

Hitachi Inverter

SJ300/L300P SERIES

SJ-LW (LonWorks Option)

INSTRUCTION MANUAL

Thank you for purchase of "HITACHI INVERTER". This manual explains about treatment of "SJ-LW (LonWorks Option)". By reading this manual and an instruction manual of inverter use practically for installation, maintenance, and inspection. After reading this manual, keep it handy for future reference.

Make sure to reach this manual to the end user.

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After reading this manual, keep it at handy for future reference.

NB623X

HITACHI

SAFTY PRECAUTIONS

- Request -

Thank you for purchase of "SJ-LW (LonWorks Option)".

This instruction manual explains about treatment and maintenance of "SJ-LW". Before using the product, carefully read this manual with the instruction manual of inverter, and keeps it handy for quick reference of operator and maintenance inspector. Before installing, operating, maintenance and inspection read this manual carefully and follow the instructions exactly.

Always keep various kinds of specification mentioned in this manual and use exactly. And make sure to prevent trouble by correct inspection and maintenance. Make sure to reach this manual to the end user.

- About treatment of this manual -

- (1) Please consent that mentioned items of this manual may be change without permission.
- (2) Keep this manual carefully not to lose because it can not be reissued
- (3) All right reserved.
- (4) Contents in this manual is written to make assurance doubly sure but, but please contact if you have some doubts about spelling mistakes, omitted word etc.
- (5) Please agree that there is no responsibility for effects resulted, in spite of contents above mentioned.

- About trademark -

- (1) Echelon, Neuron, LON, LonTalk, LonWorks, 3120 are registered trademark of Echelon Corporation.
(LON: Local Operating Network)
- (2) LonMaker, LonMark are trademark of Echelon Corporation.

- Reference

When Connecting SJ-LW to LON network, XIF file is necessary as external interface file.

XIF file is possible to download from the web site below.

<http://www.hitachi-ds.com>

General information regarding LonWorks and how to get LonWorks specifications , refer to the web site below.

<http://www.lonmark.org>


Revision History Table


No.	Revision contents	The date of issued	Manual No.
1.	Initial release of Manual NB623X	Sep. 2001	NB623X


Except this table, revised only spelling mistakes omitted words, and error writings without notice.

SAFTY PRECAUTIONS

Carefully read this manual and all of the warning labels attached to the inverter before installing, operating, maintaining, inspecting, it. Safety precautions are classified into "Warning" and "Caution" in this manual.

 **WARNING** : Indicates a potentially hazardous situation which, if not avoided, can result in serious injury or death.

 **CAUTION** : Indicates a potentially hazardous situation which, if not avoided, can result in minor to moderate injury, or serous damage to the product

The situation described in  **CAUTION** may, if not avoided, lead to serious results. Important safety measures are described in CAUTION (as well as WARNING) so be sure observe them.

Notes are described in this manual in "(Note)". Carefully read the contents and follow them exactly.

CAUTION

In all the illustrations in this manual, covers and safely device are occasionally removed to describe the details. When the product is operated, make sure that the covers and safety devices are placed as they were specified originally and operate it according to the instruction manual.

SAFTY PRECAUTIONS

WARNING

Wiring:

Wiring work shall be carried out by electrical experts.

Otherwise, there is a danger of electric shock, fire and/or damage of product.

Implement wiring after checking that the power supply is off.

Otherwise, there is a danger of electric shock and/or fire.

Operating:

Be sure not to touch the surface or the terminal of option board while energizing.

Otherwise, there is a danger of electric shock and/or fire.

Be sure not to remove the LonWorks option printed board while operating.

Otherwise, there is a danger of electric shock and/or fire.

Maintenance, Inspection and Part Replacement:

Wait at least 10 minutes after turning off the input power supply before performing maintenance and inspection.

(Confirm the charge lamp on the inverter is off, checks direct current voltage between P-N terminals and confirm it is less than 45V)

Otherwise, there is a danger of electric shock.

Make sure that only qualified persons will perform maintenance, inspection, and part replacement

(Before starting the work, remove metallic objects from your person (wristwatch, bracelet, etc.).

Be sure to use tools protected with insulation.)

Otherwise, there is a danger of electric shock and/or injury.

Note:

Never modify the unit.

Otherwise, there is a danger of electric shock and/or injury.

CAUTION

Installation:

Be sure not to let the foreign matter enter such as wire clippings, spatter from welding, metal shaving, dust etc.

Otherwise, there is a danger of fire.

Be sure to fix inverter to option printed board with an attached fixed screw.

Otherwise, there is a danger of connecting error.

Be sure to fasten the screws connecting signal wire in side of option printed board. Check for any loosening of screw.

Otherwise, there is a danger of connecting error.

Wiring:

Be sure to fasten the screws not to loose.

Otherwise, there is a danger of connecting error.

Operation:

Check rotary direction, abnormal motor noise and vibrations during operating.

Otherwise, there is a danger of injury to personnel and/or machine breakage

1.1 INSPECTION UPON UNPACKING

Make sure to treat the product carefully not to give shock and vibration while unpacking. Check that the product is the one you ordered, no defect, and that there is no damage during transportation.

(Contents of packing)

- (1) SJ-LW(LonWorks option printed board):1 (also Install Manual attached)
- (2) Instruction manual:1
- (3) Screws fixed printed board (M3 times 8 mm):2

If you discover any problems, contact your sales agent immediately.

1.2 INQUIRY OF THE PRODUCT AND WARRANTY FOR THE PRODUCT

1.2.1 REQUIRE WHILE INQUIRING

If inquiry of breakage, question, damage etc. is needed, please tell the following information to the supplier you ordered or the nearest Hitachi Distributor.

- (1) Type(SJ-LW)
- (2) Manufacturing number (Item of label, that labeled surface of printed board. SJ-LW XXX)
- (3) Date of purchasing
- (4) Contents of inquiry
 - Damage parts and its condition etc.
 - Question parts and their contents etc.

In order to shorten impossible working time, standing spare unit is recommended.

1.2.2 WARRANTY OF THE PRODUCT

This product is guaranteed to last for one year after purchase. But, the next case is toll repair, even if within warranty period.

- (1) In case caused by operating mistake, and incorrect repair and modification.
- (2) Trouble caused by reasons except the shipped product.
- (3) In case of using in range over the value of specification.
- (4) In case caused by natural calamity, disaster, and secondary disaster.

Warranty mentioned here means warranty for shipped product itself. Damage caused by trouble of shipped product is not guaranteed.

[Replacement]

Any inspection and replacement after the expiration of warranty period (one-year) shall be charged to the purchaser. And also any inspection and repair which are not covered in warranty mentioned above, even if it is within warranty period, it shall be charged to the purchaser. If you require the replacement, please contact your Hitachi distributor.

1.3 Outline of product

SJ-LW is LonWorks communication board for SJ300/L300P series inverter.

SJ300/L300P series inverter can get to connect another devices via LonWorks when install SJ-LW.

SJ-LW is possible to connect for all models of SJ300/L300P series.

The SJ-LW option card communicates according to the LonWorks Protocol Standard ANSI/EIA 709.1-A-1999. This means that it can communicate with all LonWorks nodes that comply with this standard, but it does not necessarily mean that all services available in the LonWorks standard are supported. The “LonMark Functional Profile: Variable Speed motor Drive” (doc no. 6010_11) is supported.

In a control system the option board will act as a node that can be read and written to, from any other LonWorks node that has SNVT’s that corresponds to the one on SJ-LW.

(Note) RS485 communication function is disabled by installing SJ-LW to the inverter.

1.4 Appearance and Names of Parts

Figure 1-1 indicates the appearance of SJ-LW.

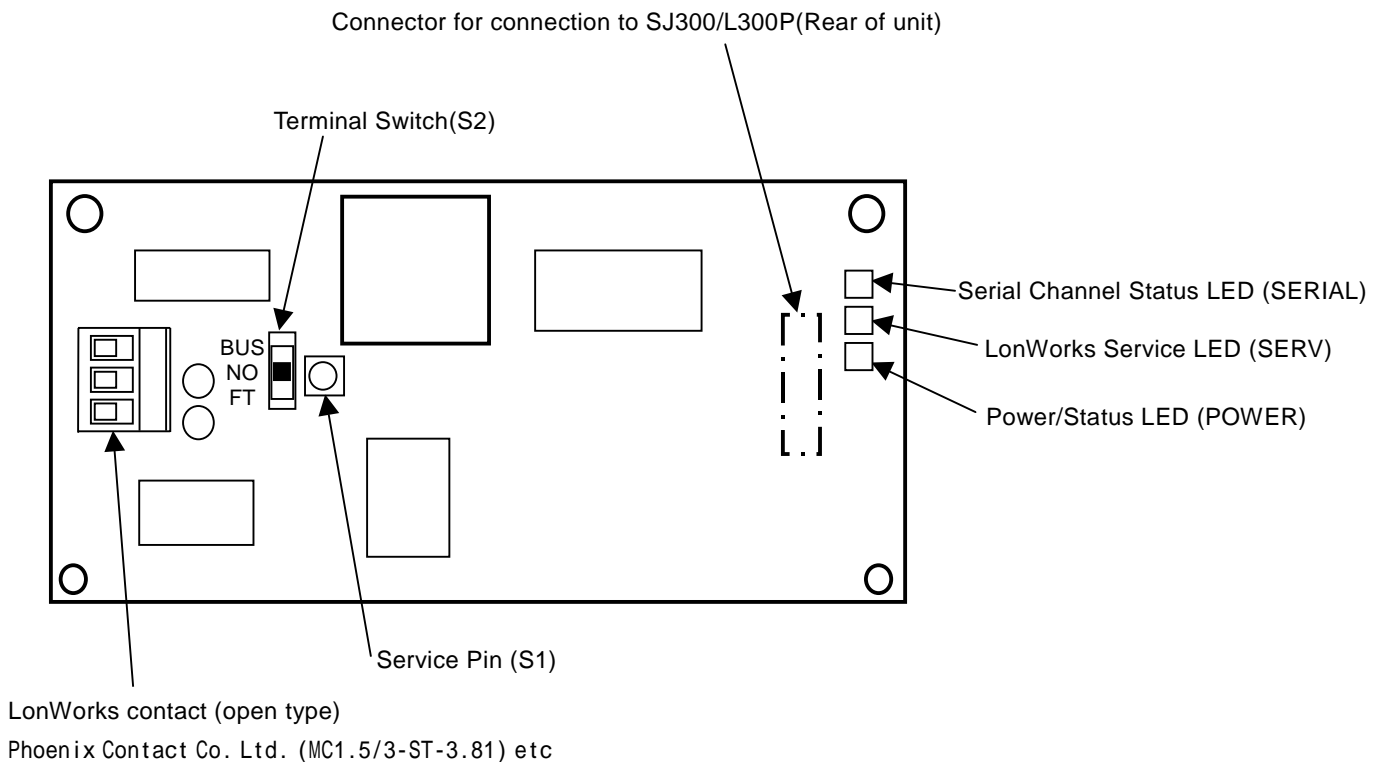


Figure 1-1 Appearance of SJ-LW

1.5 LonWorks Supported Version

SJ-LW can use following Manufacturing number (MFG No) of SJ300/L300P series.

After Manufacturing number : XX8KXXXXXXXXXXXXX (SJ300-0.4-55kW / L300P-11-75kW supported)
 XXEMXXXXXXXXXXXXX (SJ300-75-132kW / L300P-90-132kW supported)

(Note) Manufacturing number is written in specifications label on main body of SJ300/L300Pseries. Refer to figure 1-2, figure 1-3.

(Figure1-2, 1-3 are the example of SJ300 series. L300P series are the same manner as SJ300 series.)

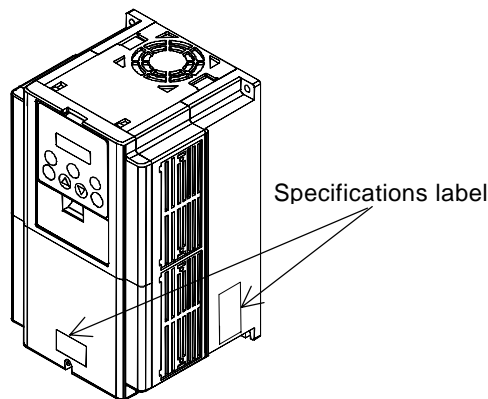


Figure 1-2 Position of specifications label

HITACHI	
Inverter model	Model: SJ300-055HFE
Maximum applicable motor	kW/(HP) : 5.5/(7.5)
Input ratings	Input/Entrée: 50, 60Hz 380-480 V 1 Ph A
	50, 60Hz 380-480 V 3 Ph 13 A
Output ratings	Output/Sortie: 0-400Hz V 3 Ph 12 A
Manufacturing number	MFG No. 118KT12345 10001 Date: 0101
	Hitachi, Ltd. MADE IN JAPAN NE17123-27

Figure 1-3 Contents of specifications label

1.6 Technical features of Lonworks

Transmission Technique:

- Free topology (FTT-10A) twisted pair cable
- Transmission rate 78kbits/s

Max Bus length: Bus up to 2000 m

Max. node-to-node distance: 500m

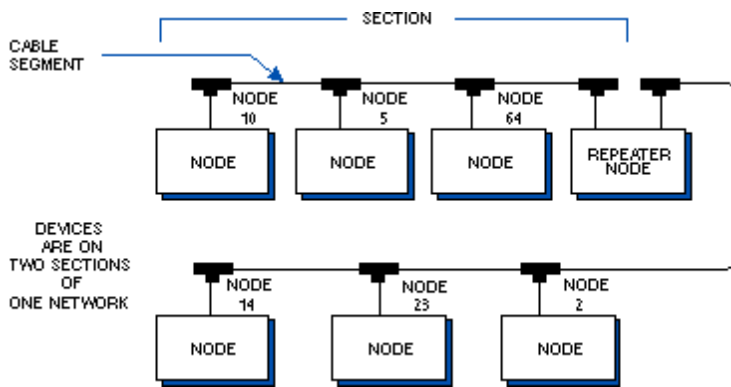
Max amount of nodes: 32.385 nodes divided as 127 nodes/subnet, 255 subnets/domain.

Medium Access: Predictive CSMA

Data types: Peer-to-peer communication

LonWorks communication ASIC: TMPN3120FE5 chip from Toshiba.

LonWorks transceiver: FTT10A from Echelon.



1.7 Production specification

Bacicaly, the environmental specification of the SJ-LW is in accordance with SJ300/L300P series inverter. Please refer the instruction manual of SJ300/L300P series.

But only application temperature of SJ-LW is different. Please note.

application temperature : 0 to 50 degree

2.1 Mounting method of option board

Figure 2-1 describes how to mount the option board to the option port 1 or 2.

There are four holes on the option board, match the two of them with the screw holes on the option port 1 or 2, and mount the other two holes with the guide posts which are located on the option port 1 and 2. To avoid connection failure, secure the option board with screws after connection.

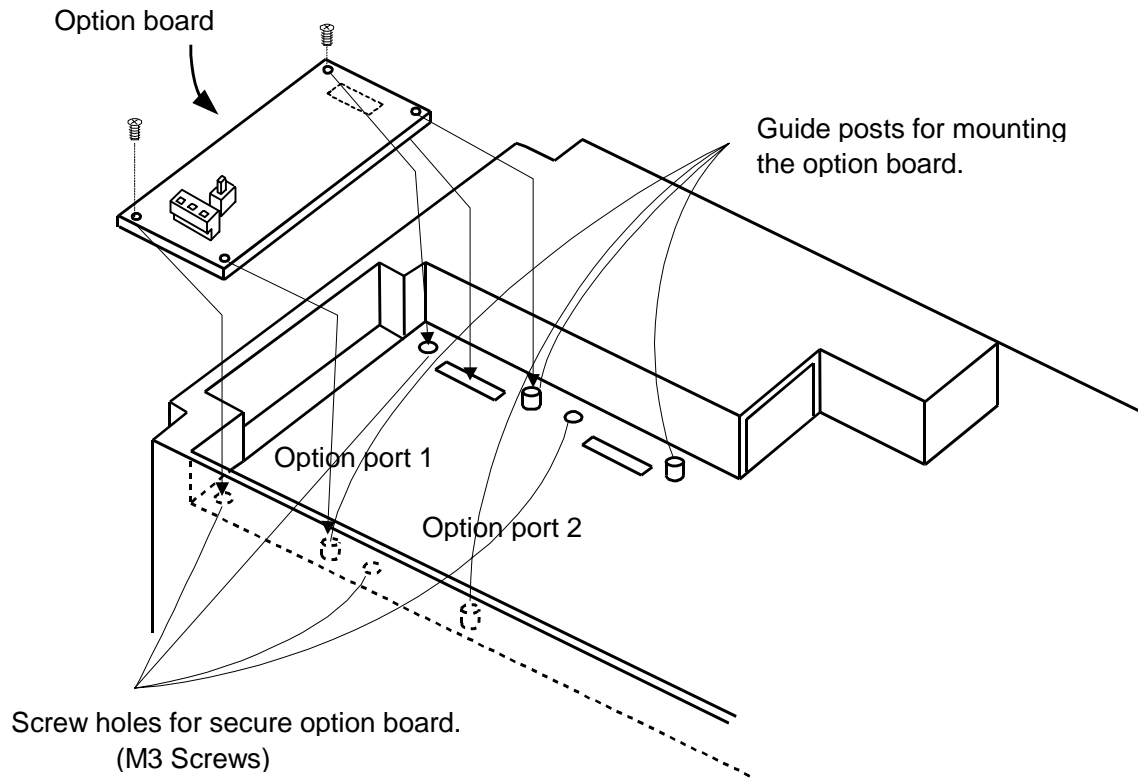


Figure 2-1 Installation of option board

3.1 Connection for LonWorks connector

The SJ-LW connects to the LonWorks network with a 3-pin connector. For the pin layout, refer to Figure 3-1.

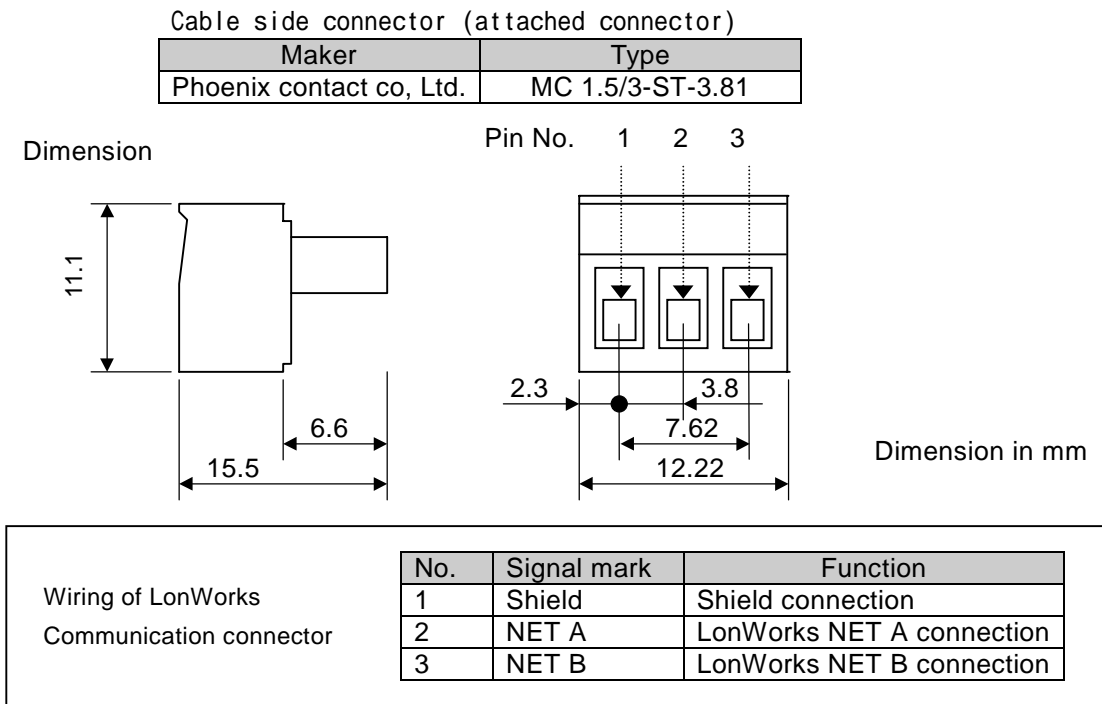


Figure 3-1 Connector specification

NOTE : NET A and NET B connection is not polarity sensitive.

3.2 Network cabling

For detailed information about recommended cables for a LonWorks network, please see the FTT-10A Free Topology Transceiver User's Guide (doc.id.078-0156-01F) available at <http://www.echelon.com>

Below are some recommended cables :

- Belden 85102, unshielded
- Belden 8471, unshielded
- Level IV 22AWG, unshielded
- JY (St) Y 2x2x0.8, shielded
- TIA568A Cat.5 24AWG

Note) To be able to communicate in a noisy environment, and to fulfil all EMC-requirements, it's important that a shielded cable is used, and that proper grounding is provided.

3.3 Wiring note

1. Installing the cable to Network connector must be done after checking the power supply off.
2. Wiring should not have bare cables exposed between connector contacts.
3. Network cables should be fixed without tension. Cables fixed under tension have potential of causing a communication fault by to be removed a connector.
4. Ensure external emergency stop measures are taken to stop the inverter, in the event of a network fault.
 - (a) Remove the Power supply of the Inverter when the network master detects a communication fault.
 - (b) When the master detects a communication fault, turn on the intelligent input terminal which would be allocated (FRS), (RS) and/or (EXT) function.

4.1 Setting of controlling frequency and start/stop commands

The Hitachi SJ300/L300P inverters can be configured to take reference set-points and commands from several different locations. Refer to the table below for information of how to configure the inverter so that the Lonworks controls frequency and the commands.

Command	Function	Setting range	Setting data
A001	Frequency setting selection	00(Volume)/01(Terminal)/02(Operator) 03(Rs485)/04(Option1)/05(Option2)	02(Operator)
A002	Operating mode selection	01(Terminal)/02(Operator)/03(Rs485) 04(Option1)/05(Option2)	01(Terminal)

4.2 Network termination (S2)

The SJ-LW option board provides internal termination of the LonWorks network. To enable/disable the termination a switch (S2) is used. See Figure 1-1 for location of the switch. The following table explains the possible switch-settings :

Switch-position	Termination type
FT	Free topology termination enabled
NO	Termination disabled
BUS	Bus topology termination enabled

For more information about termination, see the FTT-10A Free Topology Transceiver User's Guide (doc.id.078-0156-01F) available at <http://www.echelon.com>

Note) Risk of equipment damage exists. The SJ-LW contains ESD (Electrostatic Discharge) sensitive parts that can be damaged if you do not follow ESD control procedures. Static control precautions are required when handling the adapter.

4.3 Service pin (S1)

The SJ-LW option board provides one Service pushbutton (S1), which is used during the installation phase to identify the node. See Figure 1-1 for location of the pushbutton.

The SJ-LW is installed in a LonWorks network using any standard LonWorks installation tool. (i.e. "LonMaker for Windows" from Echelon).

4.4 Baudrate

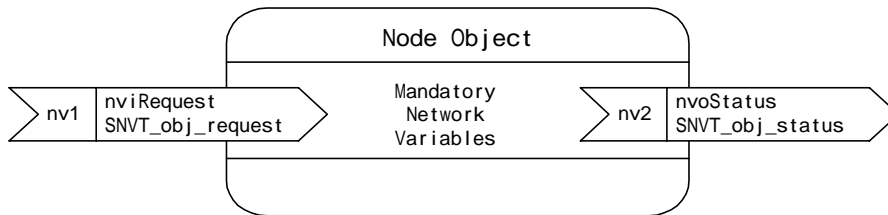
The SJ-LW has a fixed baudrate of 78kbps (FTT-10A).

5.1 Operating the drive via LonMark profile

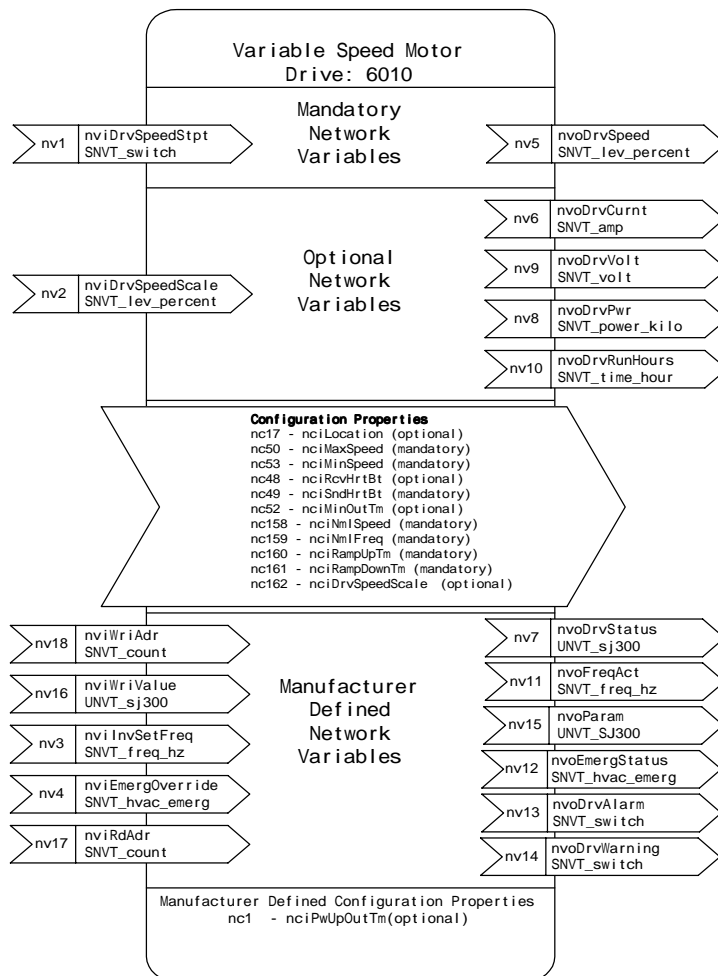
A LonMark profile defines a functional profile for a node communicating with others. A LonMark profile specifies which SNVT's and SCPT's to be used and also a semantic meaning about the information being communicated.

When a profile is implemented in a node, it is called a LonMark Object. One node can have several objects implemented. The SJ300 LonWorks adapter has two objects, a node-object and a drive-object. The node-object is used to control the other objects in a node.

(1) Node Object



(2) Drive Object



5.2 Input Network Variables (nvi's)

5.2.1 Node object request (SNVT_obj_request nviObjRequest)

This input is used to enable control commands and updates from network.

The valid identification numbers must be used. The valid numbers are 0 and 1.

The status of the node is reported in nvoObjStatus, see chapter 5.3.1.

Value	Identifier	Function
0	RQ_NORMAL	enable settings of nviDrvSpeedStpt and nviDrvSpeedScale again, if they were disabled by RQ_DISABLED. Speed settings need to be updated to start the inverter again if disabled.
1	RQ_DISABLED	disables settings of nviDrvSpeedStpt and nviDrvSpeedScale. It also stops the inverter.
2	RQ_UPDATE_STATUS	updates nvoObjStatus
5	RQ_REPORT_MASK	reports supported requests in nvoObjStatus
7	RQ_ENABLE	enable settings of nviDrvSpeedStpt and nviDrvSpeedScale again, if they were disabled by RQ_DISABLED. Speed settings need to be updated to start the inverter again if disabled.
9	RQ_CLEAR_STATUS	clears nvoObjStatus
10	RQ_CLEAR_ALARM	resets a fault (trip) in the drive
13	RQ_MANUAL_CTRL	can be used when the inverter only want to be monitored from Lon Network, not controlled. No message containing a WRITE_DEMAND_CODE (0x02) in the FrameType field of the Hitachi high-speed serial protocol will be communicated to the inverter from the option card. All messages with other FrameType codes will be sent to the inverter.
14	RQ_REMORT_CTRL	allow WRITE_DEMAND_CODE(0x02) messages to be communicated to the inverter.

If RQ_SELF_TEST, RQ_OVERRIDE, RQ_RMV_OVERRIDE, RQ_ALARM_NOTIFY_ENABLED, RQ_ALARM_NOTIFY_DISABLED, RQ_PROGRAM or RQ_NUL is requested, the invalid_request bit will be set in nvoObjStatus.

Which request of RQ_DISABLED, RQ_NORMAL or RQ_ENABLE is set last is remembered. This means that nviObjRequest can first be set RQ_DISABLED and then e.g RQ_REPORT_MASK. Then it is still disabled but reported masks will be shown in nvoObjStatus.

Which request of RQ_MANUAL_CTRL or RQ_REMOTE_CTRL is set last is remembered. This means that nviObjRequest can first be set RQ_MANUAL_CTRL and then e.g RQ_REPORT_MASK. Then it is still in manual control but reported masks will be shown in nvoObjStatus.

With regard to RQ_MANUAL_CTRL and RQ_REMOTE_CTRL, please refer chapter 6.8.

5.2.2 Drive Speed Setpoint (SNVT_switch nviDrvSpeedStpt).

5.2.3 Inverter frequency setting (SNVT_freq_hz nviInvSetFreq)

This input network variable provides a low-resolution speed setpoint.

When nviDrvSpeedStpt.State is set to zero the drive is stopped using ramp 1 (Normal Stop).

Following two methods are used for setting frequency.

- (1) nviInvSetFreq = 0x7FFF (Default)

It is possible to set the request speed by using ratio of Nominal Frequency (Refer to chapter 5.4.6) or Nominal Speed (Refer to chapter 5.4.5).

- (2) nviInvSetFreq = 0 to 400,

It is possible to set 0 to 400Hz to nviInvSetFreq directly.

NviInvSetFreq	NviDrvSpeedStpt		Setting ratio	Request speed
	State	Value		
0x7FFF (Initial value)	0xFF	N/A	N/A	AUTO(Invalid)
	0	N/A	N/A	Stop state
	1	0	0%	0%
	1	1 ~ 200	0.5 ~ 100.0%	$nciNmIFreq * nviDrvSpeedSpt * nviDrvSpeedScale$
	1	201 ~ 255	100 . 0%	100 . 0%
0 ~ 400Hz	0xFF	N/A	N/A	AUTO(Invalid)
	0	N/A	N/A	Stop state
	1	N/A	N/A	$nviInvSetFreq * 1$

Note: Requested speed will not be greater than the value defined by nciMaxSpeed (Refer to chapter 5.4.8) or less than the value defined by nciMinSpeed (Refer to chapter 5.4.7).

*1 : nviDrvSpeedScale = 100, Direction: Forward
 = -100, Direction: Reverse
 = When a value in nviDrvSpeedScale is set any value except for 100 and -100, it becomes the stop command (Run: Deceleration stop, Stop: Maintain to stop).

Default value:

Default value is AUTO (state = 0xFF). This value will be adapted at power-up. This network variable input may use the Receive Heartbeat function depending on if Receive Heartbeat function is setup for use. The actual value of drive speed does also depend on nviDrvSpeedScale.

Scaling: See chapter 6.1.4

5.2.4 Speed Setpoint Scaling (SNVT_lev_percent nviDrvSpeedScale)

This input network variable provides scaling for nviDrvSpdStpt. For example if nviDrvSpeedStpt value is 100% and nviDrvSpeedScale value is -150%, then actual speed setpoint value is -150% meaning reverse 1,5 times nominal speed. The requested speed will not be greater than the value defined by nciMaxSpeed or less than the value defined by nciMinSpeed.

Depending on Drive Speed Setpoint, behavior of Speed Setpoint Scaling will be changed. Followings are explanation of behavior.

- (1) nviInvSetFreq = 0x7FFF(Initial value)
 It prescribes the scaling for Drive Speed Setpoint (Refer to chapter 5.2.2).
- (2) nviInvSetFreq = 0 to 400
 It sets direction of rotation.
 nviDrvSpeedScale = 100, Direction: Forward
 = -100, Direction: Reverse
 = When a value in nviDrvSpeedScale is set any value except for 100 and -100, it becomes the stop command (Run: Deceleration stop, Stop: Maintain to stop).

Example (1): nviInvSetFreq = 0x7FFF

For example if nviDrvSpeedStpt value is 100% and nviDrvSpeedScale value is -150%, then actual speed setpoint value is -150% meaning reverse 1,5 times nominal speed (Refer to chapter 5.3.6).

Also refer to 6.1.4.

Example (2) : nviInvSetFreq = 0 to 400

When nviInvSetFreq is at 60Hz and nviDrvSpeedScale is 100%, the inverter is in forward run at 60Hz.

Valid Range: -163.84 to163.83%

Default Value: Is defined by nciDrvSpeedScale (Refer to 5.4.14).

Scaling: See chapter 6.1.4

5.2.5 Emergency Override (SNVT_hvac_emerg nviEmergOverride)

When EMERG_SHUTDOWN command is inputted, the inverter executes the deceleration stop and also the value in EMERG_SHUTDOWN is supported but the other values are not supported.

(Deceleration time is dependant on Ramp Down Time (Refer to chapter 5.4.10))

Value	Definition	Contents	Support
0	EMERG_NORMAL	No emergency mode	Yes
1	EMERG_PRESSURIZE	Emergency pressurize	No
2	EMERG_DEPRESSURIZE	Emergency depressurize	No
3	EMERG_PURGE	Emergency purge mode	No
4	EMERG_SHUTDOWN	Emergency shutdown	Yes
5	EMERG_FIRE	-	No
0xFF	EMERG_NUL	Value not available	No

5.3 Output Network Variables - nvo's

5.3.1 Node Object Status (SNVT_obj_status nvoObjStatus)

This nvo reports node object status. It will be updated every time status change. See chap. 5.1.1 for different requests.

Identifier	Status
Invalid_request	The node has been asked for an unsupported request.
Report_mask	Report supported fields.
Comm_failure	No contact with SJ300/L300P.
In_alarm	The SJ300/L300P inverter is tripped.
Disabled	NviObjRequest have received a RQ_DISABLED request. Settings of nviSpeedScale and nviSpeedStpt is disabled.
Manual_control	SJ300/L300P is not controlled from the option card. See digital operator value at A001 (should be 02 to avoid manual control to be set) and A002 (should be 01 to avoid manual control to be set). Manual_control will be set if option-board isn't in control over one parameter. Option card can still give order where it has command. It will be set if NviObjRequest have received a RQ_MANUAL_CTRL request.
Invalid ID	If another identification number then 0 and 1 have been set in request by SNVT nviObjRequest. The request will not be carried out.

5.3.2 Drive Status (UNVT_sj300 nvoDrvStatus)

This output network variable provides the status of the drive.

The first three bytes will be mapped directly from the information received at address 0xFFFF8E10 in the SJ300/L300P. If tripped, the last byte will contain an error code read from where pointer of last trip (0x08000363) points too.

data format :

Status A	Status B	Status C	Status D
----------	----------	----------	----------

Status A: Inverter status 1

Value	State
00	initial status
01	----
02	On stopping
03	On running
04	On FRS
05	On JG
06	On DB
07	On reading frequency
08	On retrying
09	On UV
10	On TRIP
11	On waiting reset

Status C : Lad mode

Value	State
00	---
01	Stop
02	Deceleration speed
03	Constant speed
04	Acceleration speed
05	Forward
06	Reverse
07	Reverse from forward
08	Forward from reverse
09	Forward start
10	Reverse start

Status B: Inverter status 2

Value	State
00	On stopping
01	On running
02	On tripping

Status D: trip code (see chapter 6.3)

5.3.3 Drive Current (SNVT_amp nvoDrvCurnt)

This output network variable provides the drive output current in Amps.

5.3.4 Drive Speed (SNVT_level_percent nvoDrvSpeed)

This output network variable provides the speed of the drive as a percentage of the nominal speed. Since nominal speed and nominal frequency are tightly connected to each other, the out value is calculated on the nominal (base) frequency and the running (out) frequency. This output network variable is used as a heartbeat to monitor the health of the LonWorks communication interface. See chapter 5.3.1 about heartbeats.

Scaling:

If value of present running is forward then run_dir will be 1.

If value of present running is reverse then run_dir will be -1.

$BASE_FREQ / ((raw\ data\ format)OUT_FREQ / 1000) * (run_dir) = nvoDrvSpeed$

5.3.5 Drive Power (SNVT_power_kilo nvoDrvPwr)

This output network variable provides the drive power in kilowatts.

5.3.6 Drive voltage (SNVT_volt nvoDrvVolt)

This output network variable provides the drive voltage in volts.

5.3.7 Output Frequency (SNVT_freq_hz nvoFreqAct)

Output frequency in Hz. Always positive, i.e. no information about direction of revolution (forward/reverse).

5.3.8 Operation Hour Counter (SNVT_time_hour nvoDrvRunHours)

Total power on time in whole hours.

5.3.9 Parameter value out (SNVT_count_inc nvoParam)

Used as feedback variable for generic parameter requests. See nciRdAdr (chapter 5.3.13), nciWriAdr (chapter 5.3.11) and nciWriValue (chapter 5.3.12).

5.3.10 Emergency Status (SNVT_hvac_emerg nvoEmergStatus)

It indicates emergency stop status. Emergency stop state (nvoEmergStatus) is indicated as EMERG_SHUTDOWN while emergency stop command (nviEmergOverride) is EMERG_SHUTDOWN.

Value	Definition	Contents	Support
0	EMERG_NORMAL	No emergency mode	Yes
1	EMERG_PRESSURIZE	Emergency pressurize	No
2	EMERG_DEPRESSURIZE	Emergency depressurize	No
3	EMERG_PURGE	Emergency purge mode	No
4	EMERG_SHUTDOWN	Emergency shutdown	Yes
5	EMERG_FIRE	-	No
0xFF	EMERG_NUL	Value not available	No

5.3.11 Drive Alarm (SNVT_switch nvoDrvAlarm)

5.3.12 Drive Warning (SNVT_switch nvoDrvWarning)

It is defined as Drive Alarm: when an inverter trip occurs, Drive Warning: when an inverter warning occurs, and then output the warning state.

Trip	Warning	NvoDrvAlarm		nvoDrvWarning		Contents
		State	value	state	value	
Yes	No	1	100(%)	0	0(%)	Drive Alarm
No	Yes	0	0(%)	1	100(%)	Drive Warning
Yes	Yes	1	100(%)	1	100(%)	Drive Alarm and Warning
No	No	0	0(%)	0	0(%)	No warning

5.4 Configuration Properties - nci's

If an nci has a corresponding parameter in the inverter it will be written to with the value of the nci at some occasions, apart from when nci is update from network. These occasions are when:

- Node is brought online
- Inverter is power-cycled
- Inverter is tripped and error is reset from LonWorks option card
- If there is a communication error between neuron chip and option board host processor

This means that if setting e.g. F002 (Ramp up time) from the D.O. to e.g. 3 sec will be set to 3 sec until any of these things happen. To ensure that these parameters have the values intended, set them from the option board.

5.4.1 Send Heartbeat (SNVT_time_sec nciSndHrtBt)

This input configuration network variable provides the maximum send time for the variable **nvoDrvSpeed**.

Default value = 0 (disabled).

5.4.2 Receive Heartbeat (SNVT_time_sec nciRcvHrtBt)

This configuration property is used to control the maximum time that elapses between updates of the input network variable **nviDrvSpeedStpt**. If timeout occurs, the module will trip the inverter by setting OPT1(2)_TRIP_N low.

The valid range is any value between 0.0 sec and 6,553.4 sec. Setting nciRcvHrtBt=0 disables the Receive Heartbeat mechanism. Default value is 0.

5.4.3 Minimum Send Time (SNVT_time_sec nciMinOutTm)

This input configuration network variable control the minimum period of time that expires before the **network output variables** can be resent. This is good for limiting use of bandwidth on the LonWorks channel.

The valid range is any value between 0.0 to 6,553.4 secs. Setting nciMinOutTm = 0 disables transmission limiting.

Default value = 0.

5.4.4 Location Label (SNVT_str_asc nciLocation)

This configuration property can optionally be used to provide more descriptive physical location information than can be provided by the Neuron Chip's 6-byte location string. The location relates to the object and not to the node.

Default value = empty spaces.

5.4.5 Motor Nominal Speed (SNVT_rpm nciNmlSpeed)

This configuration property can be used for setting the base frequency (Range of setting: 30 to 400Hz or equivalent frequency).

$$\text{Base frequency(Hz)} = \frac{\text{the number of rotation}(\text{min}^{-1}) \times \text{the number of motor poles}}{120}$$

Initial value is the value which is set at first base frequency: A003. If data is changed, it will be reflected to A003.

Inverter parameter P049 is used for setting the number of motor poles.

5.4.6 Nominal Frequency (SNVT_freq_hz nciNmlFreq)

This configuration property is used to provide the nominal frequency of the motor. This value is necessary to determine the minimum and maximum frequency.

Default value: 50 Hz

5.4.7 Minimum Speed (SNVT_lev_percent nciMinSpeed)

This configuration property is used to define the minimum speed of a motor. It's value is entered as a percent of nominal frequency, as defined by the Nominal frequency (nciNmlFreq) configuration value. Set this parameter when drive is stopped for best result, since this is a write protected parameter in SJ300/L300P when drive is running. If parameter is set when running it will only be saved in optionboard and not in drive.

If the running ordered frequency is lower than nciMinSpeed, ordered frequency will not be highered. NciMinSpeed will be in effect on the next frequency setting.

If nciNmlFreq = 50Hz and nciMinSpeed = 10%, the minimum frequency is 5Hz.

$-163.84 \leq \text{minimum speed} \leq \text{maximum speed} \leq 163.83$

Default value: 0%

5.4.8 Maximum Speed (SNVT_lev_percent nciMaxSpeed)

This configuration property is used to define the maximum speed of a motor. It's value is entered as a percent of nominal speed, as defined by the Nominal Speed (nciNomSpeed) configuration value. Set this parameter when drive is stopped for best result, since this is a write protected parameter in SJ300/L300P when drive is running. If parameter is set when running it will only be saved in optionboard and not in drive.

If the running ordered frequency is higher than nciMaxSpeed, ordered frequency will not be lowered. NciMaxSpeed will be in effect on the next frequency setting.

If nciNmlFreq = 50Hz and nciMaxSpeed = 125%, the maximum frequency is 65.5Hz.

The value of the maximum speed must be validated against the value of the minimum speed as follows:

$-163.84 \leq \text{minimum speed} \leq \text{maximum speed} \leq 163.83$

Default value: 100%

5.4.9 Ramp Up Time (SNVT_time_sec nciRampUpTm)

This configuration property is used to set the ramp up time.

Default value: 30 Sec

5.4.10 Ramp Down Time (SNVT_time_sec nciRampDownTm)

This configuration property can optionally be used to provide to set the ramp down This configuration property is used to set the ramp up time.

Default value: 30 Sec

5.4.11 Generic Parameter address setting, Write (SNVT_count nciWriAdr)

Chooses the parameter address (16 bits) to be written to the drive. Addresses in the 0xFFFF**** area can not be reached.

Valid range: See SJ300/L300P manual.

5.4.12 Parameter value, Write (UNVT_sj300 nciWriValue)

This nci is used as a value input for the user selected parameter nciWriAdr. The SCPT uses the following format:

```
struct{
unsigned long int lowWord;    //Used for byte and word data
unsigned long int highWord;  //Used for highWord when
                                transmitting 4 byte data
}UNVT_sj300
```

Scaling is defined in SJ300/L300P user's manual.

5.4.13 Generic Parameter address setting, Read (SNVT_count nciRdAdr)

Chooses the parameter address (16 bits) to be read from the drive. Addresses in the 0xFFFF**** area can not be reached.

Default value: 0x0070

Valid range: See SJ300/L300P manual.

5.4.14 Speed setpoint scaling default value (SNVT_lev_percent)

This parameter is used for setting its value to nviDrvSpeedScale (see chapter5.1.3) on every startup.

Default value : 0

Valid range : -163-163%

5.4.15 Power Up Out Time (SNVT_time_sec nciPwUpOutTm)

When the power is ON, the inverter and PC do not communicate each other during setting time.

This setting is used for avoiding data collision, when the power is ON.

6.1 Conditions for operating

This section will describe what conditions there are for performing some common actions and how the combination of SNVTs and SCPTs will affect the operation of the SJ300/L300P inverter.

6.1.1 General

Communication and configuration of LonWorks optionboard and SJ300/L300P must be set up and function properly. See manuals on both subjects.

Note: The SJ300/L300P parameter A001 must be set to 02 and A002 must be set to 01 if drive is to accept frequency settings or/and start/stop commands from LonWorks optionboard.

6.1.2 Start

The inverter will output a frequency if nviDrvSpeedStpt.value is greater than zero, nviDrvSpeedStpt.state isn't zero and nviDrvSpeedScale isn't zero. RQ_NORMAL or RQ_ENABLE has to be requested more recently than RQ_DISABLED. RQ_REMOTE_CTRL has to be requested more recently than RQ_MANUAL_CTRL. Node has to be online.

6.1.3 Stop

The inverter will stop and use the normal stop ramp if NviSpeedStpt.state is set to any value different from 1 or if node is brought offline. The inverter will also stop if RQ_DISABLED or RQ_MANUAL_CTRL is requested in nviObjRequest or if saving to inverter EEPROM, using using 0xFFFF in nviWriteAdr.

6.1.4 Frequency setting

Followings describe two methods for setting frequency.

(1) nviInvSetFreq = 0x7FFF(Initial value)

It is possible to set request speed by using ratio of Nominal Frequency (Refer to chapter 5.4.6) or Nominal Speed (Refer to chapter 5.4.5).

The formula below is calculation of frequency.

$$\text{Frequency setting(Hz)} = \text{nviDrvSpeedStpt.value(\%)} \times \text{nviDrvSpeedScale(\%)} \times \text{nciNmlFreq(Hz)}$$

(2) nviInvSetFreq = 0 to 400,

It is possible to set 0 to 400Hz to nviInvSetFreq directly.

Example below indicates frequency setting.

(1) nviInvSetFreq = 0x7FFF(Initial value)

NviSpeedScale	NviSpeedStpt		Frequency setting	Operation command
	value	state		
0%	0%	1	0Hz	Forward command
100%	0%	1	0Hz	Forward command
0%	100%	1	0Hz	Forward command
150%	100%	0	1.5*1.0* nciNmlFreq	Stop command
150%	100%	1	1.5*1.0* nciNmlFreq	Forward command
-75%	100%	1	-0.75*1.0* nciNmlFreq	Reverse command
150%	50%	1	1.5*0.50* nciNmlFreq	Forward command

(2) In case of nviInvSetFreq = 0 to 400

NviSetFreq	NviSpeedScale	NviSpeedStpt		Frequency setting	Operation command
		value	State		
50Hz	100%	N/A	0	nviInvSetFreq	Stop command
30Hz	100%	N/A	1	nviInvSetFreq	Forward command
60Hz	100%	N/A	1	nviInvSetFreq	Forward command
50Hz	- 100%	N/A	1	nviInvSetFreq	Reverse command
60Hz	- 100%	N/A	1	nviInvSetFreq	Reverse command
30Hz	99%	N/A	1	nviInvSetFreq	Stop command
30Hz	- 99%	N/A	1	nviInvSetFreq	Stop command

6.1.5 Write value to an address

1. Change address in nciWriAdr.
2. Change value in nciWriValue.

It is the changing of value in nciWriValue that triggers writing to an address in SJ300/L300P. This means that just changing address alone will not perform a writing sequence.

To be sure that SJ300/L300P has accepted the value written to it, read it back with setting nciRdAdr to the same address as nciWriAdr. See SJ300/L300P manual or chapter 4 for a description of available addresses. Only addresses in the 0x0800**** area can be reached.

This parameter is also used for saving values set from option board in SJ300/L300P EEPROM. See chapter 6.2 for more details.

Address wanted	NciWriAdr	NciWriValue	Result
0x08000000	0x0000	0	"1 st setting multispeed frequency 0" set to zero
Other valid address	Last two bytes of valid address	Valid value	Address written to with value
Other valid address	Last two bytes of valid address	Invalid value	Address written to with unvalid value. SJ300/L300P take cares of unvalid values.
Access inhibited area	Last two bytes of access inhibited area	Value	Address written to with value. SJ300/L300P take cares of access inhibited addresses.
Save to SJ300/L300P EEPROM	0xFFFF	Any (but writing needed to compleat sequence).	Saving values set from option board in SJ300/L300P EEPROM.

6.1.6 Read value from an address

The address set in nciRdAdr will be polled and result will be written to nvoParam as often as value on address changes or the workload on the host application and nciMinOutTime allows.

If nciRdAdr is set to 0x0070 it will not load the network with information not wanted or needed for the moment. This is recommended to minimalize network load. Addresses in the 0xFFFF**** area can not be read.

0x08000070 is an area in SJ300/L300P where access is inhibited. There are other areas in SJ300/L300P where access is inhibited but if such address is set it to nciRdAdr the option board will try to read it anyway. See appendix 1 for a list of valid addresses.

Default value: 0x08000070 (Access Inhibited in SJ300/L300P)

Address wanted	NciRdAdr	NvoParam
0x08000070	0x0070	Zero or latest polled value , not updated
Other access inhibited area	Other access inhibited area	Polled from SJ300, continuously updated
Valid address	Valid address	Polled from SJ300, continuously updated

6.1.7 Reset fault

If an error has occurred SJ300/L300P will trip. By removing the reason for tripping and setting nviObjRequest to RQ_CLEAR_ALARM it can be reset.

6.1.8 Prioritisation between nciMinOutTm and nciSendHrtBt

The nciMinOutTm will have prioritisation over nciSendHrtBt. This will mean that heartbeats will not be sent as often as specified in nciSendHrtBt if nciMinOutTm has a longer time set.

6.2 Save data in SJ300/L300P EEPROM

To store parameter values set from option board in SJ300/L300 between power-cycles they have to be saved in SJ300/L300P EEPROM.

Setting nciWriAdr to 0xFFFF (65535 decimal) and writing any value to nciWriValue will save parameters to SJ300/L300P EEPROM.

NOTE : The inverter will be stopped using the normal stop ramp before saving, so it's recommended to send the save command only when inverter already is stopped.

The values set from option board will now remain the same after a boot sequence of the inverter.

There is no need to use the saving to EEPROM function when parameters are set from the digital operator since they always are saved between power-cycles.

6.3 Optionboard Error handling

If there is no response from SJ300/L300P on the serial channel in three messages in a row communication is believed to be down.

Communication with LON is considered down if heartbeats aren't received within nciRcvHrtBt time.

This will make SJ300/L300P trip.

6.4 How to switch to operation command and frequency command

Table below indicates how to switch to operation command and frequency command by using the commands in nviObjRequest. (Refer to chapter 4.1, 5.2.1 and 5.3.1)

nviObjRequest	Command setting data	Control and frequency setting
RQ_REMOTE_CTRL	A001 = 02(Operator) A002 = 01(Terminal)	Comply with LonWorks.
	Any data for A001 and A002 except above.	Comply with A001 and A002.
RQ_MANUAL_CTRL	A001 = 02(Operator) A002 = 01(Terminal)	Command setting mentioned as left.
	Any data for A001 and A002 except above.	Comply with A001 and A002.

6.5 Internal SJ300/L300P error codes

The malfunction codes are coded as follows. See chapter 5.3.2. Those error codes will be found in the fourth byte of nvoDrvStatus.

Fault code SJ300/L300P	Fault description
0	No fault
1	Overcurrent drive.
2	Overcurrent deceleration.
3	Overcurrent acceleration.
4	Overcurrent.
5	Overload protection.
6	Braking resistor overload protection.
7	Over-voltage protection.
8	EEPROM error.
9	Under-voltage.
10	Current detector error.
11	CPU error.
12	External trip.
13	USP error.
14	Ground fault protection.
15	Incoming over-voltage protection.
16	Temporary power loss protection.
21	Abnormal temperature.
23	Gate allay error.
24	Open-phase error.
30	IGBT error.
35	Thermistor error.
36	Abnormal brake.
60-69	Option 1 error 0-9.
70-79	Option 2 error 0-9.

7.1 Trip display

When the inverter is in a tripped state, the inverter displays an error code (See table below). The trip history monitor (d081 to d086) also displays the same error code as the inverter.



7.2 Protection function list

The table below describes an error code for protecting the inverter and the motor.

Error Display in the table below, X is 6 (Error for option slot 1) or 7 (Error for option slot 2).

No.	Function	Error Display	Action
1	Lonworks communication error	EX0	This error is displayed, when disconnection occurred, while the inverter is operating with Lonworks.
2	Inverter communication error	EX9	This error is displayed, when communication timeout occurs between the inverter and the option board.

With regard to the other errors except table above, refer to Inverter instruction manual chapter 4 Explanation of function.

7.3 Countermeasure for a trip state

The table below only corresponds to additional trip codes, with regard to the other countermeasures refer to Inverter instruction manual chapter 4 Explanation of function.

Trip code	Name of trip	Cause	Conformation	Countermeasure
EX0	Lonworks Communication error	Defective connector for signal cable causes connection fail.	Check the area of Connection.	Improve the connection and then reset the power supply.
		Terminating resistor is not connected.	Check the Connection	Connect the terminating Resistor and then reset the power supply
		Wiring distance does not much with baudrate.	Check the wiring Distance	Adjust the setting to the matching Baudrate Adjust wiring distance
EX9	Inverter communication error	Option board is removed.	Check as Mentioned left	Mount the option board again and then secure it with screws.

7.4 LED display and Countermeasure

Following states are indicated by three LED's.

LED	Color	Function	Countermeasure
Power/ Status	Green	Power on and CPU running	-
	Red flashing	Flash or RAM error	-
	Red	Hardware error(if flashing red together with Serial Status LED, Wink command has been received) or during initializing inverter data.	Need to change the SJ-LW. (Back to green after initializing data)
LonWorks Service	Unlit	Neuron Chip is Configured/Normal Run mode	-
	Flash Green 1Hz	Neuron Chip is Unconfigured (No Network configuration)	Confirm system setting and adjust adequate.
	Green	Neuron Chip is Applicationless, Unrecoverable fault	Need to change the SJ-LW.
Serial channel status	Green	Serial channel status OK.	-
	Flash Red 1Hz	Serial communication error.	Confirm cable length and connection fails of connector. And then adjust adequate.
	Red	No serial communication. (If flashing red together with Power/Status LED, Wink command has been received)	Confirm cable length and connection fails of connector. And then adjust adequate.

APPENDIX1 Parameter cross-reference list

Address	Size	Setting range	magn.	Contents	L300P	operator code
H'08000000	4	0 ~ 400.00Hz	*100	1st setting Multispeed frequency 0		A020
H'08000004	4	0 ~ 400.00Hz	*100	2nd setting Multispeed frequency 0		A220
H'08000008	4	0 ~ 400.00Hz	*100	3rd setting Multispeed frequency 0	No	A320
H'0800000C	4	0 ~ 400.00Hz	*100	Multispeed frequency 1		A021
H'08000010	4	0 ~ 400.00Hz	*100	Multispeed frequency 2		A022
H'08000014	4	0 ~ 400.00Hz	*100	Multispeed frequency 3		A023
H'08000018	4	0 ~ 400.00Hz	*100	Multispeed frequency 4		A024
H'0800001C	4	0 ~ 400.00Hz	*100	Multispeed frequency 5		A025
H'08000020	4	0 ~ 400.00Hz	*100	Multispeed frequency 6		A026
H'08000024	4	0 ~ 400.00Hz	*100	Multispeed frequency 7		A027
H'08000028	4	0 ~ 400.00Hz	*100	Multispeed frequency 8		A028
H'0800002C	4	0 ~ 400.00Hz	*100	Multispeed frequency 9		A029
H'08000030	4	0 ~ 400.00Hz	*100	Multispeed frequency 10		A030
H'08000034	4	0 ~ 400.00Hz	*100	Multispeed frequency 11		A031
H'08000038	4	0 ~ 400.00Hz	*100	Multispeed frequency 12		A032
H'0800003C	4	0 ~ 400.00Hz	*100	Multispeed frequency 13		A033
H'08000040	4	0 ~ 400.00Hz	*100	Multispeed frequency 14		A034
H'08000044	4	0 ~ 400.00Hz	*100	Multispeed frequency 15		A035
H'08000048	4	0 ~ 400.00Hz	*100	1st Upper limiter frequency		A061
H'0800004C	4	0 ~ 400.00Hz	*100	2nd Upper limiter frequency		A261
H'08000050	4	0 ~ 400.00Hz	*100	1st Lower limiter frequency		A062
H'08000054	4	0 ~ 400.00Hz	*100	2nd Lower limiter frequency		A262
H'08000058	4	0.01 ~ 3600.00s	*100	1st Acceleration time 1		F002
H'0800005C	4	0.01 ~ 3600.00s	*100	2nd Acceleration time 1		F202
H'08000060	4	0.01 ~ 3600.00s	*100	3rd Acceleration time 1	No	F302
H'08000064	4	0.01 ~ 3600.00s	*100	1st Deceleration time 1		F003
H'08000068	4	0.01 ~ 3600.00s	*100	2nd Deceleration time 1		F203
H'0800006C	4	0.01 ~ 3600.00s	*100	3rd Deceleration time 1	No	F303
H'08000070	4	-	-	Access Inhibited	No	-
H'08000074	4	0.01 ~ 3600.00s	*100	1st Acceleration time 2		A092
H'08000078	4	0.01 ~ 3600.00s	*100	2nd Acceleration time 2		A292
H'0800007C	4	0.01 ~ 3600.00s	*100	3rd Acceleration time 2	No	A392
H'08000080	4	0.01 ~ 3600.00s	*100	1st Deceleration time 2		A093
H'08000084	4	0.01 ~ 3600.00s	*100	2nd Deceleration time 2		A293
H'08000088	4	0.01 ~ 3600.00s	*100	3rd Deceleration time 2	No	A393
H'0800008C	4	0 ~ 400.00Hz	*100	Start frequency of "O" terminal		A011
H'08000090	4	0 ~ 400.00Hz	*100	End frequency of "O" terminal		A012
H'08000094	4	-400.00 ~ 400.00Hz	*100	Start frequency of "O2" terminal		A111
H'08000098	4	-400.00 ~ 400.00Hz	*100	End frequency of "O2" terminal		A112
H'0800009C	4	0 ~ 400.00Hz	*100	Start frequency of "OI" terminal		A101
H'080000A0	4	0 ~ 400.00Hz	*100	End frequency of "OI" terminal		A102
H'080000A4	8	-	-	Access Inhibited	No	-
H'080000AC	4	0 ~ 400.00Hz	*100	Jumping frequency 1		A063
H'080000B0	4	0 ~ 400.00Hz	*100	Jumping frequency 2		A065
H'080000B4	4	0 ~ 400.00Hz	*100	Jumping frequency 3		A067
H'080000B8	4	0 ~ 400.00Hz	*100	Frequency of stopping acceleration		A069
H'080000BC	4	0 ~ 400.00Hz	*100	1st Frequency of 2-stage acceleration		A095
H'080000C0	4	0 ~ 400.00Hz	*100	2nd Frequency of 2-stage acceleration		A295
H'080000C4	4	0 ~ 400.00Hz	*100	1st Frequency of 2-stage deceleration		A096
H'080000C8	4	0 ~ 400.00Hz	*100	2nd Frequency of 2-stage deceleration		A296
H'080000CC	4	0 ~ 400.00Hz	*100	Frequency of frequency matching		b007
H'080000D0	4	0.01 ~ 3600.00s	*100	Deceleration time of Non-stop	No	b053

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
				operation at Instantaneous power failure		
H'080000D4	4	0 ~ 400.00Hz	*100	Arrival frequency at acceleration1		C042
H'080000D8	4	0 ~ 400.00Hz	*100	Arrival frequency at deceleration1		C043
H'080000DC	4	0 ~ 400.00Hz	*100	Arrival frequency at acceleration2	No	C045
H'080000E0	4	0 ~ 400.00Hz	*100	Arrival frequency at deceleration2	No	C046
H'080000E4	12	-	-	Access Inhibited	No	-
H'080000F0	2	30 ~ 400Hz	*1	1st Base frequency		A003
H'080000F2	2	30 ~ 400Hz	*1	2nd Base frequency		A203
H'080000F4	2	30 ~ 400Hz	*1	3rd Base frequency	No	A303
H'080000F6	2	0 ~ 9.99Hz	*100	Jogging frequency		A038
H'080000F8	2	30 ~ 400Hz	*1	1st Maximum frequency		A004
H'080000FA	2	30 ~ 400Hz	*1	2nd Maximum frequency		A204
H'080000FC	2	30 ~ 400Hz	*1	3rd Maximum frequency	No	A304
H'080000FE	2	-	-	Access Inhibited	No	-
H'08000100	4	0 ~ 65.530	*1000	1st Primary resistor R1 of motor	No	H020
H'08000104	4	0 ~ 65.530	*1000	2nd Primary resistor R1 of motor	No	H220
H'08000108	4	0 ~ 65.530	*1000	1st Secondary resistor R2 of motor	No	H021
H'0800010C	4	0 ~ 65.530	*1000	2nd Secondary resistor R2 of motor	No	H221
H'08000110	4	0 ~ 655.35mH	*100	1st Inductance L of motor	No	H022
H'08000114	4	0 ~ 655.35mH	*100	2nd Inductance L of motor	No	H222
H'08000118	4	0 ~ 655.35A	*100	1st No load current I ₀ of motor	No	H023
H'0800011C	4	0 ~ 655.35A	*100	2nd No load current I ₀ of motor	No	H223
H'08000120	4	0.001 ~ 9999.000kgm ²	*100	1st Inertia J of motor	No	H024
H'08000124	4	0.001 ~ 9999.000kgm ²	*100	2nd Inertia J of motor	No	H224
H'08000128	4	0 ~ 65.530	*1000	1st Primary resistor R1 of motor (Auto)	No	H030
H'0800012C	4	0 ~ 65.530	*1000	2nd Primary resistor R1 of motor (Auto)	No	H230
H'08000130	4	0 ~ 65.530	*1000	1st Secondary resistor R2 of motor (Auto)	No	H031
H'08000134	4	0 ~ 65.530	*1000	2nd Secondary resistor R2 of motor (Auto)	No	H231
H'08000138	4	0 ~ 655.35mH	*100	1st Inductance L of motor (Auto)	No	H032
H'0800013C	4	0 ~ 655.35mH	*100	2nd Inductance L of motor (Auto)	No	H232
H'08000140	4	0 ~ 655.35A	*100	1st No load current I ₀ of motor (Auto)	No	H033
H'08000144	4	0 ~ 655.35A	*100	2nd No load current I ₀ of motor (Auto)	No	H233
H'08000148	4	0.001 ~ 9999.000kgm ²	*100	1st Inertia J of motor (Auto)	No	H034
H'0800014C	4	0.001 ~ 9999.000kgm ²	*100	2nd Inertia J of motor (Auto)	No	H234
H'08000150	2	0 ~ 50.0%	*10	1st Break point of manual torque boost		A043
H'08000152	2	0 ~ 50.0%	*10	2nd Break point of manual torque boost		A243
H'08000154	2	0 ~ 50.0%	*10	3rd Break point of manual torque boost	No	A343
H'08000156	2	0 ~ 60.00Hz	*100	Frequency of DC braking start		A052
H'08000158	2	0 ~ 60.0s	*10	Time of DC braking working		A055
H'0800015A	2	0 ~ 60.0s	*10	Time of DC braking working for beginning of inverter running		A058
H'0800015C	2	0 ~ 10.00Hz	*100	Width of jumping frequency 1		A064
H'0800015E	2	0 ~ 10.00Hz	*100	Width of jumping frequency 2		A066
H'08000160	2	0 ~ 10.00Hz	*100	Width of jumping frequency 3		A068
H'08000162	2	0 ~ 60.0s	*10	Time of stopping to accelerate		A070
H'08000164	2	0 ~ 3600.0s	*10	Integrate (I) gain of PID control		A073
H'08000166	2	0 ~ 100.00	*100	Differential (D) gain of PID control		A074
H'08000168	2	0.01 ~ 99.99%	*100	Scale of PID control		A075
H'0800016A	2	0 ~ 100.0	*10	Response time of Energy saving function		A086
H'0800016C	2	-	-	Access Inhibited	No	-
H'0800016E	2	0.3 ~ 100.0s	*10	Waiting time of retry		b003

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
H'08000170	2	20.0 ~ 120.0	*10	Level of 1st Electronic thermal protection		b012
H'08000172	2	20.0 ~ 120.0	*10	Level of 2nd Electronic thermal protection		b212
H'08000174	2	20.0 ~ 120.0	*10	Level of 3rd Electronic thermal protection	No	b312
H'08000176	2	0 ~ 400Hz	*1	Free electronic thermal frequency 1		b015
H'08000178	2	0 ~ 1000.0A	*10	Free electronic thermal current 1		b016
H'0800017A	2	0 ~ 400Hz	*1	Free electronic thermal frequency 2		b017
H'0800017C	2	0 ~ 1000.0A	*10	Free electronic thermal current 2		b018
H'0800017E	2	0 ~ 400Hz	*1	Free electronic thermal frequency 3		b019
H'08000180	2	0 ~ 1000.0A	*10	Free electronic thermal current 3		b020
H'08000182	2	0 ~ 400Hz	*1	Free V/F control frequency 1		b100
H'08000184	2	0.0 ~ 800.0V	*10	Free V/F control voltage 1		b101
H'08000186	2	0 ~ 400Hz	*1	Free V/F control frequency 2		b102
H'08000188	2	0.0 ~ 800.0V	*10	Free V/F control voltage 2		b103
H'0800018A	2	0 ~ 400Hz	*1	Free V/F control frequency 3		b104
H'0800018C	2	0.0 ~ 800.0V	*10	Free V/F control voltage 3		b105
H'0800018E	2	0 ~ 400Hz	*1	Free V/F control frequency 4		b106
H'08000190	2	0.0 ~ 800.0V	*10	Free V/F control voltage 4		b107
H'08000192	2	0 ~ 400Hz	*1	Free V/F control frequency 5		b108
H'08000194	2	0.0 ~ 800.0V	*10	Free V/F control voltage 5		b109
H'08000196	2	0 ~ 400Hz	*1	Free V/F control frequency 6		b110
H'08000198	2	0.0 ~ 800.0V	*10	Free V/F control voltage 6		b111
H'0800019A	2	0 ~ 400Hz	*1	Free V/F control frequency 7		b112
H'0800019C	2	0.0 ~ 800.0V	*10	Free V/F control voltage 7		b113
H'0800019E	2	50.0 ~ 200.0	*10	Level of Overload restriction 1	50.0 ~ 150.0	b022
H'080001A0	2	0.10 ~ 30.00	*100	Constant value of Overload restriction 1		b023
H'080001A2	2	50.0 ~ 200.0	*10	Level of Overload restriction 2	50.0 ~ 150.0	b025
H'080001A4	2	0.10 ~ 30.00	*100	Constant value of Overload restriction 2		b026
H'080001A6	2	0 ~ 65535(*10hr)	*1/10	Display time of warning		b034
H'080001A8	2	0 ~ 1000.0V	*10	Starting voltage of Nonstop operation for Instantaneous power failure	No	b051
H'080001AA	2	0 ~ 1000.0V	*10	Starting voltage of OV-LAD stop at Nonstop operation for Instantaneous power failure	No	b052
H'080001AC	2	0 ~ 10.00Hz	*100	Frequency width of starting deceleration at Nonstop operation for Instantaneous power failure	No	b054
H'080001AE	2	0.10 ~ 9.99Hz	*100	Minimum frequency		b082
H'080001B0	2	0.1 ~ 99.9	*10	Coefficient of converting frequency		b086
H'080001B2	2	0 ~ 100.0%	*10	Usage rate of BRD		b090
H'080001B4	2	330 ~ 380/660 ~ 760	*1	On level of BRD		b096
H'080001B6	2	0 ~ 9999ohm	*1	Level of Thermister error		b099
H'080001B8	2	0.00 ~ 5.00s	*100	Waiting time for establishing external braking condition	No	b121
H'080001BA	2	0.00 ~ 5.00s	*100	Waiting time for acceleration at external braking	No	b122
H'080001BC	2	0.00 ~ 5.00s	*100	Waiting time for stop at external braking	No	b123
H'080001BE	2	0.00 ~ 5.00s	*100	Waiting time for confirmation signal at external braking	No	b124
H'080001C0	2	0 ~ 400.00Hz	*100	Release frequency of external braking	No	b125
H'080001C2	2	0 ~ 200.0(%)	*10	Release current of external braking	No	b126
H'080001C4	14	-	-	Access Inhibited	No	-
H'080001D2	2	0.001 ~ 65.535	*1000	1st Speed response gain	No	H005
H'080001D4	2	0.001 ~ 65.535	*1000	2nd Speed response gain	No	H205
H'080001D6	2	0 ~ 255	*1	1st Stability gain		H006
H'080001D8	2	0 ~ 255	*1	2nd Stability gain		H206
H'080001DA	2	0 ~ 255	*1	3rd Stability gain	No	H306
H'080001DC	2	0 ~ 1000.0(%)	*10	1st Proportional gain of speed control	No	H050

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
				(PI control)		
H'080001DE	2	0 ~ 1000.0(%)	*10	2nd Proportional gain of speed control (PI control)	No	H250
H'080001E0	2	0 ~ 1000.0(%)	*10	1st Integral gain of speed control (PI control)	No	H051
H'080001E2	2	0 ~ 1000.0(%)	*10	2nd Integral gain of speed control (PI control)	No	H251
H'080001E4	2	0.01 ~ 10.00	*100	1st Proportional gain of speed control (P control)	No	H052
H'080001E6	2	0.01 ~ 10.00	*100	2nd Proportional gain of speed control (P control)	No	H252
H'080001E8	2	0 ~ 100.0	*10	1st Limiter of 0Hz control	No	H060
H'080001EA	2	0 ~ 100.0	*10	2nd Limiter of 0Hz control	No	H260
H'080001EC	2	0 ~ 1000.0(%)	*10	PI Proportion gain Change	No	H070
H'080001EE	2	0 ~ 1000.0(%)	*10	PI Integral gain Change	No	H071
H'080001F0	2	0.01 ~ 10.00	*100	P Proportion gain Change	No	H072
H'080001F2	2	-	-	Access Inhibited	No	-
H'080001F4	1	0:周波数設定 1~19:回転数設定 0:No rpm, 1:2pole, 2:4pole, 3:6pole, 4:8pole, 5:10pole, 6:12pole, 7:14pole, 8:16pole, 9:18pole, 10:20pole,11:22pole, 12:24pole,13:26pole, 14:28pole,15:30pole, 16:32pole,17:34pole, 18:36pole,19:38pole	code	Rpm change Pole select		P049
H'080001F5	4	-	-	Access Inhibited	No	-
H'080001F9	1	00 ~ 07	code	Selection of AML function		C029
H'080001FA	1	0 ~ 255	*1	Adjustment of AML output		C087
H'080001FB	1	0.0 ~ 20.0mA	*10	Adjustment of Offset of AML output		C088
H'080001FC	1	-	-	Access Inhibited	No	-
H'080001FD	1	00,01	code	Selection of Debug mode method		C091
H'080001FE	4	-	-	Access Inhibited	No	-
H'08000202	2	0 ~ 200.0(%)	*10	Level1 of overload restriction warning		C041
H'08000204	2	0 ~ 200.0(%)	*10	Level2 of overload restriction warning	No	C111
H'08000206	2	0 ~ 100.0%	*10	Level over acceptable deviation of PID control		C044
H'08000208	2	0 ~ 100.00Hz	*100	Level f detecting Zero speed	No	C063
H'0800020A	2	-	-	Access Inhibited	No	-
H'0800020C	2	0 ~ 100%	*1	Warning Level of electronic thermal protection		C061
H'0800020E	2	0 ~ 1000ms	*1	Waiting time of communication start		C078
H'08000210	18	-	-	Access Inhibited	No	-
H'08000222	2	128 ~ 6500pls	*1	Pulse number of the encoder	No	P011
H'08000224	2	0 ~ 4095	*1	Stop position at Orientation mode	No	P014
H'08000226	2	0 ~ 120.00Hz	*100	Speed at Orientation mode	No	P015
H'08000228	2	0 ~ 10000pls	*1	Defining Area of completion of Orientation mode	No	P017
H'0800022A	2	0 ~ 9.99s	*100	Delay time of completion Orientation mode	No	P018
H'0800022C	2	0 ~ 9999	*1	The numerator of electric gear	No	P020
H'0800022E	2	0 ~ 9999	*1	The denominator of electric gear	No	P021
H'08000230	2	0 ~ 655.35	*100	Feed forward gain of position control	No	P022
H'08000232	2	0 ~ 100.00	*100	Loop gain of position control	No	P023
H'08000234	2	0 ~ 150.0	*10	Level of detecting over speed	No	P026
H'08000236	2	0 ~ 120.00Hz	*100	Value of detecting over deviation	No	P027
H'08000238	6	-	-	Access Inhibited	No	-
H'0800023E	1	00,01	code	Selection of running direction for DIG-OPE		F004
H'0800023F	1	00 ~ 05	code	Selection of frequency command destination		A001
H'08000240	1	01 ~ 05	code	Selection of running command destination		A002
H'08000241	1	00,01	code	Selection of AT function		A005
H'08000242	1	00 ~ 02	code	Selection of O2 terminal function		A006
H'08000243	1	0 ~ 100%	*1	Starting rate of O terminal		A013

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
H'08000244	1	0 ~ 100%	*1	End rate of O terminal		A014
H'08000245	1	00,01	code	Selection of starting function of O terminal		A015
H'08000246	1	1 ~ 30times	*1	Sampling number of fetching data from "O"na		A016
H'08000247	1	-100 ~ 100%	*1	Starting rate of O2 terminal		A113
H'08000248	1	-100 ~ 100%	*1	End rate of O2 terminal		A114
H'08000249	1	0 ~ 100%	*1	Starting rate of OI terminal		A103
H'0800024A	1	0 ~ 100%	*1	End rate of OI terminal		A104
H'0800024B	1	00,01	code	Selection of starting function of OI terminal		A105
H'0800024C	3	-	-	Access Inhibited	No	-
H'0800024F	1	00,01	code	Selection of Multispeed method		A019
H'08000250	1	00 ~ 05	code	Selection of Jogging method		A039
H'08000251	1	00,01	code	Selection of 1st Torque boost Method		A041
H'08000252	1	00,01	code	Selection of 2nd Torque boost Method		A241
H'08000253	1	0 ~ 20.0%	*10	Value of 1st Manual torque boost		A042
H'08000254	1	0 ~ 20.0%	*10	Value of 2nd Manual torque boost		A242
H'08000255	1	0 ~ 20.0%	*10	Value of 3rd Manual torque boost	No	A342
H'08000256	1	00 ~ 05	code	Selection of 1st Control method	00 ~ 02	A044
H'08000257	1	00 ~ 04	code	Selection of 2nd Control method	00 ~ 02	A244
H'08000258	1	00,01	code	Selection of 3rd Control method	No	A344
H'08000259	1	20 ~ 100%	*1	Gain of output voltage		A045
H'0800025A	1	00,01	code	Selection of DC braking method		A051
H'0800025B	1	0 ~ 5.0s	*10	Delay time of DC braking start		A053
H'0800025C	1	0 ~ 100	*1	Power of DC braking(end of running)		A054
H'0800025D	1	00,01	code	Selection of edge/level action of DC braking trigger		A056
H'0800025E	1	0 ~ 100	*1	Power of DC braking(start of running)		A057
H'0800025F	1	0.5 ~ 15.0kHz	*10	Carrier frequency of DC braking	0.5 ~ 12.0kHz	A059
H'08000260	1	00,01	code	Selection of PID control presence		A071
H'08000261	1	0.2 ~ 5.0	*10	Proportional(P) gain of PID control		A072
H'08000262	1	00,01	code	Selection of feedback destination for PID control		A076
H'08000263	1	00 ~ 02	code	Selection of AVR function		A081
H'08000264	1	200 ~ 240/ 380 ~ 480	code	Selection of Motor voltage		A082
H'08000265	1	00 ~ 02	code	Selection of operation mode	00,01	A085
H'08000266	1	00,01	code	Selection of 1st 2-stage accel/decel Method		A094
H'08000267	1	00,01	code	Selection of 2nd 2-stage accel/decel Method		A294
H'08000268	1	00 ~ 03	code	Selection of acceleration pattern		A097
H'08000269	1	00 ~ 03	code	Selection of deceleration pattern		A098
H'0800026A	1	01 ~ 10	code	Curve constant of acceleration		A131
H'0800026B	1	01 ~ 10	code	Curve constant of deceleration		A132
H'0800026C	4	-	-	Access Inhibited	No	-
H'08000270	1	00 ~ 03	code	Selection of retry method		b001
H'08000271	1	0.3 ~ 1.0s	*10	Acceptable time for Instantaneous power failure		b002
H'08000272	1	00 ~ 02	code	Selection of method(action) at instantaneous power and under voltage		b004
H'08000273	1	00,01	code	Retry number of instantaneous power and under voltage		b005
H'08000274	1	00,01	code	Selection of fail phase function		b006
H'08000275	1	00 ~ 02	code	Selection of characteristic of 1st electronic thermal protection		b013
H'08000276	1	00 ~ 02	code	Selection of characteristic of 2nd electronic thermal protection		b213
H'08000277	1	00 ~ 02	code	Selection of characteristic of 3rd electronic thermal protection	No	b313
H'08000278	1	-	-	Access Inhibited	No	-
H'08000279	1	00 ~ 03	code	Selection of method of overload restriction1		b021

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
H'0800027A	1	00 ~ 03	code	Selection of method of overload restriction2		b024
H'0800027B	1	00 ~ 03,10	code	Selection of method of Software lock		b031
H'0800027C	1	00 ~ 02	code	Selection of Display		b037
H'0800027D	3	-	-	Access Inhibited	No	-
H'08000280	1	00 ~ 04	code	Selection of method of Torque limiter	No	b040
H'08000281	1	0 ~ 200%	*1	Level of torque limiter in forward and drive (1st quadrant)	No	b041
H'08000282	1	0 ~ 200%	*1	Level of torque limiter in reverse and regenerative (2nd quadrant)	No	b042
H'08000283	1	0 ~ 200%	*1	Level of torque limiter in reverse and drive (3rd quadrant)	No	b043
H'08000284	1	0 ~ 200%	*1	Level of torque limiter in forward and regenerative (4th quadrant)	No	b044
H'08000285	1	00,01	code	Selection of LAD stop by torque	No	b045
H'08000286	1	00 ~ 02	code	Selection of running direction limitation		b035
H'08000287	1	00,01	code	Selection of preventive of reverse running	No	b046
H'08000288	1	00 ~ 06	*1	Selection of method of reducing voltage start		b036
H'08000289	1	-	-	Access Inhibited	No	-
H'0800028A	1	00,01	code	Selection of Non stop operation at instantaneous power failure	No	b050
H'0800028B	1	0 ~ 255	*1	Adjustment of AM(analog monitor)		b080
H'0800028C	1	0 ~ 255	*1	Adjustment of FM(digital monitor)		b081
H'0800028D	1	0.5 ~ 15.0kHz	*10	Carrier frequency(PWM frequency)	0.5 ~ 12.0kHz	b083
H'0800028E	1	00 ~ 02	code	Selection of Initialization		b084
H'0800028F	1	00 ~ 02	code	Selection of initialized data		b085
H'08000290	1	00,01	code	Selection of "STOP" key function		b087
H'08000291	1	00,01	code	Selection free run function		b088
H'08000292	1	00,01	code	Selection of action at stop		b091
H'08000293	1	-	-	Access Inhibited	No	-
H'08000294	1	00,01	code	Selection of action of cooling fan		b092
H'08000295	1	00 ~ 02	code	Selection of BRD function		b095
H'08000296	1	00 ~ 02	code	Selection of Thermister function		b098
H'08000297	1	00,01	code	Selection of external braking function	No	b120
H'08000298	1	-	-	Access Inhibited	No	-
H'08000299	1	01 ~ 48,255	code	Selection of function in Intelligent input 1	01 ~ 39, 255	C001
H'0800029A	1	01 ~ 48,255	code	Selection of function in Intelligent input 2	01 ~ 39, 255	C002
H'0800029B	1	01 ~ 48,255	code	Selection of function in Intelligent input 3	01 ~ 39, 255	C003
H'0800029C	1	01 ~ 48,255	code	Selection of function in Intelligent input 4	01 ~ 39, 255	C004
H'0800029D	1	01 ~ 48,255	code	Selection of function in Intelligent input 5	01 ~ 39, 255	C005
H'0800029E	1	01 ~ 48,255	code	Selection of function in Intelligent input 6	No	C006
H'0800029F	1	01 ~ 48,255	code	Selection of function in Intelligent input 7	No	C007
H'080002A0	1	01 ~ 48,255	code	Selection of function in Intelligent input 8	No	C008
H'080002A1	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent input 1		C011
H'080002A2	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent input 2		C012
H'080002A3	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent input 3		C013
H'080002A4	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent input 4		C014
H'080002A5	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent input 5		C015
H'080002A6	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent	No	C016

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
				input 6		
H'080002A7	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent input 7	No	C017
H'080002A8	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent input 8	No	C018
H'080002A9	1	00,01	code	Selection of a(NO) or b(NC) contact in FW input		C019
H'080002AA	1	00,01	code	Selection of UP/DOWN function		C101
H'080002AB	1	00,02	code	Selection of RESET function		C102
H'080002AC	1	00,01	code	Selection of frequency matching function at RESET		C103
H'080002AD	1	00 ~ 26	code	Selection of function in Intelligent output 11	00 ~ 13	C021
H'080002AE	1	00 ~ 26	code	Selection of function in Intelligent output 12	00 ~ 13	C022
H'080002AF	1	00 ~ 26	code	Selection of function in Intelligent output 13	No	C023
H'080002B0	1	00 ~ 26	code	Selection of function in Intelligent output 14	No	C024
H'080002B1	1	00 ~ 26	code	Selection of function in Intelligent output 15	No	C025
H'080002B2	1	00 ~ 26	code	Selection of function in Alarm relay output	00 ~ 13	C026
H'080002B3	1	00 ~ 07	code	Selection of FM function		C027
H'080002B4	1	00 ~ 07	code	Selection of AM function		C028
H'080002B5	1	0 ~ 10.0V	*10	Adjustment of offset of AM		C086
H'080002B6	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent output 11		C031
H'080002B7	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent output 12		C032
H'080002B8	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent output 13	No	C033
H'080002B9	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent output 14	No	C034
H'080002BA	1	00,01	code	Selection of a(NO) or b(NC) contact in Intelligent output 15	No	C035
H'080002BB	1	00,01	code	Selection of a(NO) or b(NC) contact in Alarm relay output		C036
H'080002BC	1	00,01	code	Selection of output mode of overload warning signal		C040
H'080002BD	1	0 ~ 200%	*1	Level of over torque in forward and drive (1st quadrant)	No	C055
H'080002BE	1	0 ~ 200%	*1	Level of over torque in reverse and regenerative (2nd quadrant)	No	C056
H'080002BF	1	0 ~ 200%	*1	Level of over torque in reverse and drive (3rd quadrant)	No	C057
H'080002C0	1	0 ~ 200%	*1	Level of over torque in forward and regenerative (4th quadrant)	No	C058
H'080002C1	1	-	-	Access Inhibited	No	-
H'080002C2	1	00 ~ 02	code	Selection of Alarm code	No	C062
H'080002C3	1	02 ~ 05	code	Selection of Data command		C070
H'080002C4	1	02 ~ 06	code	Selection of communication speed for RS485		C071
H'080002C5	1	1 ~ 32	*1	Selection of Inverter address for RS 485		C072
H'080002C6	1	7,8bits	*1	Selection of bit length of data for RS485		C073
H'080002C7	1	00 ~ 02	code	Selection of parity (odd or even) for RS485		C074
H'080002C8	1	1,2bits	*1	Selection of stop bit for RS485		C075
H'080002C9	2	-	-	Access Inhibited	No	-
H'080002CB	1	00 ~ 02	code	Selection of Auto-tuning presence	No	H001
H'080002CC	1	00 ~ 02	code	Selection of Motor constant for 1st motor	No	H002
H'080002CD	1	00 ~ 02	code	Selection of Motor constant for 2nd motor	No	H202
H'080002CE	1	00 ~ 21	code	Selection of Motor capacity for 1st motor		H003
H'080002CF	1	00 ~ 21	code	Selection of Motor capacity for 2nd motor		H203
H'080002D0	1	00 ~ 03	code	Selection of Motor poles for 1st motor		H004
H'080002D1	1	00 ~ 03	code	Selection of Motor poles for 2nd motor		H204
H'080002D2	1	00,01	code	Selection of Control Mode	No	P012

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
H'080002D3	1	00 ~ 03	code	Selection of method of Pulse lines input	No	P013
H'080002D4	1	00,01	code	Set of Orientation direction	No	P016
H'080002D5	1	00,01	code	Selection of location of electric gear	No	P019
H'080002D6	1	00,01	code	Selection of action at option1 error		P001
H'080002D7	1	00,01	code	Selection of action at option2 error		P002
H'080002D8	1	00,01	code	Selection of feedback option	No	P010
H'080002D9	1	-	-	Access Inhibited	No	-
H'080002DA	1	00,01	code	Selection of Available of compensation of secondary resistor	No	P025
H'080002DB	1	00 ~ 02	code	Acc/Dec input mode selection		P031
H'080002DC	1	00 ~ 02	code	Stop position setting input mode selection	No	P032
H'080002DD	103	-	-	Access Inhibited	No	-
H'08000344	4	0 ~ 4294836225s	*1	Set of Accumulated time during running		d016
H'08000348	4	0 ~ 4294836225s	*1	Set of Accumulated time during power ON		d017
H'0800034C	2	-	-	Access Inhibited	No	-
H'0800034E	2	0 ~ 1000.0	*10	Adjusting value of Thermister		C085
H'08000350	2	0 ~ 65535	*1	Adjustment of "O" terminalte		C081
H'08000352	2	0 ~ 65535	*1	Adjustment of "O2" terminaler		C083
H'08000354	2	0 ~ 65535	*1	Adjustment of "OI" terminaler		C082
H'08000356	2	-	-	Access Inhibited	No	-
H'08000358	2	0 ~ 65535	*1	Adjustment of Zero of "O" terminaler		C121
H'0800035A	2	0 ~ 65535	*1	Adjustment of Zero of "O2" terminalr		C123
H'0800035C	2	0 ~ 65535	*1	Adjustment of Zero of "OI" terminalr		C122
H'0800035E	2	-	-	Access Inhibited	No	-
H'08000360	2	0 ~ 65535	*1	Accumulated number of Trip(error)		d080
H'08000362	1	-	-	Access Inhibited	No	-
H'08000363	1	00 ~ 05	*1	Pointer of history of last trip(error)		
Note 1	4	00 ~ H'FF	*1	Factor and Status of Trip1		
Note 1	4	0 ~ 400.00Hz	*100	Frequency of Trip1		
Note 1	2	0 ~ 1000.0A	*10	Output current of Trip1		
Note 1	2	0 ~ 1000.0V	*10	PN voltage (DC voltage) of Trip1		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during running of Trip1		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during power ON of Trip1		
Note 1	4	00 ~ H'FF	*1	Factor and Status of Trip2		
Note 1	4	0 ~ 400.00Hz	*100	Frequency of Trip2		
Note 1	2	0 ~ 1000.0A	*10	Output current of Trip2		
Note 1	2	0 ~ 1000.0V	*10	PN voltage (DC voltage) of Trip2		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during running of Trip2		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during power ON of Trip2		
Note 1	4	00 ~ H'FF	*1	Factor and Status of Trip3		
Note 1	4	0 ~ 400.00Hz	*100	Frequency of Trip3		
Note 1	2	0 ~ 1000.0A	*10	Output current of Trip3		
Note 1	2	0 ~ 1000.0V	*10	PN voltage (DC voltage) of Trip3		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during running of Trip3		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during power ON of Trip3		
Note 1	4	00 ~ H'FF	*1	Factor and Status of Trip4		
Note 1	4	0 ~ 400.00Hz	*100	Frequency of Trip4		
Note 1	2	0 ~ 1000.0A	*10	Output current of Trip4		
Note 1	2	0 ~ 1000.0V	*10	PN voltage (DC voltage) of Trip4		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during running of Trip4		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during power ON of Trip4		
Note 1	4	00 ~ H'FF	*1	Factor and Status of Trip5		
Note 1	4	0 ~ 400.00Hz	*100	Frequency of Trip5		
Note 1	2	0 ~ 1000.0A	*10	Output current of Trip5		
Note 1	2	0 ~ 1000.0V	*10	PN voltage (DC voltage) of Trip5		

APPENDIX PARAMETER OBJECT LISTS

Address	Size	Setting range	magn.	Contents	L300P	operator code
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during running of Trip5		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during power ON of Trip5		
Note 1	4	00 ~ H'FF	*1	Factor and Status of Trip6		
Note 1	4	0 ~ 400.00Hz	*100	Frequency of Trip6		
Note 1	2	0 ~ 1000.0A	*10	Output current of Trip6		
Note 1	2	0 ~ 1000.0V	*10	PN voltage (DC voltage) of Trip6		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during running of Trip6		
Note 1	4	0 ~ 4294836225s	*1	Accumulated time during power ON of Trip6		
H'080003DC	21	-	-	Access Inhibited	No	-
H'080003F1	1	00 ~ 02	code	Selection of Area code of inverter		C195
H'080003F2	1	01 ~ 15	code	Selection of Capacity code of inverter		C196
H'080003F3	1	00,01	code	Selection of Voltage of inverter		C197
H'080003F4	1	00,01	code	Selection of Changeover of inverter mode		C198
H'080003F5	11	-	-	Access Inhibited	No	-
H'08000400	4	0 ~ 400.000Hz	*1000	Output frequency		d001
H'08000404	4	0 ~ 400.000Hz	*1000	Feedback data of PID control		d004
H'08000408	4	0 ~ 39960.000	*1000	Value of conversion of frequency		d007
H'0800040C	4	0 ~ 400.000Hz	*1000	Output frequency after Vector control		d101
H'08000410	4	0 ~ 4294836225s	*1	Accumulated time during running		(d016)
H'08000414	4	0 ~ 4294836225s	*1	Accumulated time during Power ON		(d017)
H'08000418	4	0 ~ 400.000Hz	*1000	Setting frequency from terminal		-
H'0800041C	4	0 ~ 400.000Hz	*1000	Setting frequency from attached potentiometer		-
H'08000420	4	0 ~ 400.000Hz	*1000	Setting frequency from digital operator		-
H'08000424	8	-	-	Access Inhibited	No	-
H'0800042C	2	0 ~ 1000.0A	*10	Output current		d002
H'0800042E	2	0 ~ H'FFFF	bit	Status of Input terminal		d005
H'08000430	2	-300 ~ +300%	*1	Output Torque	No	d012
H'08000432	2	0 ~ 1000.0kW	*10	Input electric power		d014
H'08000434	8	-	-	Access Inhibited	No	-
H'0800043C	2	0 ~ 1000.0V	*10	DC voltage		d102
H'0800043E	2	0 ~ 100.0s	*10	On time of BRD running		d103
H'08000440	2	0 ~ 100.0%	*10	Used rate of electronics thermal protection		d104
H'08000442	4	-	-	Access Inhibited	No	-
H'08000446	2	0 ~ H'FFFF	bit	Status of output terminal		d006
H'08000448	2	0 ~ 1000.0V	*10	Output voltage		d013
H'0800044A	1	00 ~ 02	code	Direction of present running		d003

Note1: show APPENDIX 2 Trip monitor data address

APPENDIX PARAMETER OBJECT LISTS

APPENDIX 2 Trip monitor data address

Trip monitor data address is decided Trip monitor No. and Trip pointer(H'08000363).

Following table is Trip monitor data address.

ex. : Choiceing Last occurred trip cause(d081) .

if trip pointer equal 1,data address equal H'08000378.

if trip pointer equal 4,data address equal H'080003B4.

Trip monitor data address

code	function	trip pointer (H'08000363)					
		0	1	2	3	4	5
d081	Cause	H'08000364	H'08000378	H'0800038C	H'080003A0	H'080003B4	H'080003C8
d081	frequency	H'08000368	H'0800037C	H'08000390	H'080003A4	H'080003B8	H'080003CC
d081	current	H'0800036C	H'08000380	H'08000394	H'080003A8	H'080003BC	H'080003D0
d081	voltage	H'0800036E	H'08000382	H'08000396	H'080003AA	H'080003BE	H'080003D2
d081	RUN time	H'08000370	H'08000384	H'08000398	H'080003AC	H'080003C0	H'080003D4
d081	P-ON time	H'08000374	H'08000388	H'0800039C	H'080003B0	H'080003C4	H'080003D8
d082	Cause	H'080003C8	H'08000364	H'08000378	H'0800038C	H'080003A0	H'080003B4
d082	frequency	H'080003CC	H'08000368	H'0800037C	H'08000390	H'080003A4	H'080003B8
d082	current	H'080003D0	H'0800036C	H'08000380	H'08000394	H'080003A8	H'080003BC
d082	voltage	H'080003D2	H'0800036E	H'08000382	H'08000396	H'080003AA	H'080003BE
d082	RUN time	H'080003D4	H'08000370	H'08000384	H'08000398	H'080003AC	H'080003C0
d082	P-ON time	H'080003D8	H'08000374	H'08000388	H'0800039C	H'080003B0	H'080003C4
d083	Cause	H'080003B4	H'080003C8	H'08000364	H'08000378	H'0800038C	H'080003A0
d083	frequency	H'080003B8	H'080003CC	H'08000368	H'0800037C	H'08000390	H'080003A4
d083	current	H'080003BC	H'080003D0	H'0800036C	H'08000380	H'08000394	H'080003A8
d083	voltage	H'080003BE	H'080003D2	H'0800036E	H'08000382	H'08000396	H'080003AA
d083	RUN time	H'080003C0	H'080003D4	H'08000370	H'08000384	H'08000398	H'080003AC
d083	P-ON time	H'080003C4	H'080003D8	H'08000374	H'08000388	H'0800039C	H'080003B0
d084	Cause	H'080003A0	H'080003B4	H'080003C8	H'08000364	H'08000378	H'0800038C
d084	frequency	H'080003A4	H'080003B8	H'080003CC	H'08000368	H'0800037C	H'08000390
d084	current	H'080003A8	H'080003BC	H'080003D0	H'0800036C	H'08000380	H'08000394
d084	voltage	H'080003AA	H'080003BE	H'080003D2	H'0800036E	H'08000382	H'08000396
d084	RUN time	H'080003AC	H'080003C0	H'080003D4	H'08000370	H'08000384	H'08000398
d084	P-ON time	H'080003B0	H'080003C4	H'080003D8	H'08000374	H'08000388	H'0800039C
d085	Cause	H'0800038C	H'080003A0	H'080003B4	H'080003C8	H'08000364	H'08000378
d085	frequency	H'08000390	H'080003A4	H'080003B8	H'080003CC	H'08000368	H'0800037C
d085	current	H'08000394	H'080003A8	H'080003BC	H'080003D0	H'0800036C	H'08000380
d085	voltage	H'08000396	H'080003AA	H'080003BE	H'080003D2	H'0800036E	H'08000382
d085	RUN time	H'08000398	H'080003AC	H'080003C0	H'080003D4	H'08000370	H'08000384
d085	P-ON time	H'0800039C	H'080003B0	H'080003C4	H'080003D8	H'08000374	H'08000388
d086	Cause	H'08000378	H'0800038C	H'080003A0	H'080003B4	H'080003C8	H'08000364
d086	frequency	H'0800037C	H'08000390	H'080003A4	H'080003B8	H'080003CC	H'08000368
d086	current	H'08000380	H'08000394	H'080003A8	H'080003BC	H'080003D0	H'0800036C
d086	voltage	H'08000382	H'08000396	H'080003AA	H'080003BE	H'080003D2	H'0800036E
d086	RUN time	H'08000384	H'08000398	H'080003AC	H'080003C0	H'080003D4	H'08000370
d086	P-ON time	H'08000388	H'0800039C	H'080003B0	H'080003C4	H'080003D8	H'08000374