

BALLUFF

Software-Description

BNI IOL-803 SmartLight Indicator

Sample Program S7-300/400/1200/1500



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1 SMARTLIGHT INDICATOR SAMPLE PROGRAM

The demo program **BNI_IOL_803_Sample** allows a communication between a Balluff SmartLight Indicator and a Simatic® S7-300/400/1200/1500 PLC.

1.1 Sample Functions

The following commandos are supported in the demo program:

- Segment mode
- Level mode
- Runlight mode
- Color Wheel mode

ATTENTION

Please test carefully whether the used commandos are supported by SmartLight Indicator.

1.2 General Data

Program name:	BNI_IOL_803_Sample
Invoked blocks:	FB10, FB803
Reserved memory bits:	MB0 Clock Memory, MB1 System Memory
Reserved Timers:	none
Reserved Counters:	none
Configured I/O Range	32 Byte (16 Byte for S7 300/400)
Invoke:	absolute
Device compatibility:	Siemens Simatic® S7-1200 CPU1214C Siemens Simatic® S7-1500 CPU1513F Siemens Simatic® S7-300/400 CPU315
Software version:	TIA-Portal V13 SP1

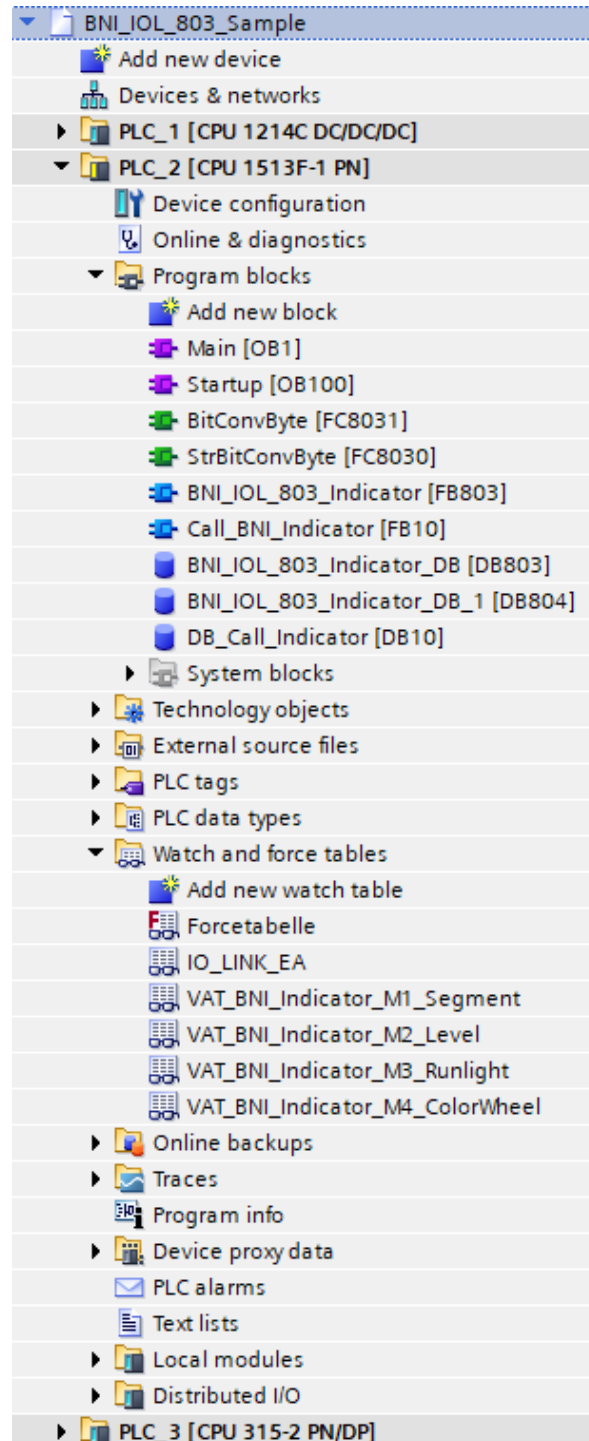
1.3 Description

The Simatic® S7-project **BNI_IOL_803_Sample** contains in FB10 an example invoke of the BNI_IOL_803_Indicator function block. The used PLC type is a Simatic® S7-1200 CPU1214C and a S7-1500 CPU 1513F. The same program is used for both controllers. The Configured I/O length of the IO-Link module is 16 byte, peripheral I/O start address 200. Exemplary as IO-Link Master a BNI PNT-508 or a BIS V-6108 is used. The FB803 parameters are set suitable to the hardware configuration. The FB is initialized automatically by the program. The memory bit **"DB_Call_Indicator".Init** is set in the OB100 at PLC startup. For controlling the example, the variable table **VAT_BNI_Indicator_M*** is available.

Sample Program description for SmartLight Indicator

1 SMARTLIGHT INDICATOR SAMPLE PROGRAM

1.4 PLC program overview

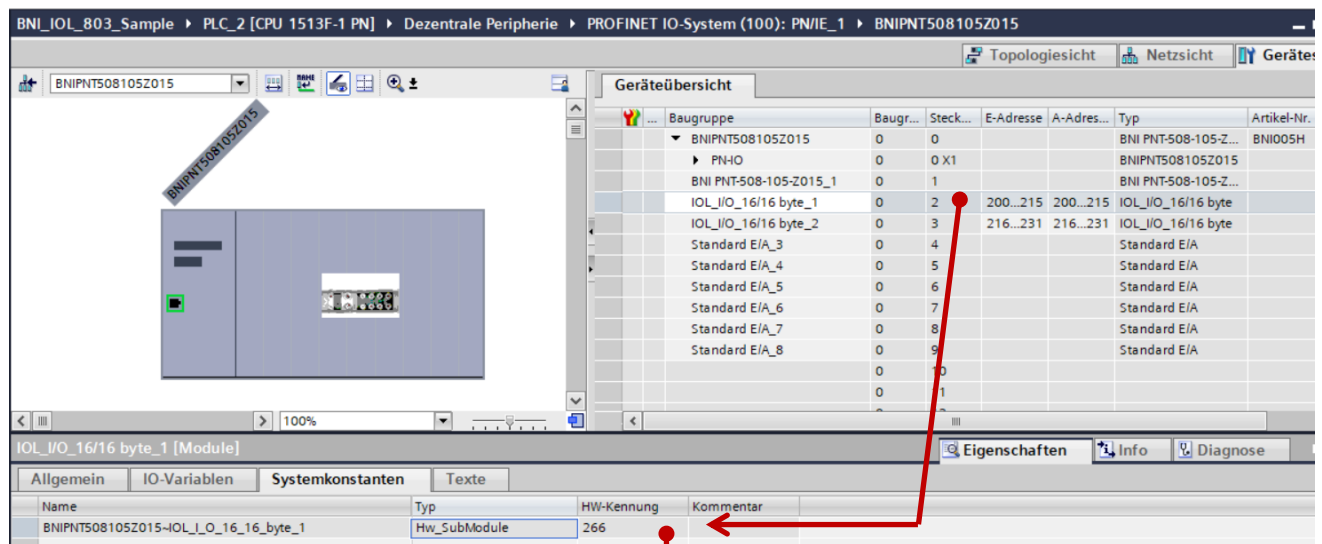


(Figure TIA Portal, Sample project)

Sample Program description for SmartLight Indicator

1 SMARTLIGHT INDICATOR SAMPLE PROGRAM

1.5 Assignment IO-Link Master process data modules

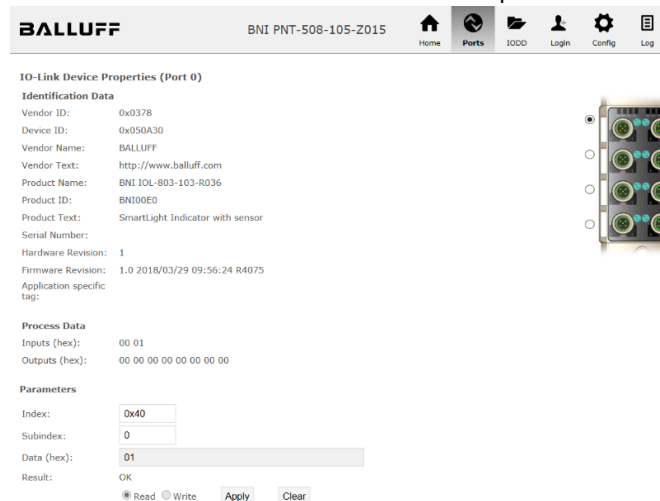


(Figure. TIA-Portal: Devices & networks, properties of IO-Link Master BNI PNT-508)

Each slot of a IO-Link Master E/A Module has a own HW-Identifier. The function block gets access to the process data by the hardware-identifier of the slot for each IO-Link Master. For each slot is a separate instance call of the function block necessary. The hardware-identifier is assigned by TIA Portal software. The hardware-identifier is displayed in the module properties of each slot. For the BIS V-6108 processor unit **BISV6108048**, connected to S7-1200, the HW-Identifier 285 is used. For S7 300/400 the start address of cyclic process image from the IO-link Master Port have to be used.

1.6 Device parameters

The settings of the Smart Light Indicator can be done for example by the IO-Link Master web interface. The Index 0x40 contains the device parameters.



(Figure BNI Webinterface, IO-Link Device Properties)

1 SMARTLIGHT INDICATOR SAMPLE PROGRAM

1.7 Control and watch options with the variable table

1.7.1 Function block input parameter

- "DB_Call_Indicator".Init – function block is initialized
- "DB_Call_Indicator".ExtendedDevice – selects the extended Indicator
- "DB_Call_Indicator".ModelIndi1.Segment – activates the segment mode
- "DB_Call_Indicator".ModelIndi1.Level – activates the level mode
- "DB_Call_Indicator".ModelIndi1.Runlight - activates the runlight mode
- "DB_Call_Indicator".ModelIndi1.ColorWheel – activates the color wheel mode
- "DB_Call_Indicator".SegIndi1.Mode.BlinkFreq0_5 – 10 - blink frequency segment mode
- "DB_Call_Indicator".SegIndi1.Mode.SegmNb1 -6 – Number of segments
- "DB_Call_Indicator".SegIndi1.SegCol[1-6].*green – white* – Select segment colour

i	Name	Adr...	Anzeigeform...	Beobacht.	Steuervert
// FB input parameter bit					
	"DB_Call_Indicator".Init		BOOL		FALSE
	"DB_Call_Indicator".ExtendedDevice		BOOL		FALSE
// FB input mode selection					
	"DB_Call_Indicator".ModelIndi1.Segment		BOOL		FALSE
	"DB_Call_Indicator".ModelIndi1.Level		BOOL		FALSE
	"DB_Call_Indicator".ModelIndi1.Runlight		BOOL		FALSE
	"DB_Call_Indicator".ModelIndi1.ColorWheel		BOOL		FALSE
// FB Segment Mode Settings					
	"DB_Call_Indicator".SegIndi1.Mode.BlinkFreq0_5HZ		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.BlinkFreq1HZ		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.BlinkFreq2HZ		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.BlinkFreq5HZ		BOOL		TRUE
	"DB_Call_Indicator".SegIndi1.Mode.BlinkFreq10HZ		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.BlinkSeg1		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.BlinkSeg2		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.BlinkSeg3		BOOL		
	"DB_Call_Indicator".SegIndi1.Mode.BlinkSeg4		BOOL		
	"DB_Call_Indicator".SegIndi1.Mode.BlinkSeg5		BOOL		
	"DB_Call_Indicator".SegIndi1.Mode.BlinkSeg6		BOOL		TRUE
	"DB_Call_Indicator".SegIndi1.Mode.SegmNb1		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.SegmNb2		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.SegmNb3		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.Mode.SegmNb6		BOOL		FALSE
// Segment colours 1. Segment					
	"DB_Call_Indicator".SegIndi1.SegCol[1].Green		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.SegCol[1].Red		BOOL		TRUE
	"DB_Call_Indicator".SegIndi1.SegCol[1].Yellow		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.SegCol[1].Blue		BOOL		FALSE
	"DB_Call_Indicator".SegIndi1.SegCol[1].Orange		BOOL		FALSE

(Figure TIA Portal, watch table)

1.7.2 Function block output parameter

- "DB_Call_Indicator".Sensor – Optional sensor signal
- "DB_Call_Indicator".Error – job completed with error
- "DB_Call_Indicator".ErrorCode – FB or Indicator error number

ATTENUATION

In addition there are the variable tables.

- VAT_BNI_Indicator_M2_Level -> for level mode
- VAT_BNI_Indicator_M3_Runlight -> for runlight mode
- VAT_BNI_Indicator_M4_ColorWheel -> for color wheel mode

available.

Each Table contains mode specific variables and variables for mode selection.

1 SMARTLIGHT INDICATOR SAMPLE PROGRAM

1.8 Disclaimer of Liability sample program

This demo program is free of charge and is a universal application example. This demo program shall help program and configure PLC applications and shall provide possible solutions.

The user is not entitled to claim for warranty, error correction and updates. In particular there is excluded any claims against Balluff GmbH for damages that might result from the use of this demo program. Excluded from this limitation of liability shall be (a) those damages that are based on injury to life, limb or health, (b) a liability according to the Produkthaftungsgesetz (German Product Liability Law) and (c) cases of willful intent.

Please check if the demo program is intended for your application before adapting it in plants and machineries.

By using the S7 sample, made available free of charge you accept the limitation of warranty and liability!

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