1. Align CF9 connector pins over the connector/slot on the IOTA labeled as Control Firewall 9 Module.
2. Carefully press down on the CF9 module until it is fully seated in the connector.
3. Use the screws provided to secure the CF9 module to the IOTA. The screws must be tightened to 1.3 Newton-meters.
4. Repeat Steps 1 to 3 to install other CF9s on their IOTAs, as required.
5. This completes the procedure. Go to the next Section.

5.4 Installing Optional Fiber Optic Module CC-FSMX01 or CC-FMMX01

- To install optional fiber optic module

5.4.1 To install optional fiber optic module

Use the following procedure to install an optional fiber optic module on a CF9 IOTA. This procedure assumes that this is an initial installation for the CF9 IOTA and no prior uplink RJ-45 plug connection has been made.

> **CAUTION**
>
> This caution is not applicable for Series C Mark II.
>
> Only use a #2 Phillips screw driver to carefully loosen or tighten the long gray plastic screw on the CF9 Module's face. Do not use either a #1 Phillips screw driver or a battery powered screw driver to remove or install the plastic screw as this can damage the screw head.

> **ATTENTION**
>
> For Series C Mark II CF9, do not connect FTE switch with fiber cable and RJ-45 cable at the same time.

1. If the CF9 IOTA is installed on a carrier in a cabinet, loosen the screws holding the Control Firewall module to the IOTA and remove the module from the IOTA so power is removed from the J2 connector on the IOTA. (It is not necessary to completely remove the long gray plastic screw located on the module's face.)
2. Carefully align the pins in the bottom of the fiber optic module with the sockets in the J2 connector on the IOTA and gently push down on the module until it is fully seated.

CHAPTER

7

CONTROL FIREWALL OPERATION

- Control Firewall Startup
- CF9 LED Descriptions

7.1 Control Firewall Startup

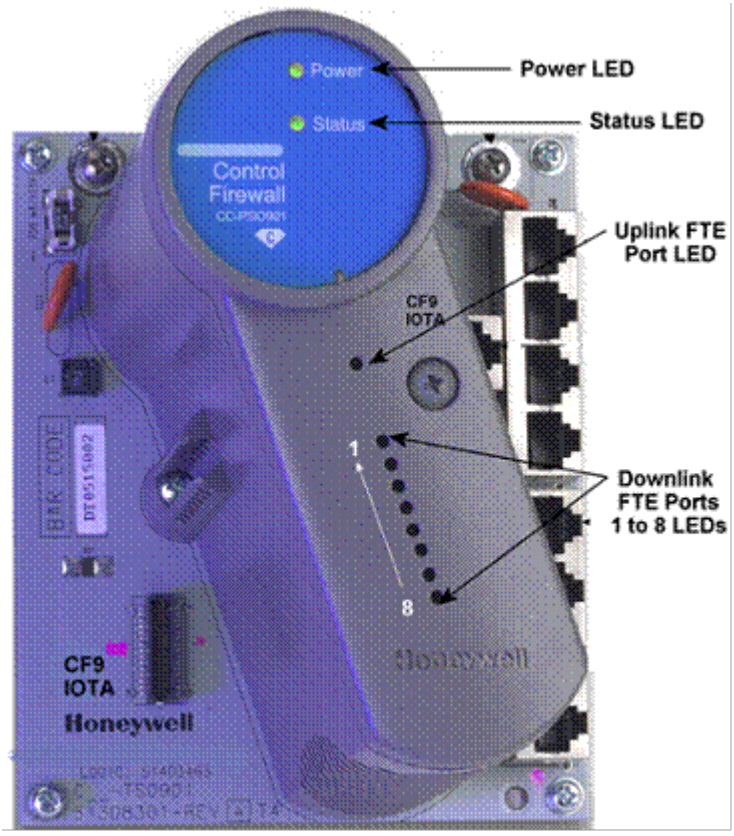
The following table summarizes the stages the CF9 goes through after power is applied to its IOTA during startup. The CF9 repeats these stages every time power is cycled Off/On or the pins on its reset pad are shorted.

1. Power Light Emitting Diode (LED) lights (green).
2. Status LED is red while the CF9 runs its power-on self test (POST).
3. When the CF9 POST completes, the Status LED turns green and the FTE port LEDs blink green and off for all connected ports when there is traffic, and remain steady green for connected ports when there is no traffic. The LEDs for unconnected FTE ports are off.

7.2 CF9 LED Descriptions

The following illustration and table identify and describe the indications associated with the LEDs on the CF9.

Figure 7.1 LEDs on CF9



LED	State				
	Off	Green	Red	Blinking Green	Green with Brief Flicker
Power	No Power	Power On	See Note 1	-	-
Status	No Power or Fault	Normal Operation	Running POST	See Note 2	-
Downlink Ports 1 to 8	No Power or No Cable Connected	Link Present, No Traffic	-	Link Present, Traffic	Too Many Attached Devices
Uplink Port	No Power or No Cable Connected	Link Present, No Traffic	-	Link Present, Traffic	-

Notes

1. The - indicates the LED is never in this state.
2. The CF9 has detected a soft failure and is working in a diminished state. Typical causes are a disconnected uplink port cable or a downlink port with too many attached devices. (Only one device can be attached to a CF9 downlink port.)

CHAPTER

8

CONTROL FIREWALL MAINTENANCE

This topic includes the following topics.

- Periodic Checks
- Recommended Spare Parts
- Replacing Failed Control Firewall

8.1 Periodic Checks

The following table identifies checks that you should make periodically (every 3 to 6 months) to keep the CF9 in good working condition.

Check . . .	Possible Corrective Action . . .
That all light emitting diodes (LED) are working.	If LED is not lit or has dimmed, you must replace the CF9 module, since LEDs are not field replaceable.
That all connections are secure.	Secure connections, as needed.
That cable insulation is not worn or cracked.	Replace cables, as required.
That IOTA is secure.	Tighten mounting screws.

8.2 Recommended Spare Parts

The following table provides a list of parts that you may want to keep on hand for backup

Part Name	Part Number	Description	Quantity per 10/100
Control Firewall	CC- or CU-PFB401	Series C Control Firewall Module	1/5
CF9 IOTA	CC- or CU-TFB401	Nine-Port Ethernet Input/Output Terminal Assembly	1/2
Fuse	51506438-341	800 mA, 250V quick-acting fuse on Input Output Terminal Assembly	4/25
SMFIO	CC-FSMX01	Single-Mode Fiber Optic Module	Optional
MMFIO	CC-FMMX01	Multi-Mode Fiber Optic Module	Optional

8.3 Replacing Failed Control Firewall

Just reverse the steps in the previous installation procedures for mounting and wiring the CF9