



CK721-A

Network Controller

Software Release Notes

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(805) 522-5555
www.johnsoncontrols.com

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CK721-A VERSION 2.10 SOFTWARE RELEASE NOTES

INTRODUCTION

Johnson Controls, Inc. is proud to announce the release of software version 2.10 for the CK721-A network control panel. This version introduces the following features, which are described in detailed in “New Version 2.10 Software Features” on page 11:

- RDR2S-A reader terminal output points and input points disassociation
- Auto Backup Panel Database
- Custom Card Format Processing using STI-MUX/STI-E hardware
- Global Entry/Exit at the panel (via UDP broadcast)
- Maximum number of badges increased to 120,000
- KONE HLI /KONE ELINK High Level Interface

The default port number assignments for the CK721-A have been changed. The new values are shown in the following table. This change brings the CK721-A default port number assignments into agreement with the P2000 software release 2.1 and above.

Controller Software Version	Controller Default Port Number Assignments for P2000 V2.1 and higher		
	Download Port	Upload Port	Priority Port
2.10	41014	41013	41012

For P1000 Servers (any version), P1500 Servers (any version), and P2000 Release 2.0 and lower, the default port numbers must be set as follows:

Controller Software Version	Controller Default Port Number Assignments for P1000, P1500, and P2000 V2.0 and lower		
	Download Port	Upload Port	Priority Port
2.10	1198	1199	1200



Do not interfere in any way with the panel firmware update; this could leave the panel in an unusable state. Do not telnet, FTP, or connect to the panel during the firmware update process.



If the firmware upgrade fails, the CK721-A controller will **not** be operational until the firmware can be successfully installed. This poses a high security risk to the building and its occupants. Before proceeding, discuss the potential security issue with the building's Security Manager.

NOTE

The P2000 dial-up function is not supported in this release.

CK721-A Firmware Release 2.10 Mandatory Upgrade

In CK721-A firmware 2.9 or earlier, after completing an approximate number of write-to-flash operations, the Flash Memory on a CK721-A controller becomes read-only, (the CK721-A can no longer write data to the flash memory), resulting in database updates being lost after a write-to-flash or reboot operation. The size of the controller's badge database (that is, the number of badge records downloaded to the controller from the P2000 host) determines the exact number of write-to-flash operations. Based on the average database size (15,000 badges), the Flash Memory becomes read-only after approximately 60 write-to-flash operations.

CK721-A firmware release 2.10 resolves the 60 write-to-flash limitation.

UPDATING CK721-A PANELS

Three Different Ways of Updating a CK721-A

Depending on your Security Management System, you must choose the instructions that go along with its version. The instructions vary between:

- P2000 Release 2.1 or higher
- P2000 Release 2.0 or lower, or P1500 Release 1.2
- P1000

Before You Begin

If you have a P1000 security system running software release 6.0, you must have P1000 Release 6.0 **Supplement F**. The CK721-A panel software should be updated first, followed by the installation of Supplement F. If you do not have Supplement F, do not begin the update until you do.

Prior to updating the panel software, consider the following:

- Tera Term Pro is the preferred Telnet Client program.
- If the Tera Term Pro **Arrow-Keys** do not function correctly, then select **Control>Terminal Reset**. (The **Arrow-Keys** should now function correctly.)
- If the Tera Term Pro <Esc> key causes the Telnet session to close, then use the <Page-Up> <Left-Arrow> keys, instead of the <Esc> key.

NOTE

Before updating, check the P1000/P1500/P2000 host system version number and select the right set of firmware update instructions.

While updating the panel software requires a number of individual steps, the process can be broken down into these basic procedures:

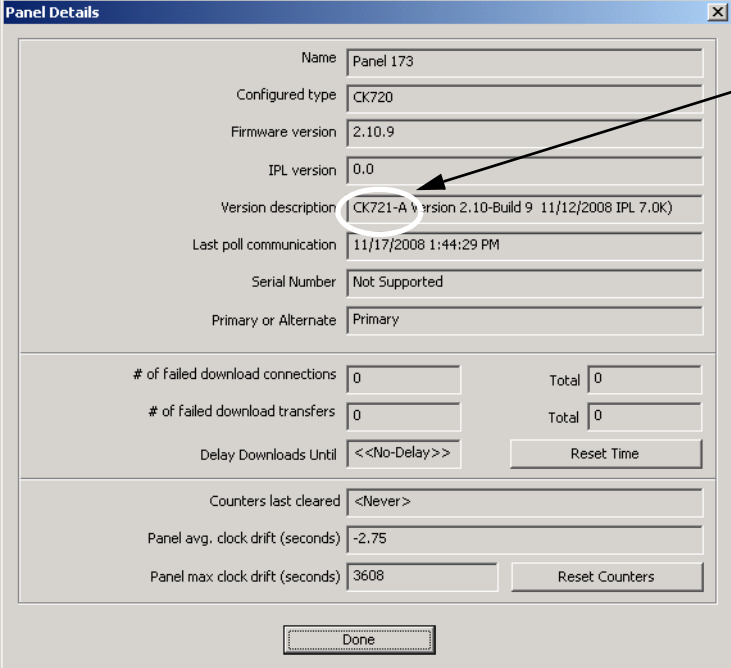
- Verifying the Controller type is CK721-A, not CK721.
- Performing the CK721-A Panel Update:
 - “Update from a P2000 Release 2.1 or higher system using LAN communication” on page 5, *or*
 - “Update from a P2000 Release 2.0 or lower, or a P1500 Release 1.2 system” on page 7, *or*
 - “Update from a P1000 system” on page 9.
- CK721-A Version 2.10 Database Download.

NOTE

During the above firmware update process, the panel will not be operational.

Verifying the Controller type is CK721-A, not CK721

You can verify the controller type from the P2000 host system by checking the “Version description” field in the Panel Details dialog box (accessed from the System Status window).



The image shows a screenshot of the "Panel Details" dialog box. The "Version description" field is circled, and an arrow points from the text "Panel Type: CK721-A" to it. The dialog box contains the following information:

Field	Value
Name	Panel 173
Configured type	CK720
Firmware version	2.10.9
IPL version	0.0
Version description	CK721-A Version 2.10-Build 9 11/12/2008 IPL 7.0K
Last poll communication	11/17/2008 1:44:29 PM
Serial Number	Not Supported
Primary or Alternate	Primary

Field	Value	Total
# of failed download connections	0	0
# of failed download transfers	0	0
Delay Downloads Until	<<No-Delay>>	Reset Time

Field	Value
Counters last cleared	<Never>
Panel avg. clock drift (seconds)	-2.75
Panel max clock drift (seconds)	3608

Buttons: Done, Reset Counters

Performing the CK721-A Panel Update

Update from a P2000 Release 2.1 or higher system using LAN communication

You will need:

- CK721-A Release 2.10 CD-ROM or access to the FTP site
- Access to the host's user interface
- All panels subject to firmware update to be online

NOTE

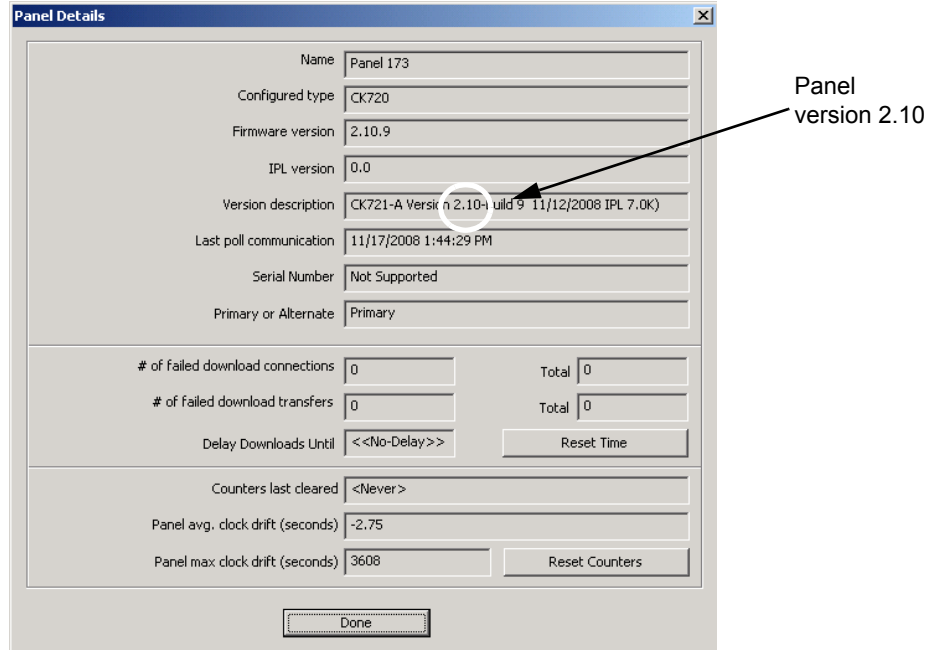
If you download the update files from the FTP site, all references to the CD-ROM in these instructions would refer to the directory where you have stored the update files.

1. ***Make sure that the panel-host connection is online.***
2. Insert the CK721-A Release 2.10 CD-ROM into the host's CD-ROM drive.
3. From the P2000 Main menu, select **System>Update CK705/CK720 Panels**.
4. If prompted, type the password and click **OK**.
5. In the Update CK705/CK720 Panels dialog box, click **Browse** and navigate to the CK721a-v2_10 directory of the CD-ROM.
6. Select **CK721a-v2_10.script** from the CD-ROM.
7. From the drop-down list, select the **Panel to Update**.
8. Enter the **Panel Login Name** exactly as programmed at the panel.
9. Enter the **Panel Password** exactly as programmed at the panel.
10. Click **Update**. The information contained in the update file is downloaded to the selected panel.
11. Wait while the panel update process is being completed. This will take approximately 14 to 16 minutes. During that time the panel will reboot once.



Do not interfere in any way with the panel firmware update; this could leave the panel in an unusable state. Do not telnet, FTP, or connect to the panel during the update process.

12. You will see a panel version mismatch in the System Status screen. At the P2000 you need to change the panel's type to **2.5+** (or higher) in the **General** tab of the Panel Edit screen.
13. Wait until the panel is shown as "up" in the System Status screen.
14. In the System Status window, highlight the name of the upgraded panel and click the **Panel Details** button.
15. In the Panel Details window, verify the panel version.



Panel Details

Name	Panel 173
Configured type	CK720
Firmware version	2.10.9
IPL version	0.0
Version description	CK721-A Version 2.10 Build 9 11/12/2008 IPL 7.0K
Last poll communication	11/17/2008 1:44:29 PM
Serial Number	Not Supported
Primary or Alternate	Primary

# of failed download connections	0	Total	0
# of failed download transfers	0	Total	0
Delay Downloads Until	<<No-Delay>>	Reset Time	

Counters last cleared	<Never>
Panel avg. clock drift (seconds)	-2.75
Panel max clock drift (seconds)	3608
Reset Counters	

Done



If the controller firmware upgrade failed, repeat the upgrade procedures starting with “Verifying the Controller type is CK721-A, not CK721” on page 4

16. Close the Panel Details window.

17. Continue with “CK721-A Version 2.10 Database Download” on page 11.

Below are the contents of the CK721a-v2_10.script file:

```
:CK720_UpdaterScript
cd /ramdisk
rm badge.dat
rm badge.idx
rm accpriv.dat
rm accpriv.idx
put CK721.UPD
put 2image_721a.bin
put CK721UPD_file.size
put 2image_721a_file.size
put do_flash_update
cd /update
put CK721UPD_file.size
put 2image_721a_file.size
put CK721a_FirmwareTarget
cd /apps
put do_flash_update
put do_nt_flash_update
cd /bin
put dd
cd /etc
put startup
```


Update from a P2000 Release 2.0 or lower, or a P1500 Release 1.2 system

You will need:

- CK721-A Release 2.10 CD-ROM or access to the FTP site
- Access to the host's user interface
- All panels subject to firmware update to be online

NOTE

If you download the update files from the FTP site, all references to the CD-ROM in these instructions would refer to the directory where you have stored the update files.

1. ***Make sure that the panel-host connection is online.***
2. Insert the CK721-A Release 2.10 CD-ROM into the host's CD-ROM drive.
3. From the CD-ROM, copy the entire directory CK721a-v2_10 and paste it into the P2000 directory of the host. The location of the P2000 directory may vary, depending on your installation.
4. Navigate to the P2000\CK721a-v2_10 directory of the host.
5. Right-click on **CK721a-v2_10.ftp**, select **Properties**, and un-check the **Read-only** flag. Click **OK**.
6. Edit CK721a-v2_10.ftp as follows:
 - In the first line, enter the IP address of the panel to be updated.
 - In the third line, enter the password to the panel to be updated.
7. Save the CK721a-v2_10.ftp file and exit the editor.
8. Double-click on **CK721a-v2_10.bat** to launch it.
9. Read the diagnostic lines, and ensure that the CK721a-v2_10.ftp script has been executed successfully.

NOTE

Some of the `rm` commands (commands to delete files) may fail because the concerned files are not present on the panels prior to release 2.9.

10. From the P2000 or P1500 Main menu, select **System>Update CK720 Panels** and type in the password. The Update CK720 Panels dialog box appears.
11. Click **Browse** and navigate to the CK721a-v2_10 directory of the host.
12. Select **CK721a-v2_10.script** from the host.
13. From the drop-down list, select **Panel to Update**.
14. Enter the **Panel Login Name** exactly as programmed at the panel.
15. Enter the **Panel Password** exactly as programmed at the panel.
16. Click **Update**. The information contained in the update file is downloaded to the panel selected.

17. The panel update process will take approximately 14 to 16 minutes to complete. During that time the panel will reboot once.



Do not interfere in any way with the panel firmware update; this could leave the panel in an unusable state. Do not telnet, FTP, or connect to the panel during the update process.

18. Wait until the panel is shown as “up” in the System Status screen.
19. Continue with “CK721-A Version 2.10 Database Download” on page 11.

Below are the contents of the CK721a-v2_10.bat file:

```
@echo off
ftp -s:CK721a-v2_10.ftp
echo
-----
echo Verify that all files have correctly been
transferred to the panel.
echo
-----
pause
```

Below are the contents of the CK721a-v2_10.ftp file:

```
open 0.0.0.0
CK720
master
binary
cd /ramdisk
rm badge.dat
rm badge.idx
rm accpriv.dat
rm accpriv.idx
put CK721.UPD
put 2image_721a.bin
put CK721UPD_file.size
put 2image_721a_file.size
put do_flash_update
cd /update
put CK721UPD_file.size
put 2image_721a_file.size
put CK721a_FirmwareTarget
cd /apps
put do_flash_update
put do_nt_flash_update
cd /bin
put dd
cd /etc
put startup
bye
```

Update from a P1000 system

Panel names used in the update process cannot contain any spaces. If they do, the update script will not run properly. Therefore, if your panel names currently contain spaces, you must rename them to exclude the spaces.

You will need:

- CK721-A Release 2.10 CD-ROM or access to the FTP site
- Access to the host's user interface
- All panels subject to firmware update to be online

NOTE

If you download the update files from the FTP site, all references to the CD-ROM in these instructions would refer to the directory where you have stored the update files.

► To prepare the P1000 system:

The following steps 1 through 4 only need to be performed once, that is, for the first panel update from a P1000 system. After that, you can update panels by going directly to step 1 of the section "To update the panels:" on page 10:

1. Insert the CK721-A Release 2.10 CD-ROM into the host's CD-ROM drive.
2. From the P1000 Main menu select **Configuration>Utilities>SCO Terminal**.
3. Type the password and press <Enter>.
4. Enter the following commands (with spaces as shown):

```
cd /u/pegasys/sid
```

Press <Enter>.

```
su -c "mount -o lower /dev/cd0 /mnt"
```

Press <Enter>.

If you are prompted for a password, enter the super user password and press <Enter>.

```
tar xvf /mnt/721a_2_10.tar
```

Press <Enter>.

```
su -c "umount /mnt"
```

Press <Enter>.

If you are prompted for a password, enter the super user password and press <Enter>.

► To update the panels:

1. Note the **exact name** of the CK721-A panel you wish to update as entered in the Panel window. The command is case-sensitive, so take care to note upper and lower case letters. No spaces are allowed in the panel name for the update procedure
2. Verify that the panel-host connection is online.
3. Enter the following commands (with spaces as shown):

```
./ck_ftp -s CK721a-v2_10.ftp -a <IP address of CK721> -p <CK721 password> -v
```

Press <Enter>.

NOTE

Please remember to separate the parameters with spaces. Example:

```
./ck_ftp -s CK721a-v2_10.ftp -a 192.168.0.20 -p master -v
```

4. Type the update script:

```
../bin/CK721_update
```

 Press <Enter>.
5. At the prompt, enter the panel name exactly as entered in the Panel window, and press <Enter>.
6. The panel update process will take approximately 14 to 16 minutes to complete. During that time the panel will reboot once.



CAUTION

Do not interfere in any way with the panel firmware update; this could leave the panel in an unusable state. Do not telnet, FTP, or connect to the panel during the update process.

7. Wait until the panel is shown as “up” in the System Status screen.
8. If this is the last panel you intend to update from this P1000 system, you exit the SCO Terminal window.
9. Continue with “CK721-A Version 2.10 Database Download” on page 11.

Below are the contents of the CK721a-v2_10.ftp file:

```
open 0.0.0.0
CK720
master
binary
cd /ramdisk
rm badge.dat
rm badge.idx
rm accpriv.dat
rm accpriv.idx
put CK721.UPD
put 2image_721a.bin
put CK721UPD_file.size
put 2image_721a_file.size
put do_flash_update
```

```
cd /update
put CK721UPD_file.size
put 2image_721a_file.size
put CK721a_FirmwareTarget
cd /apps
put do_flash_update
put do_nt_flash_update
cd /bin
put dd
cd /etc
put startup
bye
```



If a P1000, P1500, or P2000 host update fails and the controller constantly reboots (the controller does not come back online with the host), you must refer to the *Factory Field Upgrade Manual* for instructions on restoring the panel firmware.

CK721-A Version 2.10 Database Download

After the updated CK721-A panel has reconnected to the host (panel on-line), download all databases to the updated panel. Please refer to the respective host's user manual for details on how to download the databases to a panel.

The panel is now ready for normal operation.

To ensure that the downloaded databases remain in the panel in the case of a power and battery failure, you should invoke the panel's manual "write to flash" feature. After writing to flash, the panel will reboot. Please refer to the respective host's user manual for details on how to invoke the panel's manual "write to flash" feature.

NOTE

Always wait at least 5 minutes after the host download has been completed (that is, after the download queue count goes down to 0), before performing a manual "write to flash" operation.

NEW VERSION 2.10 SOFTWARE FEATURES

RDR2S-A Reader terminal Output Points and Input Point Disassociation

The feature allows RDR2S-A Reader terminal inputs and outputs to be re-assigned from Reader specific functions to general purpose inputs and outputs.

The following Reader Terminal Outputs can be re-assigned:

- Red LED
- Green LED

- Reader Strike
- Reader Shunt

The following Reader Terminal Inputs can be re-assigned:

- Reader Door Contact (Door is always reported closed, by Soft Alarm Points 18 and 24.)
- Reader REX

Reassignment of the special Reader Terminal Outputs to General Purpose Outputs is done by configuring the General Purpose Outputs listed below:

Reader Output Point	Terminal Output Point Number
Red LED	Output 1 [Open Collector Output]
Green LED	Output 2 [Open Collector Output]
Reader Shunt	Output 3 [Relay Output]
Reader Strike	Output 5 [Relay Output]

Reassignment of the special Reader Terminal Inputs to General Purpose Inputs is done by configuring the General Purpose Inputs listed below:

Reader Input Point	Terminal Input Point Number
Reader Door Contact	Input 1
Reader REX	Input 2

(Requires RDR2S-A firmware version PS-217C-3 or higher.)

Auto Backup Panel Database

Schedules the automatic backup of the /ramdisk CK721-A controller database, to flash memory. (Only those database files that have changed since the last automatic backup will be written to flash memory.)

- The minimum database backup period is every hour.
- The maximum time between database backups is 24 hours (between 3:00 AM and 3:59 AM).
- The default database backup period is once every 24 hours (between 3:00 AM and 3:59 AM).
- A database backup period of 0 hours, disables automatic database backups to flash memory.

The Automatic Backup feature is to be used in conjunction with the manually initiated Write-to-Flash command, after the initial controller download.

For detailed instructions refer to the CK721-A Installation and Operation manual.

Custom Card Format Processing Using STI-MUX/STI-E Hardware

Enables Custom Card Format processing and HID Corp 1000 with STI-MUX/STI-E hardware.

Incorporates support for CK720/CK721/CK721-A controller to process HID Corporate 1000 cards and Custom Card Formats up to 48-bits on STIs and STI-Es hardware. The STIs hardware must be running **PS-84N** or higher firmware, and the STI-Es hardware must be running **PS-141F** or higher firmware. Custom Card Formats will only be processed using STIs/STI-Es hardware if none of the controller standard built-in card formats (Standard Wiegand, Encrypted Wiegand, Sensor, or etc.) are enabled.

The Custom Card Formats and the HID Corporate 1000 Card format processing requires the STIs/STI-Es hardware to be online to the controller (via the S300 Bus).

Global Entry/Exit at the Panel (via UDP Broadcast)

This enhanced entry/exit enforcement feature is an improvement to the existing entry/exit enforcement feature of the CK721-A controller. The CK721-A entry/exit enforcement permitted access to cardholder badges based upon pre-configured entry or exit readers, and the present entry or exit status of the badge. Thus a cardholder badge that had last swiped at an exit reader will only be permitted at an entry reader, and a cardholder badge that last swiped at an entry reader will only be permitted at an exit reader. The prior limitations to this feature however, permitted entry/exit enforcement only to a specific CK721-A panel. A cardholder badge swiped on a reader terminal connected to one panel would not have their entry/exit privileges enforced on a reader terminal connected to another panel.

The enhancement allows a properly configured CK721-A panel to broadcast the entry/exit state of a badge to all other properly configured CK721-A panels on the same TCP/IP Subnet. This broadcast expands the entry/exit enforcement to all panels within this TCP/IP Subnet or across multiple Subnets using a properly configured TCP/IP multicast router.

(Requires P2000 Host version 3.8 Build 55 software.)

For detailed instructions refer to the CK721-A Installation and Operation manual.

Increased Badge Limit To 120,000

The CK721-A controller total badge capacity has been increased to 120,000 cards (was 100,000 cards).

KONE HLI/KONE ELINK High Level Interface

The KONE interface is a master slave protocol over RS232 or RS485 according to KONE Elevator EPL HLI Security Protocol specification V=2.3 SO-13.20.10-KAM, with the CK721-A being the master.

Each panel connects to a KONE group controller with up to 8 elevators, with each elevator serving up to 64 floors.

LIMITATIONS AND KNOWN PROBLEMS IN VERSION 2.10

Defects Addressed

The table below lists the defects that have been fixed in Version 2.10.

DCS #	Description
10821	Enable KONE Elevators function under CK721.
13460	Setting access in terminal screen reverts.
14453	CK721-A does not fast poll with RDR2S-A hardware.
14644	Using RDR2S (Version Q) and STI causes STI-MUX terminals to go offline.
14751	CK721-A fails to come online with P1000 server.
14901	SID Timezone window rejects time data entry.
14925	Enable fast polling for PS-217A on CK721-A.
14998	CK721 series panel card events grant access when configured NOT to.
15212	CK721 series produces excessive invalid event privilege history messages.
15316	Add PS-215 and PS-217 sub version number data to S300ping summary listing.
15638	Add Global Entry/Exit at the panel (via UDP Broadcast).
15735	Dubai Elevators stopped working after P2000 v3.8 installed.
15803	CK721/CK721-A incorrectly selects the new high speed protocol.
15848	Add Custom Card Format processing using STI-MUX/STI-E hardware.
15909	Allows outputs and inputs to be disconnected from a RDR2SA for general purpose.
15922	CK721-A internal clock error.
15955	Add Kimberly Mines timezone activation speedup after download to baseline.
15977	Panel config do not save to flash should delete previous configuration.
15989	CK721-A user interface access group display.
16090	CK721-A Manual should include the No AC/Low Battery - Trouble Alarm installation.

DCS #	Description
16117	Backup the /ramdisk controller database every xx hours.
16124	Fix CK721-A MAX_BADGE compute error.
16133	CK721 S300_IO_Dev stops granting access after a download.
16135	Panel sending entry/exit UDP broadcast for “access” terminal.
16254	System status intermittently shows doors as unlocked when they are in override.
16275	CK721-A does not allow an IP address with 255.
16288	Input/output link operation incorrectly sets output group after a download.

Defects Under Investigation

The following constraints and problems have been reported with the CK721-A Release 2.10 software, and are currently under investigation.

DCS #	Description	Workaround
5869	User Interface – pressing <Delete>, <PageUp>, or <PageDown> can cause partial keyboard lock-up.	Press the arrow keys to remove the lock-up.
5962	User Interface, Time Zone Screen – the time zone values are displayed corruptly when using <next record> and <prev record> to move through time zones.	Use the Time Zone Selection screen to select time zones by number.
11746	SID “System Info” displays terminal status and security status incorrectly.	None.
13553	Add OTIS Elevators Function Under CK721-A.	
16256	Otis Elevator: Master and Slave controllers lost communication after disconnecting RS-485 cable during terminal override command, then reconnecting the cable. Reconnecting the RS-485 cable, the slave controller did not respond to the master poll commands.	Verify that the OTIS elevator function disabled.
16351	The Slave Panel did not communicate to the Otis simulator.	Verify that the OTIS elevator function disabled.

