

Change Bulletin			 Tesco Corporation 5616 – 80th Avenue SE Calgary, Alberta, Canada T2C 4N5 Tel: 1-877-TESCO-77 (North America) Tel: 1 (713) 359-7195 (AMSS 24-hour support) Tel: 1 (713) 359-7295 (International) Email: bulletins@tescocorp.com www.tescocorp.com www.tescoparts.com
No: CB052	Rev: 1	Date: October 30, 2013	
PLC Upgrade and Siemens VFD Update			
<input checked="" type="checkbox"/> Internal Use Only <input type="checkbox"/> External Use			
			<input type="checkbox"/> Mandatory <input checked="" type="checkbox"/> Recommended

BACKGROUND INFORMATION:

OEM Changes and Impact

A software upgrade is required based on recent changes made by the Original Equipment Manufacturer (OEM):

- TESCO uses the GE FANUC 90-30 series PLC in a number of Top Drives for the control system, however, GE is phasing out the 90-30 series. The new GE PACSystem™ RX3i series PLC has been selected to replace the 90-30 series PLC. In order to download PLC code to the GE RX3i PLC, a Proficy Machine Edition (PME) 7.0 Professional SIM 11 is required.
- ESI Models Only: In order to download code to the Human Machine Interface (HMI) unit on the ESI-1350 driller's panel, a Proficy View license is required. It is typically installed with the Proficy software but requires license activation at an extra charge.

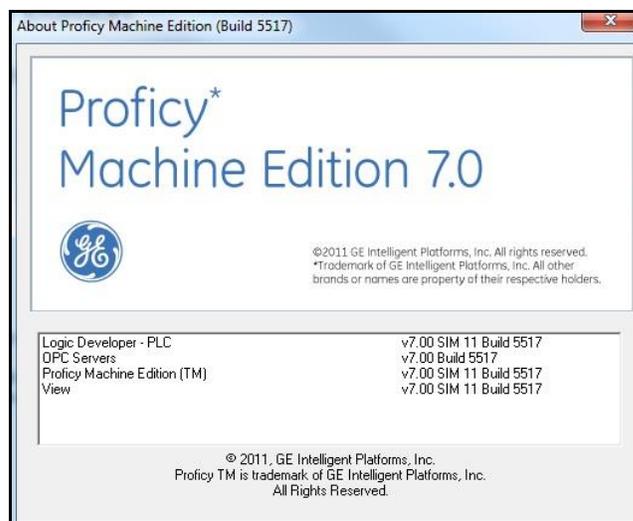
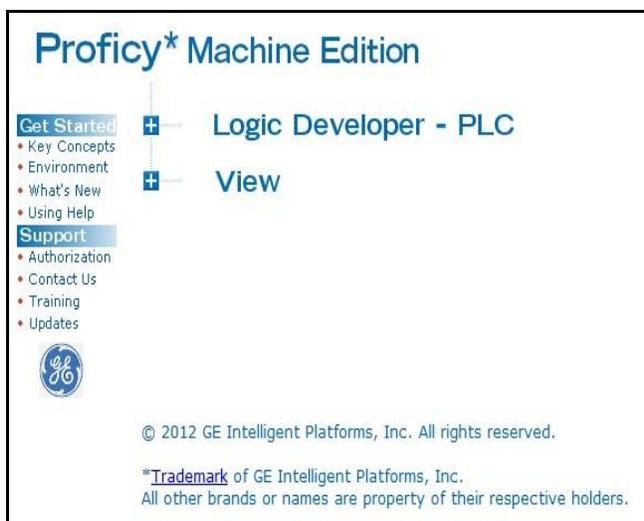


Figure 1: Proficy Software Required

The Siemens' VFD (ESI models only) requires the following updates:

- Update the Siemens STARTER Software to Release V4.3.1.2 (version 4.30).
- Update the Siemens Drive CPU firmware to version 4.05 (TESCO #5018012). This allows the loading of new files to the memory card.
- Upgrade the Siemens Advanced Operator Panel (AOP) display unit to Rev 5 (Tesco# 5018009). Use Rev4 or earlier ONLY if new firmware is NOT being installed.

Other issues:

- The GE Fanuc 90-30 series PLC uses a serial port to download code from a host computer to the PLC. The new GE RX3i series uses an Ethernet interface to communicate and download code.

Version	Date (D/M/Y)	ECN	Description of changes
Rev 0	05/02/2013		Initial release of document
Rev 1	10/30/2013	234-0025	Updates and addition of procedures

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- Siemens VFD firmware update requires Starter software to be updated to version 4.3 and only works with AOP with Rev 5 or above (ESI models only).
- GE RX3i CPU Model IC695CPE305 (TESCO #5027302) might be loaded with an earlier version of the firmware and would require an update to 7.75 to take advantage of all the features.



Figure 2: Siemens Software Required

AFFECTED PRODUCTS:

- All TESCO ECI, EXI, EMI, ESI and PLC-controlled HXI, HCI Top Drives
- All TESCO ESI Top Drives with Siemens VFD, VFD firmware and Siemens' AOP

ACTION REQUIRED:

PLC Upgrade

- TESCO Technicians' laptops must be upgraded with PME 7.0 SIM 11.
- IT must add Proficy View license on the upgrade timelines being scheduled by the TESCO IT Department.

Siemens' Software Update

This updates applies only to ESI top drives.

- TESCO Technicians will update the Siemens Drive CPU firmware to version 4.05, update the VFD parameter file and replace the AOP with Rev 5 or above.
- TESCO IT Department must install STARTER 4.3 software on TESCO Technicians' laptops.

Access and Connections

Both the PLC upgrade and the Siemens software update require the following:

- Permission to change local IP address on the host computer (consult TESCO's IT Department for details)
- Category 5 Ethernet cable with RJ45 connector on both ends

PROCEDURES:

How to change TCP/IP settings

TCP/IP defines how a computer communicates with other computers.

To change TCP/IP settings, follow these steps:

1. Open **Network Connections** by clicking the **Start** button , and then clicking **Control Panel**.
2. In the search box, type **adapter**, and then, under **Network and Sharing Center**, click **View network connections**.
3. Right-click the connection to be changed, and then click **Properties**.  If prompted for an administrator password or confirmation, type the password or provide confirmation.
4. Click the **Networking** tab.
5. Under **This connection uses the following items**, click **Internet Protocol Version 4 (TCP/IPv4)**, and then click **Properties**.

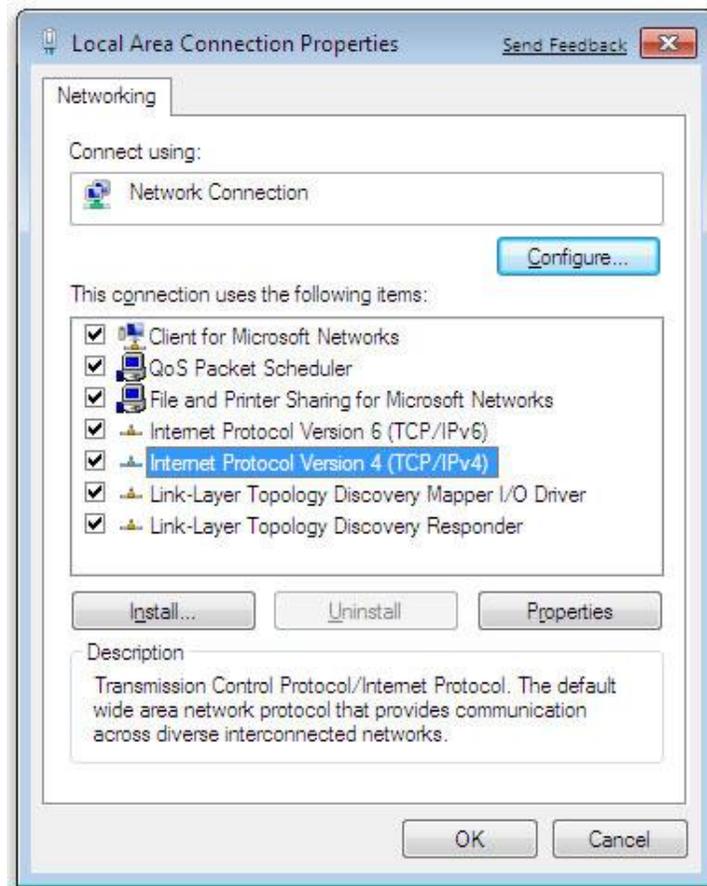


Figure 3: The Network Connection Properties dialog box

6. Manually set the IP address to communicate with other devices: To specify an IP address, click **Use the following IP address**, and then, in the **IP address** and **Subnet mask** boxes, type the following address settings.
 - IP Address:
 - For connecting to PLC: 192.168.0.1
 - For connecting to Siemens Drive: 169.254.11.1
 - Subnet mask:
 - For connecting to PLC: 255.255.255.0
 - For connecting to Siemens Drive: 255.255.0.0
7. Leave the **Obtain DNS server address** as it is, and then click **OK**.

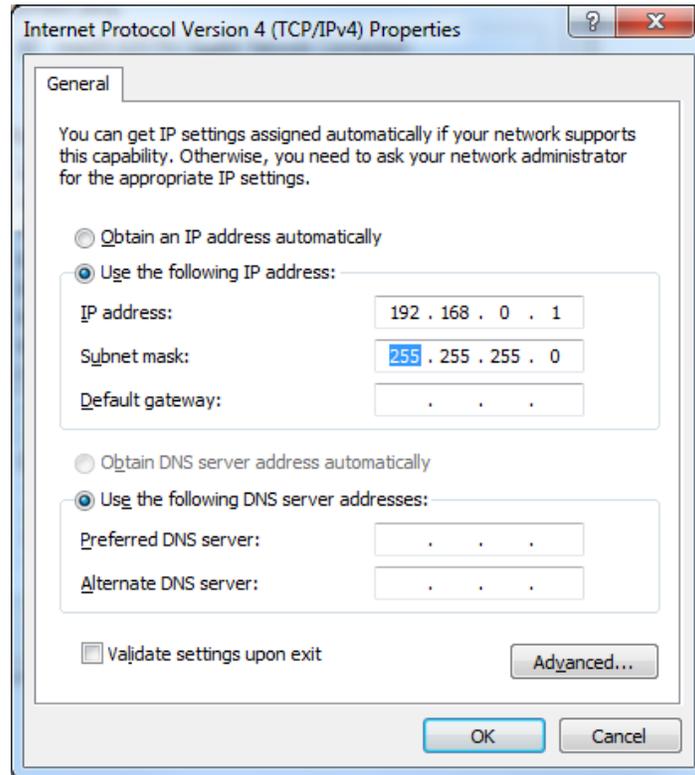


Figure 4: The Internet Protocol Version 4 (TCP/IPv4) Properties dialog box

8. When communication with other devices is no longer required, return to default TCP/IP settings. To do this, repeat the procedure, but in step 6, click **Obtain an IP address automatically**, and then click **OK**.

How to go online with the PLC

1. Connect one end of the Ethernet cable to host computer and the other end to PLC.
2. Change the IP Address on the host computer (see *How to change TCP/IP settings*).
Note: By default, the RX3i CPU uses the IP address 192.168.0.100.
3. Open the Proficy software and load the appropriate PLC program.
4. From the menu, Click *Target* -> *Go online with "x"* where x is the project name.

How to connect to Siemens Drive

This procedure applies to ESI top drives only.

1. Connect one end of the Ethernet cable to host computer and the other end to the drive Ethernet port.
2. Change the IP Address on the host computer (see *How to change TCP/IP settings*)
3. Launch Siemens STARTER software.
4. Load the appropriate project for the drive.
5. Go to *Project* -> *Set PG/PC Interface* and select the correct Ethernet interface.
6. Go online by selecting *Project* -> *Connected with selected target devices*.

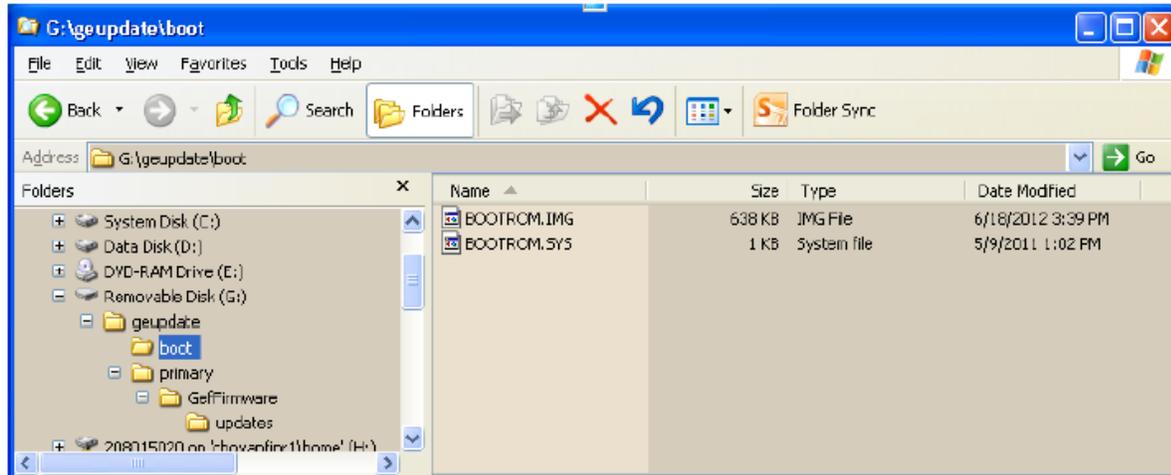


Figure 5: RX3i CPU Module with Ethernet Port

How to update firmware on GE RX3i CPU module IC695CPE305

USB Flash drive preparation

1. Locate the firmware upgrade zip file on the TESCO public folder \\calgary\public\Engineering\PLC\Updates\IC695CPE305_7_75\.
2. Install and unzip the upgrade software onto a new, blank USB drive. The directory structure on the Removable Disk drive should appear as follows:



CPU update via the USB Flash drive

1. Save and backup any programs and data already existing in the PLC CPU before updating the firmware. When the firmware update is complete, it will be necessary to restore programs and data.
 2. Power down the PLC that is to be updated.
 3. Disconnect the Energy Pack from the CPU if it is so equipped.
 4. Open the door located above the ETHERNET and USB – A RDS D ports and locate the button labeled START.
 5. Press and hold the START button. While holding the START button, power up the PLC.
 6. When the CPU completes its initialization (10-15 seconds), the RDS D LED light will begin to blink red. When this happens, release the START button.
 7. Insert the USB drive that contains the update software into the port labeled USB-A RDS D.
 8. Press and release the START button.
- The RDS D LED light will blink green while the files are copied to the CPU (15-20 seconds).
When the copy process is complete, the RDS D light will stop blinking.
- IMPORTANT:** Power interruption to the PLC or removal of the USB drive before the copy process is complete could cause irreparable damage to the CPU.
9. When the copy process is complete, power down the PLC and remove the USB drive.
 10. If an Energy Pack was disconnected, reconnect it now.
 11. Power up the PLC.

The PLC will power up to normal operation with the new firmware.

NOTES:

If the RDS D LED appears solid red in step 8, it means the CPU is not able to read the files from the USB drive. If this occurs, power down the PLC and remove the USB drive. Copy the upgrade files to a new USB drive and try the procedure again.

When the copy process is complete, the RDS D LED light might quit blinking and remain solid green. This indicates that the files copied were the same version as the files that were already on the PLC drive. This is acceptable.