

# **Datalogic SmartVS**

## **FB user manual**

### **(Siemens PLC)**

## 1. GENERAL INFORMATION

**PLC Model:** S7-1500

**SW Version:** TIA Portal Release V16 Update 2

## 2. INTERFACE

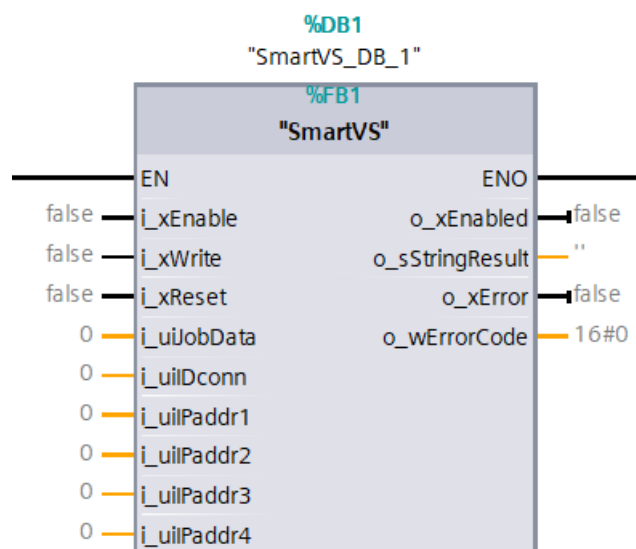


Figure 1: FB SmartVS.

<b>Input</b>	<b>Type</b>	<b>Description</b>
i_xEnable	Bool	Enable / disable the connection to the SmartVS device
i_xWrite	Bool	Enables (on the rising edge) the sending of the format change command (job) to the SmartVs device
i_xReset	Bool	FB reset that allows you to restart from the initial state (PLC disconnected from the device) or to resume execution following an error
i_uiJobData	UInt	X value of the format data to be loaded. It must be between 0 and 31
i_uiDconn	UInt	Connection ID. It must have a value between 1 and 4095
i_uiPaddr1	UInt	Value of the 1st byte of the IP address of the SmartVS device
i_uiPaddr2	UInt	Value of the 2nd byte of the IP address of the SmartVS device
i_uiPaddr3	UInt	Value of the 3rd byte of the IP address of the SmartVS device
i_uiPaddr4	UInt	Value of the 4th byte of the IP address of the SmartVS device

<b><i>Input</i></b>	<b><i>Type</i></b>	<b><i>Description</i></b>
o_xEnabled	Bool	Connection to device established
o_sStringResult	String	Indicates whether the format change procedure was successful or not, or if an error occurred: - "Job x DONE" -> Format change performed - "Job x FAIL" -> Format change not performed - "Error State" -> Error state
o_xError	Bool	Indicates that there is an error. A reset is necessary to restart the FB / resume execution
o_wErrorCode	Word	Error code (in HEX)

### 3. OPERATION

The SmartVS Function Block (FB) allows TCP / IP communication between the Siemens PLC and the SmartVS device in order to execute the format change procedure (job) and receive its feedback.

#### 3.1 Initial setting

Before enabling the connection, the ID and IP address of the same must be set.

The ID is set via the i\_uidConn input and must have a value between 1 and 4095. Warning: the ID must be unique, it must not be the same as that of other connections that may be present on the PLC.

The IP address is set "byte by byte" through the inputs i\_uilPaddr1, i\_uilPaddr2, i\_uilPaddr3 and i\_uilPaddr4. It will therefore be composed according to the following structure:

i\_uilPaddr1. i\_uilPaddr2. i\_uilPaddr3. i\_uilPaddr4

#### 3.2 Rated operation

After the initial setting, the block can be enabled by setting the i\_xEnable input to "TRUE". If the setting is not performed or the ID and / or IP values are incorrect, the FB will enter the error state and a reset (i\_xReset) will be required.

Once the connection has been created, the o\_xEnabled output is set to "TRUE" and the FB is ready to start the format change procedure. As long as i\_xEnable is "TRUE" the connection will remain enabled; if it is set to "FALSE", the communication will be disconnected (and o\_xEnabled will return to "FALSE").

After setting the "x" format to be loaded on the device via i\_uiJobData (the value must be between 0 and 31), you can proceed with sending the format change request via the i\_xWrite input. Attention: the request is sent on the rising edge of this input.

The device will respond to the format change request with positive or negative feedback. In the event of positive feedback, the o\_sStringResult output will show "Job x DONE", otherwise "Job x FAIL" will be displayed followed by information on the reason for the operation failure.

After receiving the feedback, the device is ready to send a new format change request (unless there are any errors).

### 3.3 Status and error codes

Any type of error brings the FB into the error state, which is reported in o\_sStringResult as "Error State", setting o\_xError to "TRUE" and providing a hexadecimal error code in o\_wErrorCode.

You can only exit this state by setting i\_xReset to "TRUE".

The internal errors of the FB are 2 and are indicated by the following codes:

16 # 0002 -> the device feedback did not provide an interpretable response (DONE or FAIL); indicates a probable error in the response of the SmartVS device

16 # 0003 -> the connection ID entered is not in the admissibility range

All other error codes relate to Siemens communication FBs (TCON, TSEND, TRCV, TDISCON) used within the SmartVS FB. These codes can be found in the Siemens manual.

In case of error 16 # 0002, the i\_xReset input equal to "TRUE" puts the FB back in the condition of waiting for an i\_xWrite command and resets the o\_sStringResult output. For all other errors, however, the reset disconnects the connection (if present) and returns the FB to its initial state (with all outputs reset) pending the creation of a new connection.

**Warning:** in this case, if i\_xEnable has remained set to "TRUE", the FB immediately tries to recreate the connection after the reset.

### 3.4 Multiple devices

If you need to use more than one SmartVS device connected to the PLC, in addition to adding an FB to the program for each device used, you must remember to:

- properly modify the IP address (input i\_uilPaddr1, i\_uilPaddr2, i\_uilPaddr3, i\_uilPaddr4)
- change the ID (input i\_uilDconn) of the connection as it must be unique for each connection (and therefore for each device)