



CsCAN Data Concentrator Module Products Specifications and Installation Data

1 INTRODUCTION

The HE693CDC900 is a CsCAN Data Concentrator I/O Module for the GE Fanuc Series 90-30 PLC. The CDC900 typically exchanges CsCAN Network data with one or more OCS or RCS Modules. OCS, RCS and CDC900 devices exchange data on the CsCAN Network, via CsCAN Analog Global Data (%AQG) messages.

2 CONFIGURATION

Before the HE693CDC900 Module can be used, it must be configured via LogicMaster 90 (LM90) or a Hand-Held Programmer (HHP). If LM90 is used, the HE693CDC900 should be configured as a Foreign Module with a Module ID of 3, and with 8 %Is, 80 %AIs, 8 %Qs and 80 %AQs assigned to it, as follows:

2.1 LM90 Configuration

Catalog #: FOREIGN

```
Module ID      :      3
%I Ref Adr    :  %Ixxxx  Byte 1      : 00000001  Byte 9      : 00
%I Size       :      8    Byte 2      : xxxxxxxxxx Byte 10     : 00
%Q Ref Adr    :  %Qxxxx  Byte 3      : xx         Byte 11     : 00
%Q Size       :      8    Byte 4      : 00         Byte 12     : 00
%AI Ref Adr   :  %AIxxxx Byte 5      : 00         Byte 13     : 00
%AI Size      :     80    Byte 6      : 00         Byte 14     : 00
%AQ Ref Adr   :  %AQxxx  Byte 7      : 00         Byte 15     : 00
%AQ Size      :     80    Byte 8      : 00         Byte 16     : 00
%R Ref Adr    :  %R0001  %R Ref Adr :  %R0001
%R(in) Size   :      0    %R(out)Size:      0
```

Figure 1 – CDC900 LM90 Software Configuration

The %AI Ref Adr and %AQ Ref Adr values can be set for any desired PLC reference addresses. Similarly, the %I Ref Adr and %Q Ref Adr values can be set for any desired PLC reference addresses, as long as they are on 8-bit boundaries (1, 9, 17, 25, etc.). The remainder of this document assumes that %I1, %Q1, %AI1 and %AQ1 are the %I Ref Adr, %Q Ref Adr, %AI Ref Adr and %AQ Ref Adr values respectively.

2.2 Configuration Parameter Values

The configuration parameter values (Byte 1 through Byte 16), should be filled in as follows:

Table 1 - CDC900 Configuration Parameter Values				
Byte Number	Min	Max	Parameter Name	Description
1	1	1	Reserved	Must always be 00000001
2	1	253	RxFirstd	First Remote Node Network ID
3	1	253	TxFirstd	First CDC Network ID
4 thru 16	0	0	Reserved	Not used for CDC900; should be set to 0
Note: All Min and Max values are shown in decimal. On the LM90 Foreign Module screen, configuration parameter Bytes 1 and 2 are entered and displayed in binary, while Bytes 3 through 16 are entered and displayed in hexadecimal.				

2.3 RxFirstd Configuration Parameter

The **RxFirstd** parameter determines a contiguous range of 8 CsCAN Network IDs. The CDC900 monitors Network Messages from the Remote Nodes in this range, and will copy %AQG data received from them into the PLC %AI Registers.

2.4 TxFirstd Configuration Parameter

The **TxFirstd** parameter determines a contiguous range of 8 CsCAN Network IDs. Using the Network IDs in this range, the CDC900 transmits PLC %AQ Registers to the network, as %AQG data.

3 NETWORK DATA

When connecting the CDC900 to a CsCAN Network, please note that the CDC900 CAN port always runs at 125 Kbaud, and always transmits %AQG data in legacy format.

3.1 Network Data Mapping

The following table show how data is exchanged between the CDC and Remote CsCAN Nodes.

Table 2 – Network Data Exchange Map			
Series 90-30 PLC Registers	Data Direction	CsCAN Network Global Data Messages	
		Network ID	Global Data
%AI1 thru %AI10	← Received by CDC from Remote CsCAN Nodes into 90-30 PLC registers	RxFirstd + 0	%AQG1 thru %AQG10
%AI11 thru %AI20		RxFirstd + 1	%AQG1 thru %AQG10
%AI21 thru %AI30		RxFirstd + 2	%AQG1 thru %AQG10
%AI31 thru %AI40		RxFirstd + 3	%AQG1 thru %AQG10
%AI41 thru %AI50		RxFirstd + 4	%AQG1 thru %AQG10
%AI51 thru %AI60		RxFirstd + 5	%AQG1 thru %AQG10
%AI61 thru %AI70		RxFirstd + 6	%AQG1 thru %AQG10
%AI71 thru %AI80		RxFirstd + 7	%AQG1 thru %AQG10
%AQ1 thru %AQ10	→ Transmitted by CDC to Remote CsCAN Nodes from 90-30 PLC registers	TxFirstd + 0	%AQG1 thru %AQG10
%AQ11 thru %AQ20		TxFirstd + 1	%AQG1 thru %AQG10
%AQ21 thru %AQ30		TxFirstd + 2	%AQG1 thru %AQG10
%AQ31 thru %AQ40		TxFirstd + 3	%AQG1 thru %AQG10
%AQ41 thru %AQ50		TxFirstd + 4	%AQG1 thru %AQG10
%AQ51 thru %AQ60		TxFirstd + 5	%AQG1 thru %AQG10
%AQ61 thru %AQ70		TxFirstd + 6	%AQG1 thru %AQG10
%AQ71 thru %AQ80		TxFirstd + 7	%AQG1 thru %AQG10

3.2 Network Data Example

As an example, assume %AI Ref Adr is 1, %AQ Ref Adr is 1, RxFirstd is 1 and TxFirstd is 9.

In this example, the CDC receives %AQG data from Remote Nodes 1 through 8 into 90-30 PLC registers %AI1 through %AI80.

Similarly, the CDC transmits %AQG data from 90-30 PLC registers %AG1 through %AQ80, using CsCAN Network IDs 9 through 16. In effect, the CDC behaves as though it were 8 different CsCAN Nodes, whose Network IDs are 9 through 16.

4 NETWORK DIAGNOSTICS

The CDC900 uses 8 %Q bits and 8 %I bits for diagnostics command and status, as defined in the following table:

Table 3 – HE693CDC900 Module %Q Command Bits and %I Status Bits			
%Q Command Bits		%I Status Bits	
%Q Bit	%Q Bit Description	%I Bit	%I Bit Description
%Q1 - %Q8	Not Used	%I1	1 = Network Power Test failed
		%I2	1 = Network Response Test failed
		%I3	1 = Network Duplicate ID test failed
		%I4 - %I8	Not Used

For future compatibility, the ladder programmer should not reference the %Q registers (%Q1 thru %Q8).

4.1 Network Diagnostic %I Status Bits

Diagnostics associated with %I1-%I3 (CsCAN Network Tests) are executed at power-up, and also executed dynamically. The %I1 and %I2 Network Tests self-recover, when the corresponding fault is corrected. However, the %I3 (Network Duplicate ID) fault requires manual intervention, before the CDC900 module will talk on the CsCAN Network again.

To correct a Network Duplicate ID fault, either the CDC Module's **TxFIRSTID** aconfiguration parameter must be changed, or the the offending Remote Node's Network ID setting must be changed. Then, either downloading a new configuration to the CDC, or power-cycling its 90-30 rack, will re-run the CsCAN Network Tests, and will clear the Network Duplicate ID fault, if the condition no longer exists.

4.2 Network Diagnostic %Q Command Bits

In previous releases of CDC900 firmware, the %Q1 command bit, caused the CsCAN Network tests to run. This function was eliminated starting with firmware Version 1.70, since it disrupted communication for 1.1 seconds, and since all network tests are now executed automatically during operation.

5 SAFETY

All applicable codes and standards need to be followed in the installation of this product.

6 TECHNICAL ASSISTANCE

For assistance, contact Technical Support at the following locations:

North America:

(317) 916-4274 or visit our website at www.heapg.com.

Europe:

(+) 353-21-4321-266