Connecting UniOP to the Hitachi J300 Series Inverters

This Technical Note contains the information and tips for the successful connection between a UniOP operator interface panel and the Hitachi J300 Series frequency inverters.

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1. Introduction

The UniOP panel can be connected to a Hitachi J300 Frequency inverter. The J300 unit must have an optional communication board installed in either of the two available communication slots. Communication is possible through either the RS-232 or the RS-485 interfaces available on the communication board.

This technical note describes the principal points to follow for a successful connection.

2. Communication Setup

This chapter describes the setup procedure for communication between UniOP and Hitachi J300.

2.1. UniOP Communication Setup

In UniOP Designer, select the ‘Project/Change controller driver’ dialog box and make sure that the selected communication driver is ‘Hitachi J’.

The default communication parameters are the following:

Speed: 19600 baud
Parity: none
Data bits: 8
Stop bits: 1

Baud rate can be changed in the Designer dialog box 'Project/Controller setup/PLC comm', but the other parameters should be left at their default values.
For baud rates supported by Hitachi J, refer to section *2.2 Hitachi J300 communication setup* in the *Programming manual J300 – RS485 communication board.*

Note: *the maximum communication speed supported by UniOP is 38.4 Kb.*

2.2. Hitachi J300 Communication Setup

Plug a communication board in option slot 1 (OP1) or option slot 2 (OP2).
For more information refer to section *1 Installation* in the *Programming manual J300 – RS485 communication board*.

To change the baud rate and other relevant communication settings in the inverter, follow these steps:
1. Turn off the frequency inverter.
2. Set DIP switches to the appropriate positions according to *Programming manual J300 – RS485 communication board.*
3. Turn on the frequency inverter.

The 300ms time delay is not necessary for UniOP. A lower communication throughput will result from setting this value.

Use the Digital Operator to set parameter F9 to value 06 if option slot 1 is used, or to value 09 if option slot 2 is used.
Use the Remote Operator to set parameter F-09 to value OP1 or OP2.
These steps will allow the inverter to receive data from UniOP via the communication board.
For more information about this procedure you may refer to the *Hitachi inverter J300 series - instruction manual*.

3. Note about Scratch Registers usage

Parameters residing in the Hitachi J300 memory have been grouped into three Data Types named Parameter Area 1, Parameter Area 2 and Message Area. The fourth Data Type - Scratch Registers - is composed of 256 WORDs residing in UniOP internal memory. For this reason, Node Number is not associated to this Data Type.

Scratch registers are general purpose registers and can be used freely for any purpose found suitable by the user. Particularly, they can be helpful in Indirect Addressing Mode, where they are used for holding the index variables. The user can also organise Reserved Data Area or Alarms Area in them, with the Data Transfer mechanism serving for data exchange between these areas and the Hitachi J300 devices. For details, please refer to the Designer for Windows User's Manual.

4. Communication Cables

The communication can be established either through the RS-232 or the RS-485 interfaces available as an option on the inverter.
Use cable CA163 to connect UniOP to the J300 in RS-232.
Use cable CA164 to connect UniOP to the J300 in RS-485.

5. Communication Error Codes

The communication can be established either through the RS-232 or the RS-485 interfaces available as Current communication status is displayed in the System Menu of the UniOP.
The error status is described by a message and a numeric error code.
The message reports the current communication status. The number shows the code of the current communication error or, if the communication is correct, the code of the last error encountered. When the error code 0 is shown, it means there have been no communication errors since this system start-up.

Code	Description	Notes
0	No error	There are no communication errors and there have been no errors since start-up.
4	Negative acknowledgement	The device did not accept the request and returned NAK.
5	Communication timeout	No response from device. May indicate that the connection is broken, communication parameters are not matching or there are other hardware errors
6	Response error	Error in the response from the device
7	General communication error	Should never been reported. Indicates a software error.
12	Response error 2	Ill formed response from device (address and length message fields)