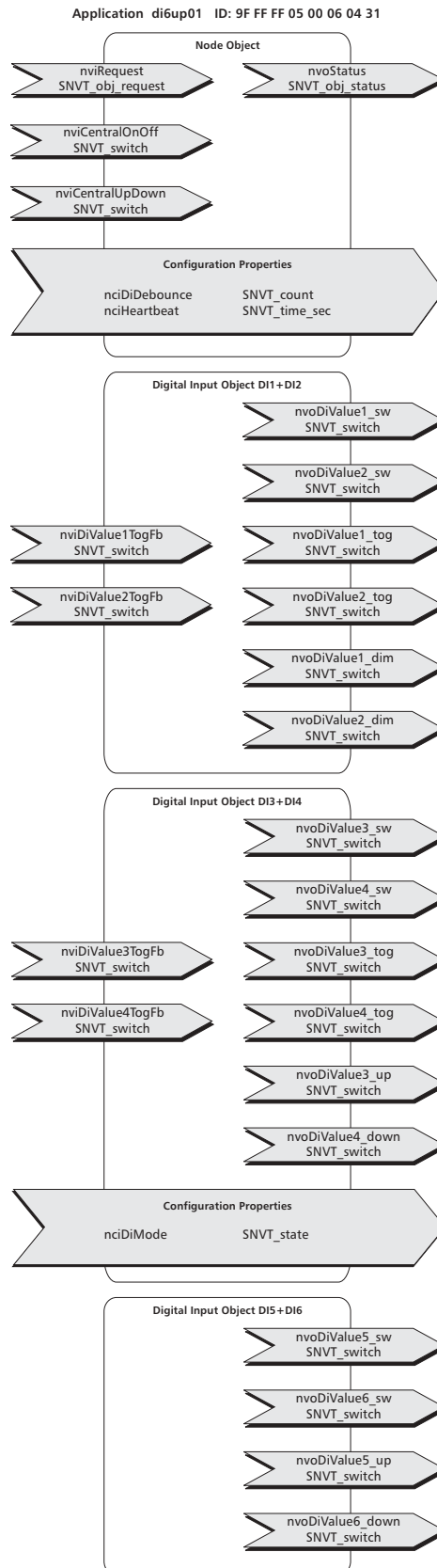


Software application di6up01 (Standard I/O, Toggle, Dimming, Shutter)

For input/output module, model DI6UP LON

Application for recognition of status of digital inputs and data output. The digital inputs are put together in pairs as follows DI1+DI2, DI3+DI4, DI5+DI6. Different network variables are used for data output in order to realize functions "Standard I/O", "Toggle", "Dimming" and "Shutter".

Application uses Standard Network Variables (SNVT) according to the LonMark® prescriptions.



Node Object

The Node Object supervises and controls the functions of the individual objects within the unit. Basic functions required by the LonMark® are supported.

Network Variables Node Object:

nviRequest

SNVT Type: SNVT_obj_request

Function: Input variable including functions RQ_NORMAL, RQ_UPDATE_STATUS and RQ_REPORT_MASK.

nvoStatus

SNVT Type: SNVT_obj_status

Function: Output variable including required status bits "invalid_id" and "invalid_request".

nviCentralOnOff

SNVT Type: SNVT_switch

Function: Input variable for central main control of output variable to control illumination by means of toggle function or dimming function. (Initializing value: nviCentralOnOff.state = -1)

nviCentralOnOff = 0.0 0	==>	nvoDiValueX_tog_dim = 0.0 0	and DIs blocked
nviCentralOnOff = 100.0 1	==>	nvoDiValueX_tog_dim = 100.0 1	and DIs blocked
nviCentralOnOff = x.x -1	==>	output variables are changed by status of DIs	

nviCentralUpDown

SNVT Type: SNVT_switch

Function: Input variable for central main control of output variable for shutter control.

(Initializing value: nviCentralUpDown.state = -1)

nviCentralUpDown = 0.0 0	==>	nvoDiValueX_up = 0.0 0	and DIs blocked
		nvoDiValueX_down = 100.0 1	and DIs blocked
nviCentralUpDown = 100.0 1	==>	nvoDiValueX_up = 100.0 1	and DIs blocked
		nvoDiValueX_down = 0.0 0	and DIs blocked
nviCentralUpDown = x.x -1	==>	output variables are changed by status of DIs	

All shutter variables are reset when main control mode is left.

Configuration Properties Node Object:

nciDiDebounce

SNVT Type: SNVT_count

Function: Debounce period for digital inputs (in ms). Preset value: 30 (ms).

nciHeartbeat

SNVT Type: SNVT_time_sec

Function: Heartbeat interval. After expiration of nciHeartbeat all bound output variables are sent.

Heartbeat function is deactivated with input values < 1 s (Default: 0)

Digital Input Object DI1 + DI2

Object includes measuring of digital inputs 1 + 2 including functions *Standard I/O*, *Toggle* and *Dimming*.

Network Variables Digital Input Object DI1+DI2:

nviDiValue[1,2]TogFb

SNVT Type: SNVT_switch

Function: Input variable for present status of light groups controlled via nvoDiValue[1,2]_tog or nvoDiValue[1,2]_dim

nvoDiValue[1,2]_sw

SNVT Type: SNVT_switch

Function: Status of digital inputs 1 + 2. Output variables are put out after change of input status , expiration of heartbeat interval (nciHeartbeat) and after module reset. Calculated period for output after module reset: $1s + ([\text{Node number } 1 \dots 127] \times 10\text{ms})$

Zero-potential contact closed ==> nvoDiValue[1,2]_sw = 100.0 1
Zero-potential contact open ==> nvoDiValue[1,2]_sw = 0.0 0

nvoDiValue[1,2]_tog

SNVT Type: SNVT_switch

Function: Output variables for switch status of digital inputs 1 + 2 including toggle function for triggering light groups by means of push-buttons (make contact). Each actuation results in a switching of output variables between 0.0 0 and 100.0 1.
Data transmission is made in case of change of output variable value, after expiration of heartbeat interval (nciHeartbeat) and after module reset.

nvoDiValue[1,2]_dim

SNVT Type: SNVT_switch

Function: Output variable for switch status of digital inputs 1 + 2 including dimming function, for triggering light groups by means of push-buttons (make contact).
Short-term actuation (< 1 s) results in a change of present light status. Longterm actuation (> 1 s) activates dimming function, i.e. the real value of the variable is increased or lowered in 5 % steps as long as push-button is pressed.

nvoDiValue[1,2]_dim = 100.0 1 ==> Light = ON and dimmed to 100 %
nvoDiValue[1,2]_dim = 50.0 1 ==> Light = ON and dimmed to 50 %
nvoDiValue[1,2]_dim = 0.0 0 ==> Light = OFF

Data transmission is made analog to nvoDiValue[1,2]_tog.

Digital Input Object DI3 + DI4

Object includes measuring of digital inputs 3 + 4 including functions *Standard I/O*, *Toggle* and *Shutter*. The effective direction of inputs (break / make contact) is adjustable via configuration parameter nciDiMode.

The output variables for shutter control are blocked against each other. Switching of effective direction is only made after a delay of 500 ms in order to protect the shutter motors.

Network Variables Digital Input Object DI3 + DI4:**nviDiValue[3,4]TogFb**

SNVT Type: SNVT_switch

Function: Input variable for present status of light groups controlled via nvoDiValue[3,4]_tog

nvoDiValue[3,4]_sw

SNVT Type: SNVT_switch

Function: Status of digital inputs 3 + 4. Output variables are put out after change of input status, expiration of heartbeat interval (nciHeartbeat) and module reset. Calculated period for output after module reset: $1s + ([\text{Nodenummer } 1 \dots 127] \times 10\text{ms})$

		nciDiMode.bit0=0	nciDiMode.bit0=1
Zero-potential contact closed	==> nvoDiValue[3,4]_sw =	100.0 1	0.0 0
Zero-potential contact open	==> nvoDiValue[3,4]_sw =	0.0 0	100.0 0

nvoDiValue[3,4]_tog

SNVT Type: SNVT_switch

Function: Output variable for switch status of digital inputs 3 + 4 including toggle function for triggering light groups by means of push-button (make or break contact). Each actuation results in a switching of output variables between 0.0 0 and 100.0 1.
Data transmission is made in case of change of output variable value, after expiration of heartbeat interval (nciHeartbeat) and module reset.

nvoDiValue3_up

SNVT Type: SNVT_switch

Function: Output variable for switch order "Open shutter".

nvoDiValue3_up = 100.0 1 ==> ON

nvoDiValue3_up = 0.0 0 ==> OFF

After longterm actuation (> 2 s) the shutter is permanently triggered for 100 s (automatic operation).

Short-term actuation < 2 s serves for fine adjustment of shutters or stopping automatic operation respectively.

nvoDiValue4_down

SNVT Type: SNVT_switch

Function: Out variable for switch order "Close shutters".

nvoDiValue4_down = 100.0 1 ==> ON

nvoDiValue4_down = 0.0 0 ==> OFF

After longterm actuation (> 2 s) the shutter is permanently triggered for 100 s (automatic operation).

Short-term actuation < 2 s serves for fine adjustment of shutters or stopping automatic operation respectively.

Configuration Properties Digital Input Object DI3 + DI4:

nciDiMode

SNVT Type: SNVT_state

Function: Configuration parameter to determine effective direction of digital inputs

nciDiMode.bit0 = 0 ==> Make contact

nciDiMode.bit0 = 1 ==> Break contact

Digital Input Object DI5 + DI6

Object includes measuring of digital inputs 5 + 6 including functions *Standard I/O* and *Shutter*.

Network Variables Digital Input Object DI5 + DI6:

nvoDiValue[5,6]_sw

SNVT Type: SNVT_switch

Function: Status of digital inputs 5 + 6. Output variables are put out after change of input status, expiration of heartbeat interval (nciHeartbeat) and module reset. Calculated period for output after module reset: 1s+([Nodenummer 1....127] x 10ms)

Zero-potential contact closed ==> nvoDiValue[5,6]_sw = 100.0 1

Zero-potential contact open ==> nvoDiValue[5,6]_sw = 0.0 0

nvoDiValue5_up

SNVT Type: SNVT_switch

Function: Output variable for switch order "Open shutter".

nvoDiValue5_up = 100.0 1 ==> ON

nvoDiValue5_up = 0.0 0 ==> OFF

After longterm actuation (> 2 s) the shutter is permanently triggered for 100 s (automatic operation).

Short-term actuation < 2 s serves for fine adjustment of shutters or stopping automatic operation respectively.

nvoDiValue6_down

SNVT Type: SNVT_switch

Function: Output variable "Close shutter".

nvoDiValue6_down = 100.0 1 ==> ON

nvoDiValue6_down = 0.0 0 ==> OFF

After longterm actuation (> 2 s) the shutter is permanently triggered for 100 s (automatic operation).

Short-term actuation (< 2 s) serves for fine adjustment of shutters or stopping automatic operation respectively.

General Remarks:**Wink - Event**

Service LED is triggered and blinking two times.

Configuration Properties

A download of application overwrites manufacturer's configuration parameters.

The configuration variables are designed as bindable network variables stored in EEPROM. Thus parameter changes are possible even without installation tool.

**!! An update of variables is directly written into the non-volatile memory of hardware. User has to
!! make sure that total number of writing cycles does not exceed maximum capacity of non-volatile
!! memory (dimension <10000).**