Version2.02 2001.02.06

AIR CONDITIONER INTERFACE

MODEL: LMAP02-E
PAC-YV02LMAP

Network Variables Specification

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AppendixA： Communication timing when power supply of LM-AP is turned on.

ProgramID: 9-00071-0076-0002-02
XIF: lm02_02.xif
stencil for LonMaker: lmap0202.vss

	Version2.02								
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*3.Please contact the dealer about obtaining XIF and stencil.

MITSUBISHI ELECTRIC
MITSUBISHI ELECTRIC CORPORATION
AIR-CONDITIONING & REFRIGERATION SYSTEMS WORKS

1.Specification

1-1.Object Model

LMAP can be connected with the following models made by MITSUBISHI ELECTRIC CORPORATION.

〈Model name〉

1. Multiple split type air conditioners CITY MULTI
2. Split-type air conditioners Mr.SLIM
   NOTE:Mr.SLIM is necessary for A-M Converter(PAC-SF48MA-E)
3. Heat recovery ventilators LOSSNAY
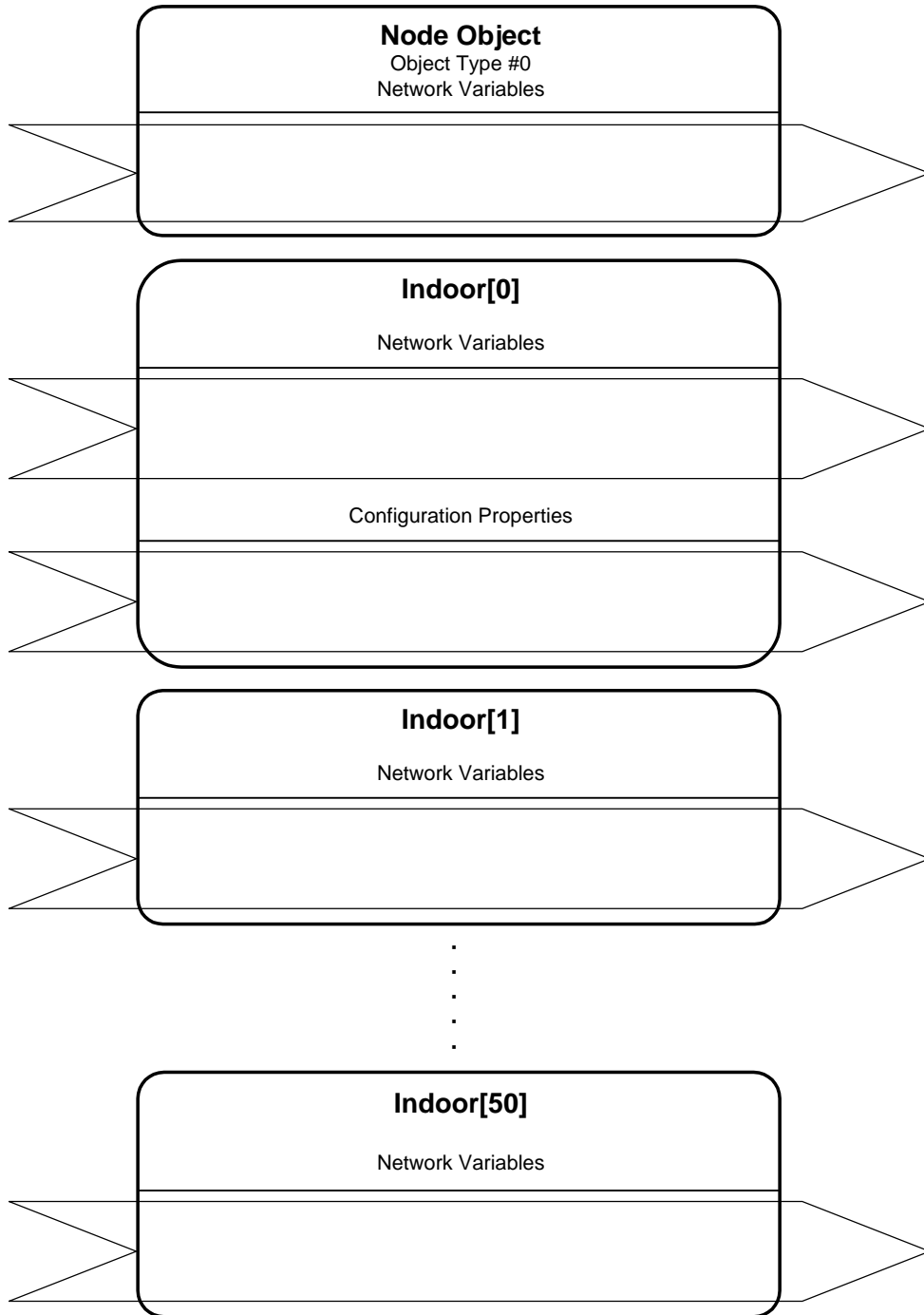   NOTE:LOSSNAY is necessary for LOSSNAY Adapter(PZ-53ADF-E/PZ-52SF-E)

1-2.Explanation of Function Setting

The function set switch is necessary for this product because of connected model and the control function from LONWORKS.
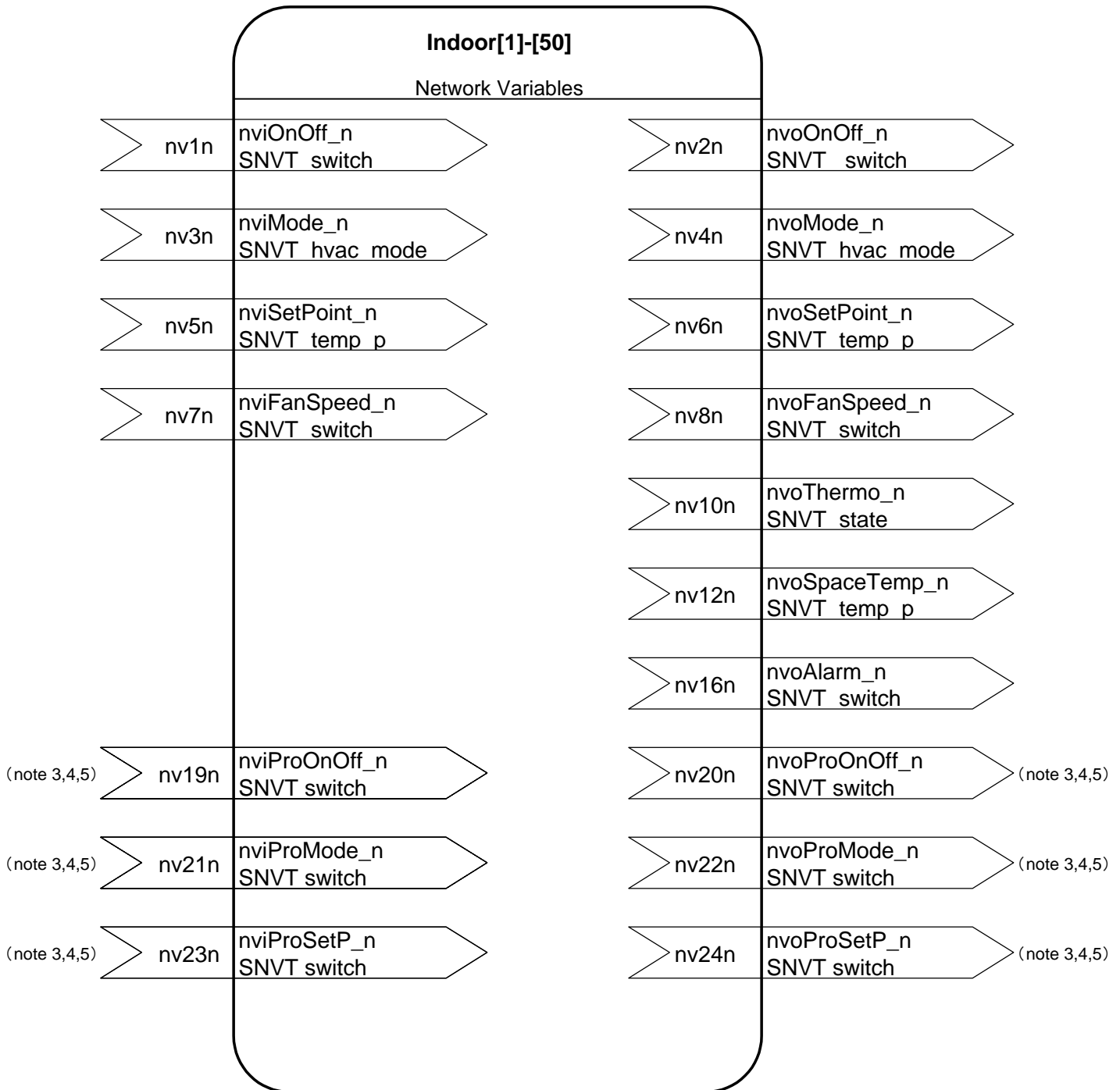
SW NO.	switch name		Function	Note	Factory setting	Set timing
SW1-1	Function switch of local prohibit	ON	local prohibit effective	Operation local prohibit nv input from LONWORKS becomes Effective when switch ON.	OFF	Before turning on the power supply
		OFF	local prohibit invalidity	Operation local prohibit nv input from LONWORKS becomes invalid when switch OFF.		
SW1-2	Used together with MELANS switch	ON	used together with MELNAS		OFF	Before turning on the power supply
		OFF	not used together with MELNAS			
SW1-3	Indoor temperature state interval switch	ON	Transmission interval （1minutes or more）	*The number of indoor unit should be connected 30 or less	OFF	Before turning on the power supply
		OFF	Transmission interval （10 minutes or more）			
SW1-5	Function switch of LOSSNAY	ON	LOSSNAY is operation from LONWORKS.	Please turn on the switch when LOSSNAY is operation from LONWORKS.	OFF	Before turning on the power supply
		OFF	LOSSNAY interlocks with the indoor unit	Please turn off the switch when LOSSNAY interlocks with the indoor units.		
SW1-6	Function switch of Mr.SLIM	ON	Mr.SLIM is operation from LONWORKS.	Please turn on the switch when Mr.SLIM is operation from LONWORKS	OFF	Before turning on the power supply
	*Function effective at SW1-2 OFF	OFF	Mr.SLIM is not operation from LONWORKS.			
SW1-9	Indoor units test run switch	ON	ON(test run) is transmitted to the indoor units		OFF	Always
		OFF	OFF is transmitted to the indoor units			
SW3-2	Initialization switch of the air conditioners units	ON	Connected cancellation command is transmitted to the indoor units		OFF	Always
		OFF	None			

2.Object Details
2-1.Overview

Node Object
Object Type #0
Network Variables

Indoor[0]

Network Variables

Configuration Properties

Indoor[1]

Network Variables

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.
.
.

Indoor[50]

Network Variables

Indoor[0]: The indoor all unit common item
Indoor[1]～Indoor[50]: indoor unit(01～50)

2-2.indoor unit

Indoor[1]-[50]

Network Variables

nv1n	nviOnOff_n SNVT_switch	nv2n	nvoOnOff_n SNVT_switch
nv3n	nviMode_n SNVT_hvac_mode	nv4n	nvoMode_n SNVT_hvac_mode
nv5n	nviSetPoint_n SNVT_temp_p	nv6n	nvoSetPoint_n SNVT_temp_p
nv7n	nviFanSpeed_n SNVT_switch	nv8n	nvoFanSpeed_n SNVT_switch
		nv10n	nvoThermo_n SNVT_state
		nv12n	nvoSpaceTemp_n SNVT_temp_p
		nv16n	nvoAlarm_n SNVT_switch

（note 3,4,5） nv19n nviProOnOff_n SNVT switch nv20n nvoProOnOff_n SNVT switch （note 3,4,5）

（note 3,4,5） nv21n nviProMode_n SNVT switch nv22n nvoProMode_n SNVT switch （note 3,4,5）

（note 3,4,5） nv23n nviProSetP_n SNVT switch nv24n nvoProSetP_n SNVT switch （note 3,4,5）
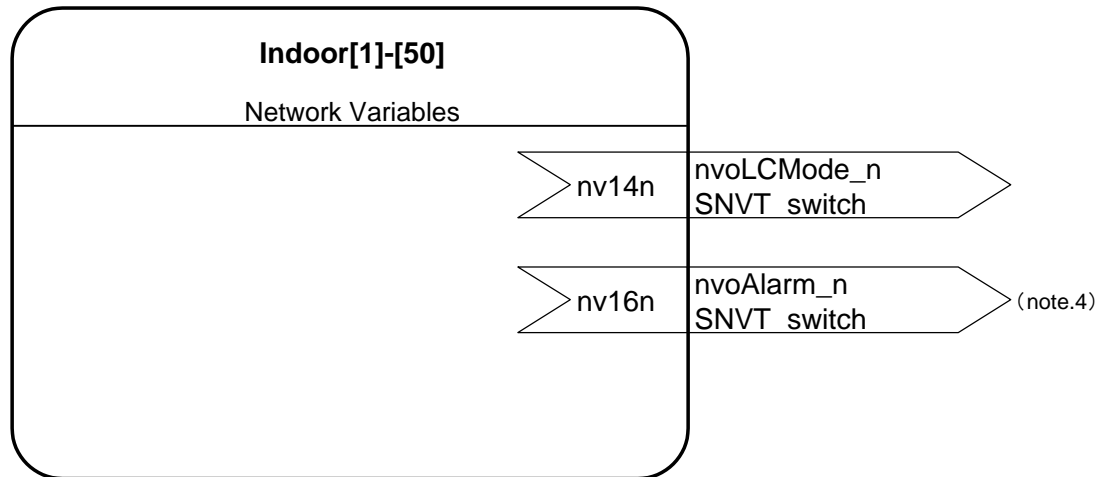
NOTES:
1. stencil for LonMaker:Indoor[1]-[50]
2. "n" of the network variable shows M-NET address of indoor units.
3. There is a case which cannot be used with the system configuration of the air conditioners units.
4. It is possible to use when the "MA" remote controller.
5. For the use of this function, turn ON the switch(SW1-1) on LM-AP.(Factory setting "OFF")

2-3.Mr.SLIM

Indoor[1]-[50]

Network Variables

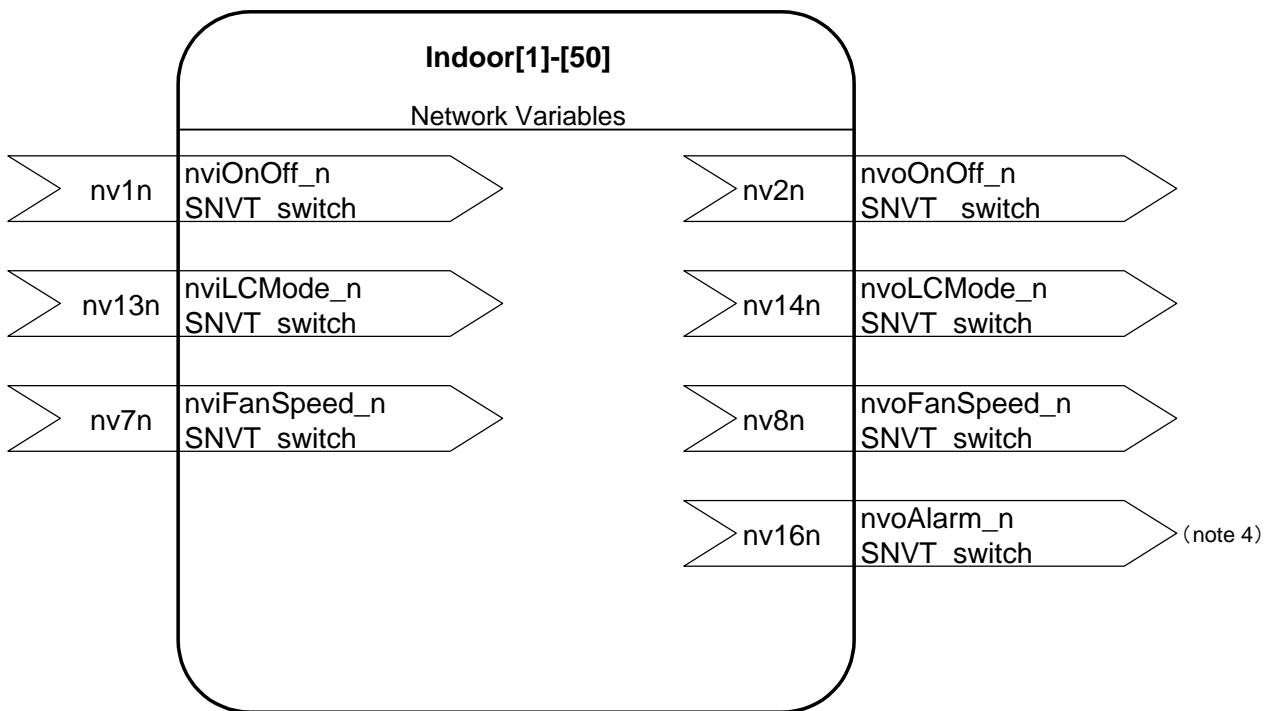| nv1n	nviOnOff_n SNVT switch	nv2n	nvoOnOff_n SNVT switch
nv3n	nviMode_n SNVT hvac mode	nv4n	nvoMode_n SNVT hvac mode
nv5n	nviSetPoint_n SNVT temp p	nv6n	nvoSetPoint_n SNVT temp p
nv7n	nviFanSpeed_n SNVT switch	nv8n	nvoFanSpeed_n SNVT switch
		nv10n	nvoThermo_n SNVT state
		nv12n	nvoSpaceTemp_n SNVT temp p
		nv16n	nvoAlarm_n SNVT switch
(note 4,5) nv19n	nviProOnOff_n SNVT switch	nv20n	nvoProOnOff_n SNVT switch (note 4,5)
(note 4,5) nv21n	nviProMode_n SNVT switch	nv22n	nvoProMode_n SNVT switch (note 4,5)
(note 4,5) nv23n	nviProSetP_n SNVT switch	nv24n	nvoProSetP_n SNVT switch (note 4,5)

NOTES:
1. stencil for LonMaker:MrSLIM[1]-[50]
2. "n" of the network variable shows M-NET address of Mr.SLIM.
3. Please turn ON the switch(SW1-6) when Mr.SLIM is operation from LONWORKS.(Factory setting "OFF")
4. There is a case which cannot be used with the system configuration of the air conditioners units.
5. For the use of this function, turn ON the switch(SW1-1) on LM-AP.(Factory setting "OFF")

2-4.LOSSNAY

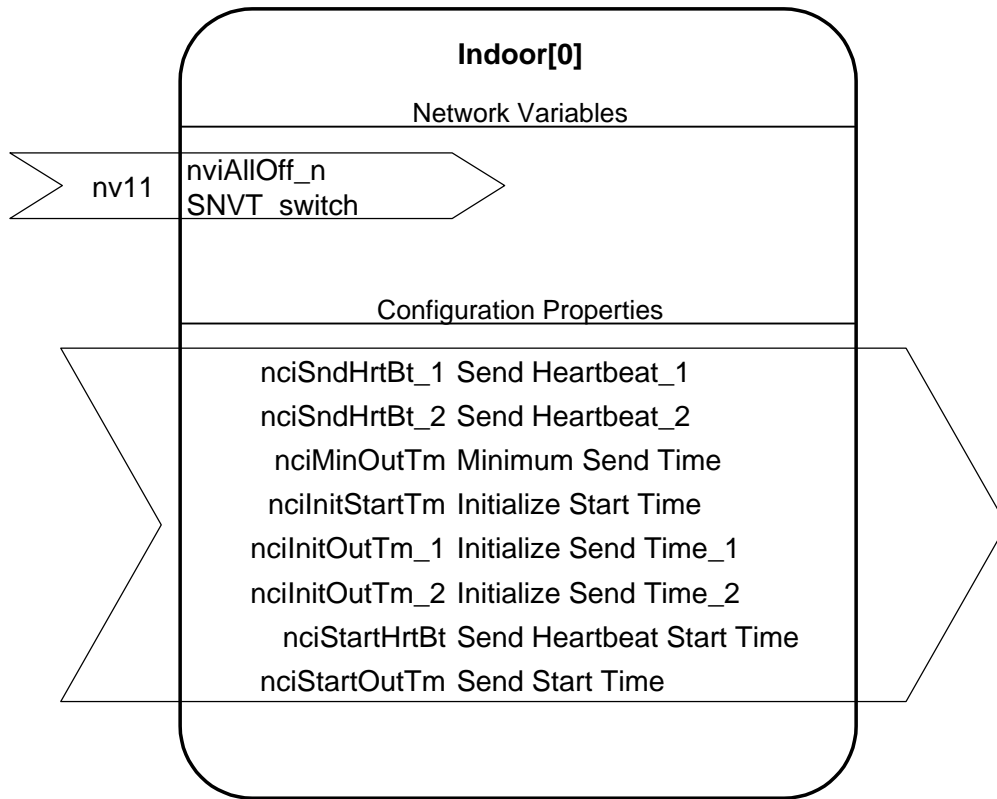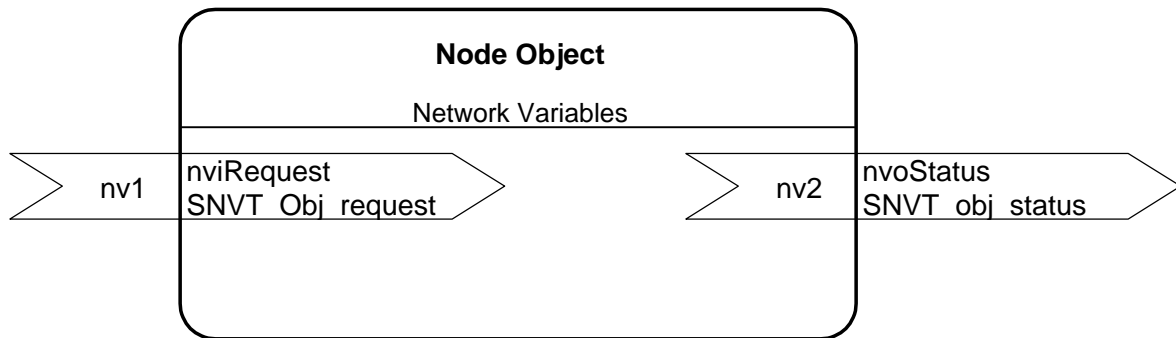(1)LOSSNAY interlocks with the indoor unit.(note 1,3)

Indoor[1]-[50]

Network Variables

nv14n nvoLCMode_n SNVT switch

nv16n nvoAlarm_n SNVT switch （note.4）

(2)LOSSNAY is operation from LONWORKS.(note 5,6)

Indoor[1]-[50]

Network Variables

nv1n nviOnOff_n SNVT switch | nv2n nvoOnOff_n SNVT switch

nv13n nviLCMode_n SNVT switch | nv14n nvoLCMode_n SNVT switch

nv7n nviFanSpeed_n SNVT switch | nv8n nvoFanSpeed_n SNVT switch

nv16n nvoAlarm_n SNVT switch （note 4）

NOTES:
1. stencil for LonMaker:iLOSSNAY[1]-[50]
2. "n" of the network variable shows M-NET address of LOSSNAY.
3. There is a case which cannot be used with the system configuration of the air conditioners units.
4. There is a case which cannot be used with the system configuration of the air conditioners units or the model of LOSSNAY.
5. Please turn ON the switch(SW1-5) when LOSSNAY is operation from LONWORKS.(Factory setting "OFF")
6. stencil for LonMaker:LOSSNAY[1]-[50]

2-5.Common（note 1）

```
┌─────────────────────────────────────────┐
│              Indoor[0]                    │
│           Network Variables               │
├───────────────────────────────────────────┤
│  nviAllOff_n                              │
│  SNVT_switch                              │
│                                           │
│                                           │
│        Configuration Properties           │
├───────────────────────────────────────────┤
│     nciSndHrtBt_1 Send Heartbeat_1        │
│     nciSndHrtBt_2 Send Heartbeat_2        │
│      nciMinOutTm Minimum Send Time        │
│     nciInitStartTm Initialize Start Time  │
│    nciInitOutTm_1 Initialize Send Time_1  │
│    nciInitOutTm_2 Initialize Send Time_2  │
│      nciStartHrtBt Send Heartbeat Start Time │
│     nciStartOutTm Send Start Time         │
└───────────────────────────────────────────┘
```

nv11 → nviAllOff_n / SNVT_switch

NOTE
1. stencil for LonMaker:Indoor[0]

2-6.Node Object（note. 1）

```
┌─────────────────────────────────────────┐
│              Node Object                  │
│           Network Variables               │
├───────────────────────────────────────────┤
│  nviRequest                               │
│  SNVT_Obj_request                         │
│                                           │
└───────────────────────────────────────────┘
```

nv1 → nviRequest / SNVT_Obj_request

nv2 → nvoStatus / SNVT_obj_status

NOTE
1. stencil for LonMaker:Node Object

3.SNVT Table

nv No. (note 1)	Name (note 1)		Model CITY MULTI	Model Mr.SLIM	Model LOSSNAY interlocks with the indoor unit	Model LOSSNAY operation from LONWORKS	SNVT Type	input	output Transmitted when changing	output Auto update	output Initialize (note 2)
1n	Request On/Off	nviOnOff_n	X	X		X	SNVT_switch				
		value						not used	-	-	-
		state						X	-	-	-
2n	On/Off run state	nvoOnOff_n	X	X		X	SNVT_switch				
		value						-	not used	not used	not used
		state						-	X	X	X
3n	Request Mode	nviMode_n	X	X			SNVT_hvac_mode	X	-	-	-
4n	Mode state	nvoMode_n	X	X			SNVT_hvac_mode	-	X	X	X
13n	Request LOSNNAY Mode	nviLCMode_n				X(note 3)	SNVT_switch				
		value						X	-	-	-
		state						X	-	-	-
14n	LOSSNAY Mode state	nvoLCMode_n			X(note 3)	X(note 3)	SNVT_switch				
		value						-	X	X	X
		state						-	not used	not used	not used
5n	SetPoint from network	nviSetPoint_n	X	X			SNVT_temp_p	X	-	-	-
6n	SetPoint state	nvoSetPoint_n	X	X			SNVT_temp_p	-	X	X	X
7n	Request Fanspeed	nviFanSpeed_n	X	X		X	SNVT_switch				
		value						X	-	-	-
		state						not used	-	-	-
8n	FanSpeed state	nvoFanSpeed_n	X	X		X	SNVT_switch				
		value						-	X	X	X
		state						-	not used	not used	not used
10n	Thermo On/Off state	nvoThermo_n	X	X			SNVT_state	-	X	–	–
12n	Temperature state of indoor	nvoSpaceTemp_n	X	X			SNVT_temp_p	-	X	X	–
16n	Alarm state	nvoAlarm_n	X	X	X(note 3)	X(note 3)	SNVT_switch				
		value						-	not used	–	–
		state						-	X	–	–
19n	Request Local Prohibit On/Off	nviProOnOff_n	X	X			SNVT_switch				
		value						not used	-	-	-
		state						X	-	-	-
20n	Local Prohibit On/Off state	nvoProOnOff_n	X	X			SNVT_switch				
		value						-	not used	–	–
		state						-	X	–	–
21n	Request Local Prohibit mode	nviProMode_n	X	X			SNVT_switch				
		value						not used	-	-	-
		state						X	-	-	-
22n	Local Prohibit mode state	nvoProMode_n	X	X			SNVT_switch				
		value						-	not used	–	–
		state						-	X	–	–
23n	Request Local Prohibit SetPoint	nviProSetP_n	X	X			SNVT_switch				
		value						not used	-	-	-
		state						X	-	-	-
24n	Local Prohibit SetPoint state	nvoProSetP_n	X	X			SNVT_switch				
		value						-	not used	–	–
		state						-	X	–	–
11	Request All Off	nviAllOff	X	X	X	X	SNVT_switch				
		value						not used	-	-	-
		state						X	-	-	-

NOTES:

1. The value "n" is M-NET address of indoor unit
   ex) Request On/Off to the 20th indoor unit.
   nvNo :120
   Name :nviOnOff_20
2. The initialization of output can be changed by the setting of the configuration property.
3. There is a case which cannot be used with the system configuration of the air conditioners units or the model of LOSSNAY.

4. Network Variables

1n Request On/Off

network input SNVT_switch nviOnOff_n;

This input network variable is used for ON or OFF request of the indoor unit or ventilator (in case of independent operation) .
When the ventilator(LOSSNAY) is registered interlocking with the indoor unit, it will ON (for high speed) and OFF interlocking with the indoor unit.
This nv is not required to use when operating only from the local side like the local remote controller.

Valid Range

value field : not used

    *The value field is set in 0% usually.

state filed : 0   = Indoor or ventilator Off

state filed : 1   = Indoor or ventilator On

           : Else = Indoor or ventilator Off

Default Value

The default value is determined by the state of the air conditioner (indoor unit).
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

2n On/Off run state

network output SNVT_switch nvoOnOff_n;

This output network variable indicates the present On/Off state of the indoor unit or ventilator.
When the ventilator(LOSSNAY) is registered interlocking with the indoor unit, the state of the ventilator will not be output, output, but it acts (On/Off) as same as the indoor unit.

Valid Range

value field : not used

    *The value field might not be 0,when only the interlocking ventilator(LOSSNAY) unit has been turned on.

state filed : 0   = Indoor or ventilator Off

state filed : 1   = Indoor or ventilator On or TESTRUN

    *The value is 0 while LM-AP is initialized.

When Transmitted

This output network variable is transmitted promptly as its state changes.
This variable is also transmitted as the state changes by the operation from the local such as the local remote controller.
This variable is output by the nciInitStartTm (Initialize Start Time) at the powering of LM-AP.

Update Rate

The value defined by nciSndHrtBt_1 (Send Heartbeat_1) and nciMinOutTm (Minimum Send Time) is valid.

Default Service Type

Acknowledged

3n **Request mode**

network input SNVT_hvac_mode nviMode_n;

This input network variable is used to change the operation mode of the indoor unit.
This nv is not required to use when setting the operation mode only from the local side such as the local remote controller.

Valid Range

HVAC_AUTO:0	= Auto mode
HVAC_HEAT:1	= Heat mode
HVAC_COOL:3	= Cool mode
HVAC_PRE_COOL:5	= Dry mode
HVAC_FAN_ONLY:9	= Fan mode
:Else	= Fan mode

＊The range of mode setting differs depending on the model of the indoor and outdoor units.

Default Value

The default value is determined by the state of the air conditioner (indoor unit).
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

4n **Mode state**

network output SNVT_hvac_mode nvoMode_n;

This output network variable indicates the present mode of the indoor unit.

Valid Range

HVAC_AUTO:0	= Auto mode
HVAC_HEAT:1	= Heat mode
HVAC_COOL:3	= Cool mode
HVAC_PRE_COOL:5	= Dry mode
HVAC_FAN_ONLY:9	= Fan mode
HVAC_NULL:0xFF	= Value not available

＊The value is 0 while LM-AP is initialized.

When Transmitted

This output network variable is transmitted promptly as the state changes.
This variable is also transmitted as the state changes by the operation from the local such as the local remote controller.
This variable is output by the ncilnitStartTm (Initialize Start Time) at the powering of LM-AP.

Update Rate

The value defined by nciSndHrtBt_1 (Send Heartbeat_1) is valid.

Default Service Type

Acknowledged

13n **Request LOSSNAY Mode**

network input SNVT_switch nviLCMode_n;

This input network variable is used to change the operation mode of the ventilator
(at independent operation without interlocking) .
This nv is not required to use when setting the operation mode only from the local side such as the
local remote controller. remote controller.

Valid Range

state field : 0 & value field : 0%   = LOSSNAY ventilation
state field : 0 & value field : Else   = Bypass ventilation
state field : 1 & value field : not care = Damper auto
state field : Else   = Damper auto

Default Value

The default value is determined by the state of the ventilator.
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

14n **LOSSNAY Mode state**

network output SNVT_switch nvoLCMode_n;

This output network variable indicates the present operation mode of the ventilator.

Valid Range

value field :   0%   =LOSSNAY ventilation
value field : 100%   = Bypass ventilation
state field : not used =0 constantly
       *The value is 0 while LM-AP is initialized.

When Transmitted

This output network variable is transmitted promptly when the state changes.
It is also transmitted as the state changes by the operation from the local such as the local remote
controller.
This variable is output by the ncilnitStartTm (Initialize Start Time) at the powering of LM-AP.

Update Rate

The value defined by nciSndHrtBt_1 (Send Heartbeat_1) and nciMinOutTm (Minimum Send Time) is valid.

Default Service Type

Acknowledged

5n Setpoint from network (Both cool and heat)

network input SNVT_temp_p nviSetPoint_n;

This input network variable is used to change the temperature setpoint of the indoor unit.
＊The set temperature applied is used for cool/dry/heat/auto modes and not for fan mode operation.
This nv is not required to use when setting the temperature only from the local side
 such as the local remote controller.

Valid Range

At auto mode　　: 19 ～ 28 ℃
At heat mode　　: 17 ～ 28 ℃
At cool mode　　: 19 ～ 30 ℃
At dry mode　 : 19 ～ 30 ℃
At fan mode : Not available
　　　　　Unit of set temperature : 1.0℃
＊Be careful that the range of set temperature may differ depending on the model of the
indoor and outdoor units.

Default Value

The default value is determined by the state of the air conditioner (indoor unit).
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

6n Setpoint state (Both cool and heat)

network output SNVT_temp_p nvoSetPoint_n;

This output network variable indicates the present temperature setpoint of the indoor unit.

Valid Range

Output range: 17 ～ 30 ℃
Temperature unit: 1.0 ℃
　　＊The value is 0 while LM-AP is initialized.

When Transmitted

This output network variable is transmitted promptly when the state changes.
This variable is also transmitted as the state changes by the operation from the local such as the local
remote controller.
This variable is output by the nciInitStartTm (Initialize Start Time) at the powering of LM-AP.

Update Rate

The value defined by nciSndHrtBt__1(SendHearbeat_1) is valid.

Default Service Type

Acknowledged

7n **Request Fan Speed**

network input SNVT_switch nviFanSpeed_n;

This input network variable is used to change the fan speed of the indoor unit or Ventilator (in case of independent operation). This nv is not required to use when setting the airflow rate only from the local side such as the local remote controller.

Valid Range

value field :   0% to   25%   = Fan Speed Low
value field : 25.5% to 50%   = Fan Speed Mid 2
value field : 50.5% to 75%   = Fan Speed Mid 1
value field : 75.5% to 100%   = Fan Speed High
            : Else   = Fan Speed High
state field : not used

∗ As the number of the step for fan speed differs depending on the model of the indoor unit.
Each indoor unit runs actually as follows. The data received is retained continually.
    3-step model : Mid-2 is accepted as Mid-1.
    2-step model : Mid-2 and Mid-1 are accepted as Low.
    1-step model : Low, Mid-2 and Mid-1 are accepted as high.

Default Value

The default value is determined by the state of the air conditioner (indoor unit).
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

8n **Fan Speed state**

network output SNVT_switch nvoFanSpeed_n;

This output network variable indicates the present airflow rate of the indoor unit fan.

Valid Range

value field :   0% to   25%   = Fan Speed Low
value field : 25.5% to 50%   = Fan Speed Mid 2
value field : 50.5% to 75%   = Fan Speed Mid 1
value field : 75.5% to 100%   = Fan Speed High
state field : not used   =0 constantly
    ∗The value is 0 while LM-AP is initialized.

When Transmitted

This output network variable is transmitted promptly when the state changes.
It is also transmitted as the state changes by the operation from the local such as the local remote controller.
This variable is output by the ncilnitStartTm (Initialize Start Time) at the powering of LM adapter.

Update Rate

The value defined by nciSndHrtBt__1(SendHearbeat_1) is valid.

Default Service Type

Acknowledged

10n Thermo On/Off state

network output SNVT_state nvoThermo_n;

This output network variable indicates the On/Off state of the indoor unit, the thermostat (compressor command signal) and the auxiliary heater for heating.
This nv is used to calculate the electric charge.

Valid Range
bit[0] : 0 = Indoor Off
bit[0] : 1 = Indoor On
bit[1] : 0 = Indoor thermostat Off (of the indoor unit)
bit[1] : 1 = Indoor thermostat On (of the indoor unit)
bit[2] : 0 = Supplementary heater Off
bit[2] : 1 = Supplementary heater On
　　＊The value is 0 while LM-AP is initialized.

When Transmitted
This output network variable is transmitted promptly when the state changes.

Update Rate
The value designated by nciMinOutTm (Minimum Send Time) is valid.

Default Service Type
Acknowledged

12n Indoor temperature state

network output SNVT_temp_p nvoSpaceTemp_n;

This output network variable indicates the state of the indoor temperature.

Valid Range
Output range　:　－10～50℃
Temperature unit :　0．1℃
　　＊The value is 0 while LM-AP is initialized.

When Transmitted
This variable is transmitted when the indoor temperature changes by more than 1℃。
(However, it will not be transmitted for changes within 10 minutes.)
＊To obtain the output within 10 minutes, please refer to the nciSndHrtBt_2 (Send Heartbeat_2).

Update Rate
The value designated by nciSndHrtBT＿2(Send Heartbeat_2) and nciMinOutTm
(Minimum Send Time) is valid.

Default Service Type
Acknowledged

16n Alarm state

network output SNVT_switch nvoAlarm_n;

This output network variable indicates the abnormality of the indoor unit.
If the outdoor unit is in alarm state, the indoor unit also stops urgently.
Therefore all indoor units in a same refrigerant system will transmit alarm state
when the outdoor unit is under alarm state.
However the indoor unit under stopping is excluded.

Valid Range

value field: not used = 0 constantly

state field : 0   = Normal

state field : 1   = Alarm

    ∗The value is 0 while LM-AP is initialized.

When Transmitted

This variable is transmitted promptly as the state changes.

Update Rate

The maximum update rate is not available.

Default Service Type

Acknowledged

NOTE: The release of the indoor unit nvoAlarm_n (Alarm State) results in the "Off"
command of the nviOnOff_n (Request On/Off).
For the nvoAlarm_n (Alarm State) when the indoor unit is under stopping, transmit "Off" .
after transmitting "On"

19n **Request Local Prohibit On/Off**

network input SNVT_switch nviProOnOff_n;

This input network variable is used to prohibit the On/Off operation of the local remote
controller connected to the indoor unit or ventilator (under independent operation without interlocking).
When the ventilator is registered to be interlocked with the indoor unit, the On/Off operation
of the ventilator will also be prohibited.

Valid Range

value field : not used

state field : 0 = Permit On/Off operation of local remote controller

state field : 1 = Prohibit On/Off operation of local remote controller

: Else = Permit On/Off operation of local remote controller

Default Value

The default value permit On/Off operation of local remote controller
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

NOTE: For the use of this function, turn ON the switch (SW1-1) on LM-AP.(Factory setting "OFF")

20n **Local Prohibit On/Off state**

network output SNVT_switch nvoProOnOff_n;

This output network variable indicates the prohibit/permit state for the On/Off
of the local remote controller connected to the indoor unit or ventilator.

Valid Range

value field : not used = 0 constantly

state field : 0   = Permit On/Off of local remote controller

state field : 1   = Prohibit On/Off of local remote controller

＊The value is 0 while LM-AP is initialized.

When Transmitted

This variable is transmitted promptly as the state changes.

Update Rate

The maximum update rate is not available.

Default Service Type

Acknowledged

NOTE: For the use of this function, turn ON the switch (SW1-1) on LM-AP.(Factory setting "OFF")

21n **Request Local Prohibit mode**

network input SNVT_switch nviProMode_n;

This input network variable is used to prohibit the mode change operation of the
local remote controller connected to the indoor unit.

Valid Range

value field : not used

state field : 0   = Permit mode change operation of local remote controller

state field : 1   = Prohibit mode change operation of local remote controller

: Else = Permit mode change operation of local remote controller

Default Value

The default value permit mode change operation of local remote controller.
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

NOTE: For the use of this function, turn ON the switch(SW1-1) on LM-AP.(Factory setting "OFF")

22n **Local Prohibit mode state**

network output SNVT_switch nvoProMode_n;

This output network variable indicates the prohibit/permit state of the On/Off operation
of the local remote controller connected to the ventilator.

Valid Range

value field : not used = 0 constantly

state field : 0   = Permit mode change operation of local remote controller

state field : 1   = Prohibit mode change operation of local remote controller

*The value is 0 while LM-AP is initialized.

When Transmitted

This output network variable is transmitted promptly as the state changes.

Update Rate

The maximum update rate is not available.

Default Service Type

Acknowledged

NOTE: For the use of this function, turn ON the switch (SW1-1) on LM-AP.(Factory setting "OFF")

23n Request Local Prohibit SetPoint

network input SNVT_switch nviProSetP_n;

This input network variable is used to prohibit the temperature setpoint change of the
local remote controller connected to the indoor unit.

Valid Range

value field : not used

state field : 0   =   Permit temperature setpoint change for local remote controller

state field : 1   =   Prohibit temperature setpoint change for local remote controller

　　　　　: Else = Permit temperature setpoint change for local remote controller

Default Value

The default value permit temperature setpoint change for local remote controller.
This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

NOTE: For the use of this function, turn ON the switch(SW1-1) on LM-AP.(Factory setting "OFF")

24n Local Prohibit SetPoint state

network output SNVT_switch nvoProSetP_n;

This output network variable indicates the prohibit/permit of the temperature setting for
the local remote controller connected to the indoor unit or ventilator.

Valid Range

value field : not used = 0 constantly

state field : 0   =   Permit temperature setpoint change for local remote controller

state field : 1   =   Prohibit temperature setpoint change for local remote controller

　　*The value is 0 while LM-AP is initialized.

When Transmitted

This output network variable is transmitted promptly as the state changes.

Update Rate

The maximum update rate is not available.

Default Service Type

Acknowledged

NOTE: For the use of this function, turn ON the switch (SW1-1) on LM-AP.(Factory setting "OFF")

11 Request All Off

network input SNVT_switch nviAllOff;

This input network variable is used for the emergency Off of the indoor unit and all ventilation.

Valid Range
value field : not used

state field : 0   = Emergency Off of indoor unit and ventilator

        : Else = not used

Default Value
The default value is determined by the state of the air conditioner (indoor unit).

This variable becomes value = 0 until the value is updated after the power supply of LM-AP.

5.Configuration Properties

⑴ Send Heartbeat_1

network input config SNVT_time_sec nciSndHrtBt_1;

This network configuration defines the time between the previous and next updating.
When the set time is elapsed
from the automatic update or change output of the previous nvoOnOff_n (On/Off Run State),
automatic updating will be commenced.
The objective variables are given below.

・nvoOnOff_n(On/Off state output)
・nvoMode_n(Operating mode output)
・nvoLCMode_n(LOSSNAY operation mode output)
・nvoSetPoint_n(Temperature setpoint output)
・nvoFanSpeed_n(Fan airflow rate output)

Valid Range
The valid range covers from 0.0,600.0 to 6540.0 seconds (per 60 seconds).
The setting to 0.0 or 6553.5 seconds makes the automatic updating invalid.
The setting to 0.1 〜 599.9 seconds results in 600.0seconds.
The setting to 6540.1 〜 6553.4 seconds results in 6540.0 seconds.

Default Value
6553.5 seconds（without automatic update）

⑵ Send Heartbeat_2

network input config SNVT_time_sec nciSndHrtBt_2;

This network configuration defines the time between the previous and next updating.
When the set time is elapsed from the previous updating, automatic updating will be commenced.
The objective variable is given below.

・nvoSpaceTemp_n (Indoor Temperature State)

Valid Range
The valid range covers from 0.0,600.0 to 6540.0 seconds (per 60 seconds).
The setting to 0.0 or 6553.5 seconds makes the automatic updating invalid.
The setting to 0.1 〜 599.9 seconds results in 600.0 seconds.
The setting to 6540.1 〜 6553.4 seconds results in 6540.0 seconds.

To obtain the output within 10 minutes, set the connecting indoor unit to 30sets or less.
Please turn ON the switch(SW1-3) on LM-AP.(Factory setting "OFF")
The valid range in this case becomes as 0.0,60.0 〜 6540.0 seconds (per 60 seconds).
The setting to 0.0 or 6553.5 seconds makes the automatic updating invalid.
The setting to 0.1 〜 59.9 seconds results in 60.0 seconds.
The setting to 6540.1 〜 6553.4 seconds results in 6540.0 seconds.

Default Value
6553.5seconds (without automatic update)

⑶ **Minimum Send Time**

network input config SNVT_time_sec nciMinOutTm;

This configuration property defines the minimum send time between the output network variables.
The objective network variables are given below.
・nvoOnOff_n（On/Off Run State ）
・nvoMode_n（Mode State）
・nvoLCMode_n（LOSSNAY Mode State）
・nvoSetPoint_n（Setpoint State）
・nvoFanSpeed_n（Fan Speed State）
・nvoThermo_n（Thermostat On/Off State ）
・nvoSpaceTemp_n（Indoor Temperature State ）
・nvoAlarm_n（Alarm State）
・nvoProOnOff_n（Local Prohibit On／Off State）
・nvoProMode_n（Local Prohibit Mode State）
・nvoProSetP_n（Local Prohibit SetPoint State ）

Valid Range
The valid range covers from 0,1.0 to 600.0 seconds (per 1 second).
The setting to 0.0 or 6553.5 seconds makes the minimum send time setting invalid.
The setting to 0.1 ～ 0.9 seconds results in 1.0 second.
The setting to 600.1 ～ 6553.4 seconds results in 600.0 seconds.

Default Value
6553.5 seconds (Setting invalid)

⑷ **Initialize Start Time**

network input config SNVT_time_sec nciInitStartTm

This configuration property defines the starting time of the output network variables at the initial output.
The objective network variables are given below.
・nvoOnOff_n（On/Off Run State ）
・nvoMode_n（Mode State）
・nvoLCMode_n（LOSSNAY Mode State）
・nvoSetPoint_n（Setpoint State）
・nvoFanSpeed_n（Fan Speed State）

Valid Range
The valid range covers from 0.0,900.0 to 3600.0 seconds (per 60 seconds).
The setting to 0.0 or 6553.5 seconds makes the initial output time setting invalid.
The setting to 0.1 ～ 899.9 seconds results in 900.0 seconds.
The setting to 3600.1 ～ 6553.4 seconds results in 3600.0 seconds.

Default Value
6553.5 seconds (Setting invalid)

(5) **Initialize Send Time_1**

network input config SNVT_time_sec nciInitOutTm_1

This configuration property defines the minimum send time between the output network variables at initial output.
This configuration is valid when setting the Initialize Start Time to other values than 0.0 second.
The objective network variables are given below.

・nvoOnOff_n（On/Off Run State ）
・nvoMode_n（Mode State)
・nvoLCMode_n（LOSSNAY Mode State)
・nvoSetPoint_n（Setpoint State)
・nvoFanSpeed_n（Fan Speed State)

Valid Range
The valid range covers from 0.0,0.1 to 1.0 second (per 100m seconds).
The setting to 0.0 or 6553.5 seconds makes the initial output minimum send time setting invalid.
The setting to 1.1 〜 6553.4 seconds results in 1.0 second.

Default Value
6553.5 seconds (Setting invalid)

(6) **Initialize Send Time_2**

network input config SNVT_time_sec nciInitOutTm_2

This configuration property defines the minimum send time between each unit of the indoor, Mr.SLIM and
 ventilator at the initial output.
This configuration is valid when setting the Initialize Start Time to other values than 0.0 second.
The objective network variables are given below.
・nvoOnOff_n（On/Off Run State ）
・nvoMode_n（Mode State)
・nvoLCMode_n（LOSSNAY Mode State)
・nvoSetPoint_n（Setpoint State)
・nvoFanSpeed_n（Fan Speed State)

Valid Range
The valid range covers from 0.0,5.1 to 50.0 second (per 1second).
The setting to 0.0 or 6553.5 seconds makes the initial output minimum send time setting invalid.
The setting to 0.1 〜 4.9 seconds results in 5.0 seconds.
The setting to 50.1 〜 6553.4 seconds results in 50.0 seconds.

Default Value
6553.5 seconds (Setting invalid)

⑺ **Send Heartbeat Start Time**

network input config SNVT_time_sec nciStartHrtBt

This configuration property defines the start time of automatic updating at the powering of the LM-AP.
The objective network configurations are given below.
　・nciSndHrtBt_1（Send Heartbeat_1）
　・nciSndHrtBt_2（Send Heartrbeat_2）

Valid Range
The valid range covers from 0.0,1200.0 to 6540.0 seconds (per 60 seconds).
　The setting to 0.0 or 6553.5 seconds results in 1800.0 seconds.
　The setting to 0.1 ～ 1199.9 seconds results in 1200.0 seconds.
　The setting to 6540.1 ～ 6553.4 seconds results in 6540.0 seconds.

Default Value
6553.5 seconds (judged as 1800 seconds)

⑻ **Send Start Time**

network input config SNVT_time_sec nciStartOutTm

This configuration property defines the start time of the output network variable change at powering of LM-AP.
The objective network variables are given below.

　・nvoOnOff_n（On/Off Run State ）
　・nvoMode_n（Mode State）
　・nvoLCMode_n（LOSSNAY Mode State）
　・nvoSetPoint_n（Setpoint State）
　・nvoFanSpeed_n（Fan Speed State）
　・nvoThermo_n（Thermostat On/Off State ）
　・nvoSpaceTemp_n（Indoor Temperature State ）
　・nvoAlarm_n（Alarm State）
　・nvoProOnOff_n（Local Prohibit On／Off State）
　・nvoProMode_n（Local Prohibit Mode State）
　・nvoProSetP_n（Local Prohibit SetPoint State ）

Valid Range
The valid range covers from 0.0,1200.0 to 6540.0 seconds (per 60 seconds).
　The setting to 0.0 or 6553.5 seconds results in 1800.0 seconds.
　The setting to 0.1 ～ 1199.9 seconds results in 1200.0 seconds.
　The setting to 6540.1 ～ 6553.4 seconds results in 6540.0 seconds.

Default Value
6553.5 seconds (judged as 1800 seconds)

6. Node Object

1n **Object Request**

network input SNVT_obj_requst nviRequest;

Valid Range

object_id	: 0	=valid request
	:Else	=invalid request
object_request	:2(RQ_UPDATE_STATUS)	=valid request
	:Else	=invalid request

Default Value

The default value is 0.

2n **Object Status**

network output SNVT_obj_status nvoStatus;

Valid Range

bit[0] invalid id	: 0	=object_id is valid request
	: 1	=object_id is invalid request
bit[1] object_request	: 0	=object_request is valid request
	: 1	=object_request is invalid request

When Transmitted

This output network variable is transmitted promptly when object request is input.
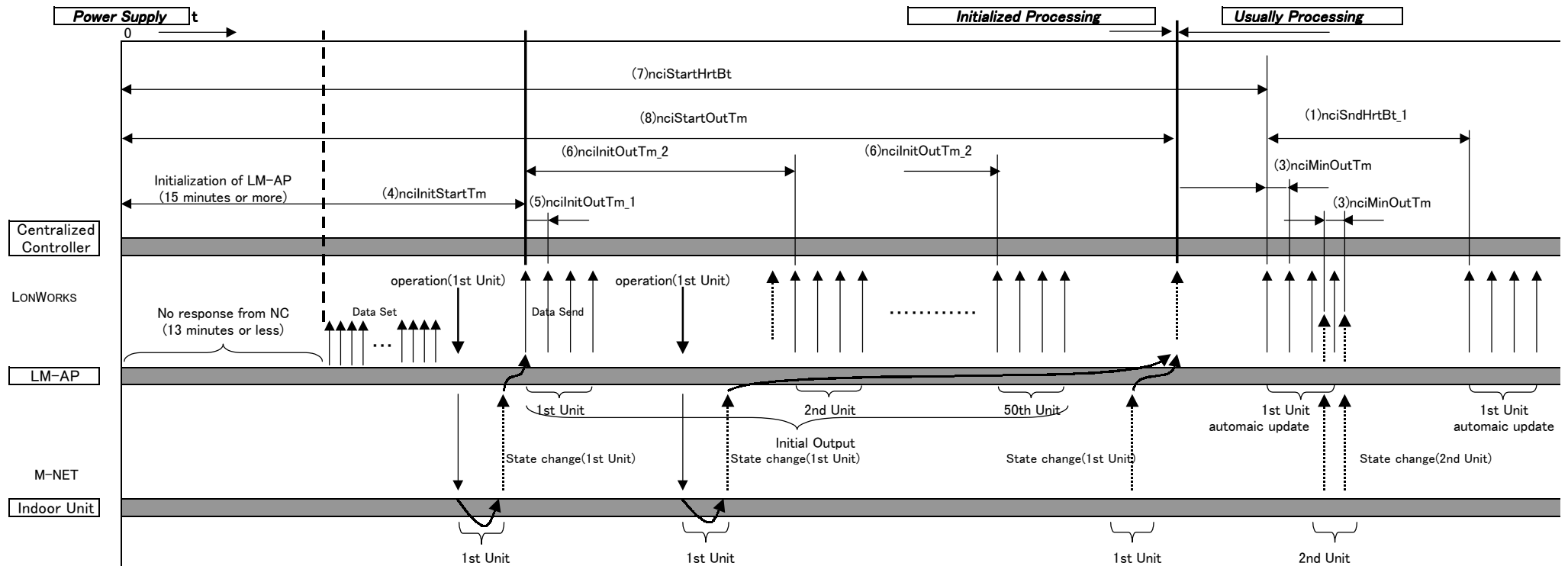
Update Rate

The maximum update rate is not available.

Default Service Type

Acknowledged

Communication timing when power supply of LM-AP is turned on

Power Supply   t

0

Initialized Processing

Usually Processing

(7)nciStartHrtBt

(8)nciStartOutTm

(1)nciSndHrtBt_1

(6)nciInitOutTm_2

(6)nciInitOutTm_2

(3)nciMinOutTm

Initialization of LM-AP
(15 minutes or more)

(4)nciInitStartTm

(5)nciInitOutTm_1

(3)nciMinOutTm

Centralized
Controller

LonWorks

operation(1st Unit)

operation(1st Unit)

No response from NC
(13 minutes or less)

Data Set

Data Send

LM-AP

1st Unit

2nd Unit

50th Unit

1st Unit
automaic update

1st Unit
automaic update

Initial Output

State change(1st Unit)

State change(1st Unit)

State change(1st Unit)

State change(2nd Unit)

M-NET

Indoor Unit

1st Unit

1st Unit

1st Unit

2nd Unit

No.	nci	Name	Range	Default
(1)	nciSndHrtBt_1	Send Heartbeat_1	0,600～6540,6553.5sec	6553.5sec(without automatic update)
(2)	nciSndHrtBt_2	Send Heartbeat_2	0,600～6540,6553.5sec	6553.5sec(without automatic update)
(3)	nciMinOutTm	Minimum Send Time	0,0.1～600,6553.5sec	6553.5sec(setting invalid)
(4)	nciInitStartTm	Initialize Start Time	0,900～3600,6553.5sec	6553.5sec(setting invalid)
(5)	nciInitOutTm_1	Initialize Send Time_1	0,0.1～1.0,6553.5sec	6553.5sec(setting invalid)
(6)	nciInitOutTm_2	Initialize Send Time_2	0,0.5～50,6553.5sec	6553.5sec(setting invalid)
(7)	nciStartHrtBt	Send Heartbeat Start Time	0,1200～6540,6553.5sec	6553.5sec(judged as 1800 seconds)
(8)	nciStartOutTm	Send Start Time	0,1200～6540,6553.5sec	6553.5sec(judged as 1800 seconds)