ControlNet PLC-5 Hot Backup System

(Including ControlNet PLC-5 Hot Backup Cartridge, Cat. No. 1785-CHBM)

The ControlNet PLC-5 backup system requires a pair of standard PLC-5/40 or PLC-5/80 ControlNet processors, with I/O connected remotely over ControlNet.

Note: To use the hot backup system, you must first install a ControlNet Backup Cartridge (Cat. No. 1785-CHBM) into each PLC-5 processor. Install the cartridges in the processor's EEPROM memory module slot.

Use this Quick Start to get your ControlNet PLC-5 backup system up and running quickly. For more detailed information on this process, refer to the ControlNet PLC-5 Hot Backup System User Manual (publication 1785-6.5.24) and the ControlNet PLC-5 Programmable Controllers User Manual, phase 1.5 (publication 1785.6.5.22).

This document contains these sections:

Section	Page
System Requirements	2
Installing the Hardware	3
Configuring Your Backup System	4

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System Requirements

This section describes the components of the basic ControlNet PLC-5 backup system.

Hardware

- two series F (or later) PLC-5 ControlNet processors (either 1785-L40C15/F or 1785-L80C15/F).

Important: Both processors must be the same series and have the same firmware revision.

- two 1785-CHBM/A ControlNet backup cartridges (one for each PLC-5 processor)
- two 1771 chassis (one for each PLC-5 processor)
- two 1771 power supplies (one for each chassis)
- one or more ControlNet I/O adapters (Cat. no. 1794 or 1771)
- ControlNet network cables, taps, and terminators for making connections between the PLC-5 processors and the I/O adapters
- a PC with a 1784-KTCX15 card, or a laptop computer with a 1784-PCC card
- other ControlNet devices, including MMI (optional)

Software

- RSLogix 5 programming software (Release 3.22 or later)
- RSNetWorx for ControlNet software (Release 1.80.xx or later)
- RSLinx gateway communication software (Release 2.00.97.30 or later)

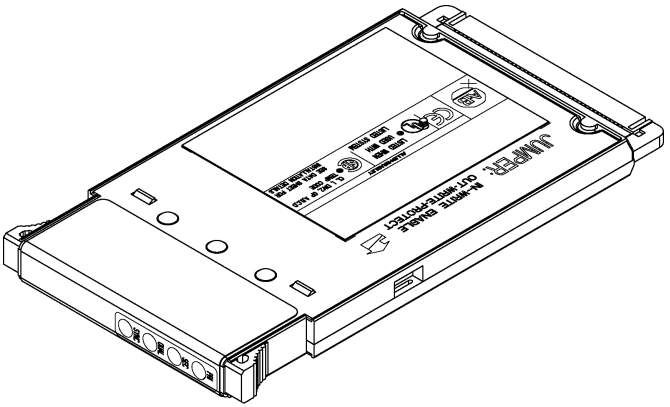
Installing The Hardware

Follow these steps to install the required hardware for your backup system.

1. Set the ControlNet node address numbers for each of the PLC-5 processors.

   The addresses must be consecutive, with the lower number being odd. For example, a valid node address pair is 1 and 2. You can set the ControlNet node address via the rotary switches on the top of each processor.

2. Insert the ControlNet backup cartridge into the EEPROM slot of each PLC-5 processor.



   Note: If the ControlNet backup cartridge is not inserted into the PLC-5 processor, that processor will operate as a normal, stand-alone processor, and will not exhibit any of the necessary backup functions.

3. Install each PLC-5 processor into a separate 1771 chassis.

4. Install a power supply for each chassis, and connect to ac power.

5. Wire the ControlNet network to the PLC-5 processors and to the I/O adapters being used for the backup system.

The network cabling may consist of single or redundant channels.

Configuring Your Backup System

Before you begin, make sure that you have installed RSLinx, RSLogix5 and RSNetWorx. For more details on installing any of this software, refer to its respective installation documentation.

To configure your backup system, complete all of the following procedures detailed on pages 4-7:

- Initialize the system
- Configure handshaking messages with RSNetWorx
- Configure I/O
- Create and configure the backup integer file
- Verify the backup system

Important: These procedures require that both processors are in the default memory state (i.e., there is no program loaded).

Initialize the System

To begin configuring your backup system, you must first initialize both processors:

- Launch RSLogix 5.
- Connect to the first processor.
- Clear memory.
- Assign a name to your project and save it.
- Connect to the second processor, and repeat steps 3 and 4.

Configure Handshaking Messages With RSNetWorx

Use RSNetWorx to set up the send and receive scheduled messages that allow handshaking between the two ControlNet PLC-5 processors.

1. For each processor node of your backup system, you must create two scheduled peer-to-peer messages; one Send and one Receive message for each. These messages must be exactly 5 words in length.

2. Record the Send and Receive message numbers from the odd processor node below:

3. Send message number:_____

4. Receive message number:_____

5. You will use these numbers later in the configuration process.

6. For the Requested Packet Interval (RPI), enter a value from 1 to 32,767.

7. This value must equal the Network Update Time (NUT).

Configure I/O

Configure any rack and module connections you have in your backup system. Do this by changing the connection from the default setting of Exclusive Owner to a Redundant connection.

Important: You must do this for BOTH processors.

After you change the connection setting, save your configuration. If the system is properly configured, the I/O LEDs on the ControlNet PLC-5 processors will be solid green.

Create and Configure the ControlNet Backup Integer File

1. Launch RSLogix 5.

2. Under the Controller folder, open the ControlNet Hot Backup menu.

3. Set the following:
   a. Backup File - This is the 200-word integer data file number created in RSLogix 5 (e.g. N20).
   b. Odd Node Address - enter the node address of the odd node of the odd/even pair of nodes.
   c. Send Message - Enter the message number of the Send Scheduled Message from the odd node address. (Refer to the number you recorded earlier.)
   d. Receive Message - Enter the message number of the Receive Scheduled Message from the odd node address. (Refer to the number you recorded earlier.)
   e. Refer to the ControlNet PLC-5 Hot Backup System User Manual (publication 1785-6.5.24) for other options on how to configure your backup system. (Other options include synchronous/asynchronous modes, crossloading, and equivalence checking.)

4. Repeat these procedures for the other PLC-5 processor.

   If your system is properly configured, the primary and secondary LEDs will not be solid red. Your backup system is ready.

Verify the Backup System

To verify your system:

1. Place the odd node keyswitch in Run mode.

   The Primary LED on the 1785-CHBM cartridge should turn solid green.

2. Place the even node keyswitch in Run mode.

   The QUAL LED on both 1785-CHBM cartridges should turn solid green. The Secondary LED on the even node should be solid yellow.

Your ControlNet Hot Backup system is now up and running.

European Union Directive Compliance

This product has the CE mark and is approved for installation within the European Union and EEA regions. It has been designed and tested to meet the following directives.

EMC Directive

This product is tested to meet Council Directive 89/336/EEC Electromagnetic Compatibility (EMC) and the following standards, in whole or in part, documented in a technical construction file:

- EN 50081-2EMC - Generic Emission Standard, Part 2 - Industrial Environment
- EN 50082-2EMC - Generic Immunity Standard, Part 2 - Industrial Environment

This product is intended for use in an industrial environment.

Low Voltage Directive

This product is tested to meet Council Directive 73/23/EEC Low Voltage, by applying the safety requirements of EN 61131-2 Programmable Controllers, Part 2 - Equipment Requirements and Tests.

For specific information required by EN 61131-2, see the appropriate sections in this publication, as well as these Allen-Bradley publications:

- *Industrial Automation Wiring and Grounding Guidelines for Noise Immunity* (publication 1770-4.1)
- *Guidelines for Handling Lithium Batteries* (publication 1756-5.68)
- *Automation Systems Catalog*

This equipment is classified as open equipment and must be mounted in an enclosure during operation to provide safety protection.

CSA Hazardous Location Approval

CSA Hazardous Location Approval	Approbation d'utilisation dans des emplacements dangereux par la CSA
CSA certifies products for general use as well as for use in hazardous locations. **Actual CSA certification is indicated by the product label** as shown below, and not by statements in any user documentation.	La CSA certifie les produits d'utilisation générale aussi bien que ceux qui s'utilisent dans des emplacements dangereux. **La certification CSA en vigueur est indiquée par l'étiquette du produit** et non par des affirmations dans la documentation à l'usage des utilisateurs.
Example of the CSA certification product label 	Exemple d'étiquette de certification d'un produit par la CSA 
To comply with CSA certification for use in hazardous locations, the following information becomes a part of the product literature for CSA-certified Allen-Bradley industrial control products. • This equipment is suitable for use in Class I, Division 2, Groups A, B, C, D, or non-hazardous locations only. • The products having the appropriate CSA markings (that is, Class I Division 2, Groups A, B, C, D), are certified for use in other equipment where the suitability of combination (that is, application or use) is determined by the CSA or the local inspection office having jurisdiction.	Pour satisfaire à la certification de la CSA dans des endroits dangereux, les informations suivantes font partie intégrante de la documentation des produits industriels de contrôle Allen-Bradley certifiés par la CSA. • Cet équipement convient à l'utilisation dans des emplacements de Classe I, Division 2, Groupes A, B, C, D, ou ne convient qu'à l'utilisation dans des endroits non dangereux. • Les produits portant le marquage approprié de la CSA (c'est à dire, Classe I, Division 2, Groupes A, B, C, D) sont certifiés à l'utilisation pour d'autres équipements où la convenance de combinaison (application ou utilisation) est déterminée par la CSA ou le bureau local d'inspection qualifié.
Important: Due to the modular nature of a PLC control system, the product with the highest temperature rating determines the overall temperature code rating of a PLC control system in a Class I, Division 2 location. The temperature code rating is marked on the product label as shown.	**Important:** Par suite de la nature modulaire du système de contrôle PLC), le produit ayant le taux le plus élevé de température détermine le taux d'ensemble du code de température du système de contrôle d'un PLC dans un emplacement de Classe I, Division 2. Le taux du code de température est indiqué sur l'étiquette du produit.

CSA Hazardous Location Approval	Approbation d'utilisation dans des emplacements dangereux par la CSA
The following warnings apply to products having CSA certification for use in hazardous locations.  CL I, DIV 2 GP A,B,C,D TEMP Look for temperature code rating here.	Les avertissements suivants s'appliquent aux produits ayant la certification CSA pour leur utilisation dans des emplacements dangereux.  CL I, DIV 2 GP A,B,C,D TEMP Le code de température est indiqué ici.
 **ATTENTION:** Explosion hazard • Substitution of components may impair suitability for Class I, Division 2. • Do not replace components unless power has been switched off or the area is known to be non-hazardous. • Do not disconnect equipment unless power has been switched off or the area is known to be non-hazardous. • Do not disconnect connectors unless power has been switched off or the area is known to be non-hazardous. Secure any user-supplied connectors that mate to external circuits on an Allen-Bradley product using screws, sliding latches, threaded connectors, or other means such that any connection can withstand a 15 Newton (3.4 lb.) separating force applied for a minimum of one minute.	 **AVERTISSEMENT:** Risque d'explosion • La substitution de composants peut rendre ce matériel inacceptable pour lesemplacements de Classe I, Division 2. • Couper le courant ou s'assurer quel'emplacement est désigné non dangereux avant de remplacer lescomposants. • Avant de débrancher l'équipement, couper le courant ou s'assurer que l'emplacement est désigné non dangereux. Avant de débrancher les connecteurs, couper le courant ou s'assurer que l'emplacement est reconnu non dangereux. Attacher tous connecteurs fournis par l'utilisateur et reliés aux circuits externes d'un appareil Allen-Bradley à l 'aide de vis, loquets coulissants, connecteurs filetés ou autres moyens permettant aux connexions de résister à une force de séparation de 15 newtons (3,4 lb. - 1,5 kg) appliquée pendant au moins une minute.

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