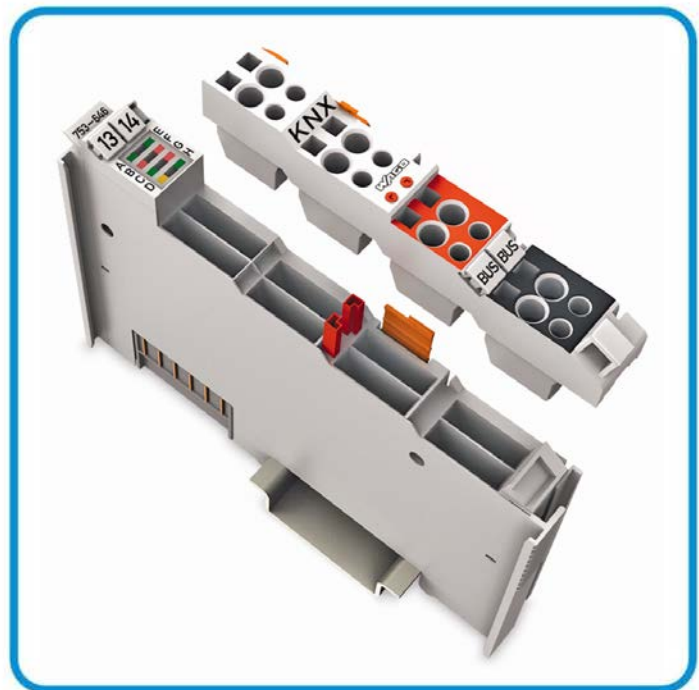


Library Description

AUTOMATION



KNX_02.lib

**CODESYS V2.3 Function Block for the
KNX/EIB/TP1 Module**

Version: 17.07.2017

WAGO®



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Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

We wish to point out that the software and hardware names, as well as the trademarks of companies used and/or mentioned in the present manual, are generally protected by trademark or patent.

WAGO-I/O-PRO V2.3 Library for the KNX/EIB/TP1 Module

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Important Notes

To ensure fast installation and start-up of the units, we strongly recommend that the following information and explanations are carefully read and adhered to.

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The use of the product described in this document is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the appropriate current standards. WAGO Kontakttechnik GmbH & Co. KG assumes no liability resulting from improper action and damage to WAGO products and third-party products due to non-observance of the information contained in this document.

Intended Use

For each individual application, the components are supplied from the factory with a dedicated hardware and software configuration. Modifications are only admitted within the framework of the possibilities documented in this document. All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of WAGO Kontakttechnik GmbH & Co. KG.

Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to WAGO Kontakttechnik GmbH & Co. KG.

Scope of Applicability

This application note is based on the stated hardware and software from the specific manufacturer, as well as the associated documentation. This application note is therefore only valid for the described installation. New hardware and software versions may need to be handled differently.

Please note the detailed description in the specific manuals.

List of Data Point Types (DPTs) Contained in the Libraries

Note



Important note!

Some function blocks are also available in a **simplified version**. The following inputs and outputs (if available) are omitted:

- xRead_KNX
- tMinSendTime
- rSendOnDelta or bSendOnDelta or wSendOnDelta
- typDPT
- xTimeOut

Information



Additional information

Other data types not included in the library as a function block can be loaded as an export file under www.wago.com.

DPT 1-Bit (Boolean) / EIS 1		
ID:	Name:	Described on page:
1.001	DPT_Switch	11
1.008	DPT_UpDown	11
1.xxx	DPT_generic 1-bit	11

DPT 1-Bit (Controlled) / EIS 8		
ID:	Name:	Described on page:
2.001	DPT_Switch_Control	13
2.xxx	DPT_generic 1-bit (controlled)	13

DPT 3-Bit (Controlled) / EIS 2		
ID:	Name:	Described on page:
3.007	DPT_Control_Dimming	15
3.xxx	DPT_generic 3-bit (controlled)	15

DPT 1-Byte (Character Set) / EIS 13		
ID:	Name:	Described on page:
4.001	DPT_Char_ASCII	18
4.002	DPT_Char_8859_1	18

DPT 1-Byte Unsigned / EIS 6/14		
ID:	Name:	Described on page:
5.001	DPT_Scaling	21
5.003	DPT_Angle	21
5.010	DPT_Value_1_Ucount	21

DPT 1-Byte Signed / EIS 14		
ID:	Name:	Described on page:
6.010	DPT_Value_1_Count	23
6.xxx	DPT_generic 1-byte	23

DPT 2-Byte Unsigned / EIS 10		
ID:	Name:	Described on page:
7.001	DPT_Value_2_Ucount	25

DPT 2-Byte Signed / EIS 10		
ID:	Name:	Described on page:
8.001	DPT_Value_2_Count	27
8.xxx	DPT_generic 2-byte	27

DPT 2-Byte Float / EIS 5		
ID:	Name:	Described on page:
9.001	DPT_Value_Temp	29
9.004	DPT_Value_Lux	29
9.008	DPT_Value_AirQuality	29

DPT 3-Byte Time / EIS 3		
ID:	Name:	Described on page:
10.001	DPT_TimeOfDay	31

DPT 3-Byte Date / EIS 4		
ID:	Name:	Described on page:
11.001	DPT_Date	33

DPT 4-Byte Unsigned / EIS 11		
ID:	Name:	Described on page:
12.001	DPT_Value_4_Ucount	36

DPT 4-Byte Signed / EIS 11		
ID:	Name:	Described on page:
13.001	DPT_Value_4_Count	38
13.xxx	DPT_generic 4-byte	38

DPT 4-Byte Float / EIS 9		
ID:	Name:	Described on page:
14.031	DPT_Value_Energy	40
14.068	DPT_Value_Common_Temperature	40

DPT 14-Byte (String) / EIS15		
ID:	Name:	Described on page:
16.000	DPT_String_ASCII	42

DPT 1-Byte SceneControl		
ID:	Name:	Described on page:
18.001	DPT_SceneControl	44

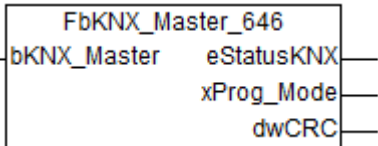
DPT 3-Byte Color RGB		
ID:	Name:	Described on page:
232.600	DPT_Color_RGB	46

DPT 6-Byte		
ID:	Name:	Described on page:
	DPT_generic 6-byte	48

DPT 8-Byte		
ID:	Name:	Described on page:
	DPT_generic 8-byte	50

Function Blocks

KNX Master Module 753-646

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbKNX_Master_646	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmierbare Feldbus-Controller 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Library used:	SysLibGetAddress.lib WagoLibKKBUS.lib	
Input parameter:	Data type:	Comment:
bKNX_Master	BYTE	Index of the KNX module 753-646 addressed to the controller Counting is from left to right. Value range = 1...5 Default setting = 1
Output parameter:	Data type:	Comment:
eStatusKNX	eStatusKNX	Output of status information
		KNX_NOT_INIT KNX_OK KNX_TX_CHECKSUM KNX_NO_DEVICE_MODUS KNX_TimeOutSend KNX_TimeOutReceive KNX_TimeOutSYNC KNX_COM_ERROR KNX_POWER_FAILURE KNX_ERROR_MODULE KNX_SYNC KNX_CONFIG_FAILURE
xProg_Mode	BOOL	Module in programming mode
dwCRC	DWORD	Checksum via DPT addresses
Graphical illustration:		
		

Function description:

The **FbKNX_Master_646** function block communicates with the 753-646 KNX module on the 750-8xx fieldbus controllers.

This function block detects all queued commands of the other KNX function blocks in the program and initiates their execution.

The controller automatically recognizes the plugged KNX modules and counts them one after the other, starting from the left. To address the function block to the required KNX module, the corresponding module index must be entered as a constant at the "**bKNX_Master**" input.

This function block may be used only once per installed KNX module. All other KNX function blocks must be linked with this function block via the "**bKNX_Master**" input variable.

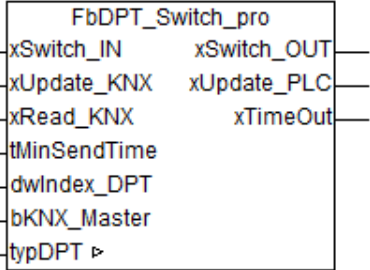
The "**eStatusKNX**" output variable provides status information about module communication. The output "**xProg_Mode**" indicates whether the KNX module is in programming mode.

The "**dwCRC**" output provides the checksum of the data point addresses (DPT addresses). It can be compared with the value in the WAGO ETS plug-in.

Important:

All KNX function blocks must be called up in cycles within the same program task.

DPT 1-Bit (Boolean) / EIS 1

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
xSwitch_IN	BOOL	Input switching signal
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
xSwitch_OUT	BOOL	Output switching signal
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Switch:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**xSwitch_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced by frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**xSwitch_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The "**xSwitch_OUT**" output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

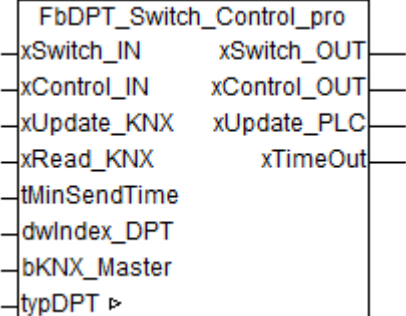
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
1.001	DPT_Switch		
1.008	DPT_UpDown		
1.xxx	DPT_generic 1-bit		

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 1-Bit (Controlled) / EIS 8

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
xSwitch_IN	BOOL	Input switching signal
xControl_IN	BOOL	Input signal override
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
xSwitch_OUT	BOOL	Output switching signal
xControl_OUT	BOOL	Output signal override
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Switch_Control:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**xSwitch_IN**" causes a telegram to be transmitted to the KNX module/controller. If the input signal "**xControl_IN**" is also set, the output telegram is sent by prompting. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**xSwitch_OUT**" output. Prompting is active when the "**xControl_OUT**" output is set. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The "**xSwitch_OUT**" output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

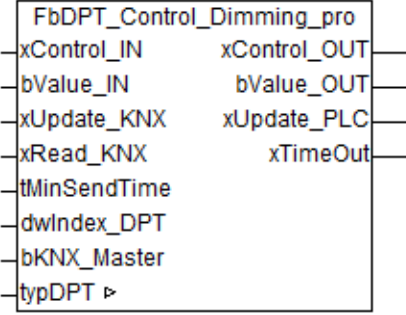
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
2.001	DPT_Switch_Control		
2.xxx	DPT_generic 1-bit (controlled)		

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 3-Bit (Controlled) / EIS 2

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
xControl_IN	BOOL	Dimming direction
bValue_IN	BYTE	Dimming increment Value range = 0...7
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
xControl_OUT	BOOL	Dimming direction
bValue_OUT	BYTE	Dimming increment Value range = 0...7
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Control_Dimming:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_XXX).

Both function blocks are synchronized via the **"bKNX_Master"** input variable, which must be identical for both function blocks.

The optional **"dwIndex_DPT"** input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the **"Mx_yyy_"** prefix where "x" corresponds to the value of the **"bKNX_Master"** input and "yyy" to the value of the **"dwIndex_DPT"** input.

Example prefix: M1_003_BlockName (bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at inputs **"xControl_IN"** or **"bValue_IN"** causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the **"xUpdate_KNX"** input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter **"tMinSendTime"**. The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the **"xRead_KNX"** input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the **"xControl_OUT"** or **"bValue_OUT"** output. The non-scaled values for the received data are provided as a **"typDPT"** IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output **"xUpdate_PLC"**. The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output **"xTimeOut"**.

The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
3.007	DPT_Control_Dimming		
3.xxx	DPT_generic 3-bit (controlled)		

Scaling for DPT_Control_Dimming:

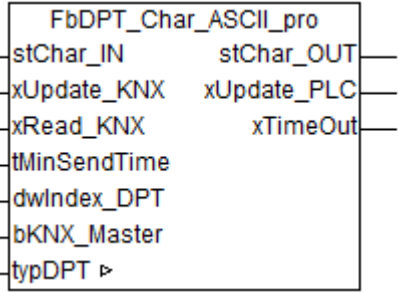
bValue	Increment
0	Stop
1	100 %
2	50 %
3	25 %
4	12 %
5	6 %
6	3 %
7	1 %

xControl	Dimming direction
TRUE	upward
FALSE	downward

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 1-Byte (Character Set) / EIS 13

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
stChar_IN	STRING (1)	Input character
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
stChar_OUT	STRING (1)	Output character
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Char_ASCII:		
 <pre> FbDPT_Char_ASCII_pro ── stChar_IN stChar_OUT ── ── xUpdate_KNX xUpdate_PLC ── ── xRead_KNX xTimeOut ── ── tMinSendTime ── dwIndex_DPT ── bKNX_Master ── typDPT ▶ </pre>		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**stChar_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**stChar_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
4.001	DPT_Char_ASCII	[0...127]	
4.002	DPT_Char_8859_1	[0...255]	

Scaling for DPT_Char_ASCII and DPT_Char_8859_1:

MSN	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LSN																
0	NUL	DLE		0	@	P	`	p				°	À	Ð	à	ð
1	SOH	DC1	!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
2	STX	DC2	"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3	ETX	DC3	#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4	EOT	DC4	\$	4	D	T	d	t			¤	´	Ä	Ö	ä	ö
5	ENQ	NAK	%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6	ACK	SYN	&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
7	BEL	ETB	'	7	G	W	g	w			§	·	Ç	×	ç	÷
8	BS	CAN	(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9	HT	EM	)	9	I	Y	i	y			©	˘	É	Ù	é	ù
A	LF	SUB	*	:	J	Z	j	z			ª	º	Ê	Û	ê	û
B	VT	ESC	+	;	K	[	k	{			«	»	Ë	Ü	ë	ü
C	FF	FS	,	<	L	\	l	|			¬	¼	Ì	Ù	ì	ü
D	CR	GS	-	=	M	]	m	}			-	½	Í	Ý	í	ý
E	SO	RS	.	>	N	^	n	~			®	¾	Î	Þ	î	þ
F	SI	US	/	?	O	_	o				¯	¿	Ï	ß	ï	ÿ

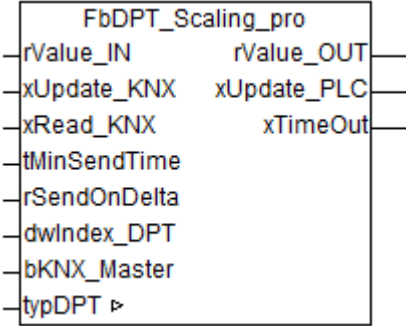
LSN = Least Significant Nibble

MSN = Most Significant Nibble

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 1-Byte Unsigned / EIS 6/14

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
rValue_IN bValue_IN	REAL / BYTE	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
rSendOnDelta bSendOnDelta	REAL / BYTE	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
rValue_OUT / bValue_OUT	REAL / BYTE	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Scaling:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_XXX).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "**x**" corresponds to the value of the "**bKNX_Master**" input and "**yyy**" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**rValue_IN**" or "**bValue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The parameter "**rSendOnDelta**" or "**bSendOnDelta**" indicates the amount by which the input value "**rValue_IN**" must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced by frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**rValue_OUT**" or "**bValue_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

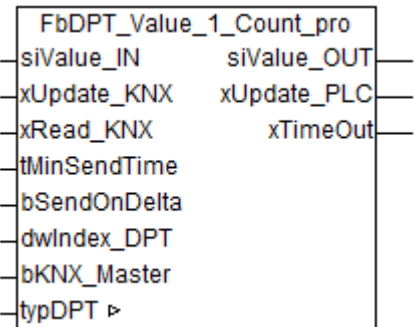
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
5.001	DPT_Scaling	[0..100]	%
5.003	DPT_Angle	[0...360]	°
5.010	DPT_Value_1_Ucount	[0...255]	counter pulses

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 1-Byte Signed / EIS 14

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
siValue_IN	SINT	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
bSendOnDelta	BYTE	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
siValue_OUT	SINT	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of Value_1_Count:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**siValue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The parameter "**bSendOnDelta**" indicates the amount by which the input value "**siValue_IN**" must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced by frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**siValue_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

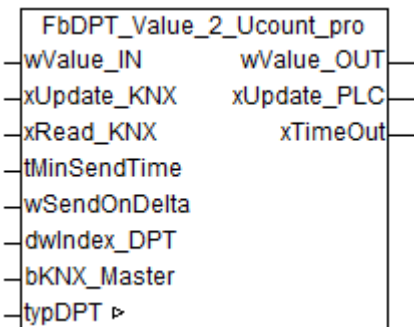
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
6.010	DPT_Value_1_Count	[-128...127]	counter pulses
6.xxx	DPT_generic 1-byte	[-128...127]	

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 2-Byte Unsigned / EIS 10

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_Value_2_Ucount_pro	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
wValue_IN	WORD	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
wSendOnDelta	WORD	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
wValue_OUT	WORD	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_XXX).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**wValue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input. The parameter "**wSendOnDelta**" indicates the amount by which the input value "**wValue_IN**" must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**wValue_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

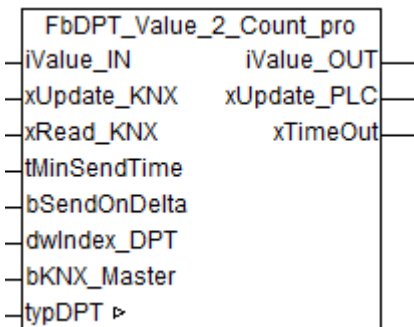
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
7.001	DPT_Value_2_Ucount	[0...65535]	pulses

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 2-Byte Signed / EIS 10

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
iValue_IN	INT	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
bSendOnDelta	BYTE	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
iValue_OUT	INT	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Value_2_Count:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "**x**" corresponds to the value of the "**bKNX_Master**" input and "**yyy**" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**iValue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input. The parameter "**bSendOnDelta**" indicates the amount by which the input value "**iValue_IN**" must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**iValue_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

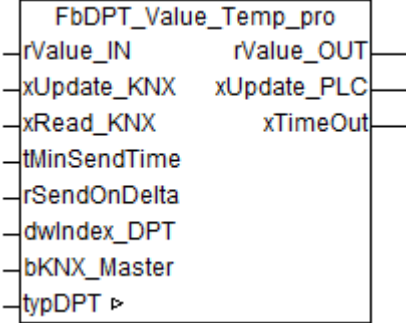
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
8.001	DPT_Value_2_Count	[-32768...32767]	pulses
8.xxx	DPT_generic 2-byte	[-32768...32767]	Ms

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 2-Byte Float / EIS 5

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
rValue_IN	REAL	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
rSendOnDelta	REAL	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
rValue_OUT	REAL	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Value_Temp:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the **"bKNX_Master"** input variable, which must be identical for both function blocks.

The optional **"dwIndex_DPT"** input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the **"Mx_yyy_"** prefix where "x" corresponds to the value of the **"bKNX_Master"** input and "yyy" to the value of the **"dwIndex_DPT"** input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input **"rValue_IN"** causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the **"xUpdate_KNX"** input. The parameter **"rSendOnDelta"** indicates the amount by which the input value **"rValue_IN"** must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter **"tMinSendTime"**. The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the **"xRead_KNX"** input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the **"rValue_OUT"** output. The non-scaled values for the received data are provided as a **"typDPT"** IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output **"xUpdate_PLC"**. The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output **"xTimeOut"**.

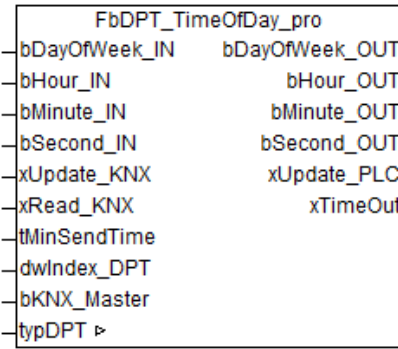
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
9.001	DPT_Value_Temp	[-273...670760]	°C
9.004	DPT_Value_Lux	[0...670760]	Lux
9.008	DPT_Value_AirQuality	[0...670760]	ppm

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 3-Byte Time / EIS 3

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_TimeOfDay_pro	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
bDayOfWeek_IN	BYTE	Day of week
bHour_IN	BYTE	Hours
bMinute_IN	BYTE	Minutes
bSecond_IN	BYTE	Seconds
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
bDayOfWeek_OUT	BYTE	Day of week
bHour_OUT	BYTE	Hours
bMinute_OUT	BYTE	Minutes
bSecond_OUT	BYTE	Seconds
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_XXX).

Both function blocks are synchronized via the **"bKNX_Master"** input variable, which must be identical for both function blocks.

The optional **"dwIndex_DPT"** input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the **"Mx_yyy_"** prefix where "x" corresponds to the value of the **"bKNX_Master"** input and "yyy" to the value of the **"dwIndex_DPT"** input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at inputs **"bDayOfWeek_IN"**, **"bHour_IN"**, **"bMinute_IN"** or **"bSecond_IN"** causes a telegram to be transmitted to the KNX module/controller.

Sending can also be forced by a rising edge present at the **"xUpdate_KNX"** input. The minimum time interval for sending telegrams can be defined for the function block using the parameter **"tMinSendTime"**. The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the **"xRead_KNX"** input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the **"bDayOfWeek_OUT"**, **"bHour_OUT"**, **"bMinute_OUT"** and **"bSecond_OUT"** outputs. The non-scaled values for the received data are provided as a **"typDPT"** IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output **"xUpdate_PLC"**. The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output **"xTimeOut"**.

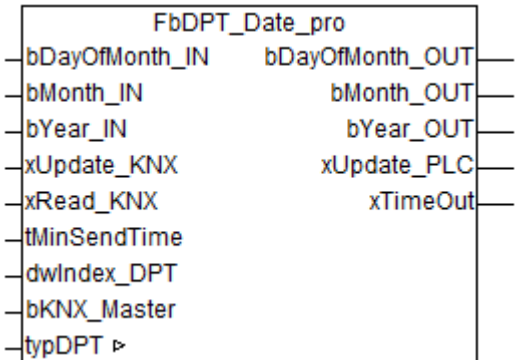
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
10.001	DPT_TimeOfDay		
	bDayOfWeek	[0...7]	1= Monday, 7= Sunday
	bHour	[0...23]	Hours
	bMinute	[0...59]	Minutes
	bSecond	[0...59]	Seconds

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 3-Byte Date / EIS 4

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_Date_pro	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_Standard.lib / KNX_Advanced.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
bDayOfMonth_IN	BYTE	Day
bMonth_IN	BYTE	Month
bYear_IN	BYTE	Year
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
bDayOfMonth_OUT	BYTE	Day
bMonth_OUT	BYTE	Month
bYear_OUT	BYTE	Year
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at inputs "**bDayOfMonth_IN**", "**bMonth_IN**" or "**bYear_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**bDayOfMonth_OUT**", "**bMonth_OUT**" and "**bYear_OUT**" outputs. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
11.001	DPT_Date		
	bDayOfMonth	[1...31]	Day
	bMonth	[1...12]	Month
	bYear	[0...99]	Year

The following interpretation applies for the value "bYear":

If bYear \geq 90 ==> 20th century

If bYear < 90 ==> 21st century

Example:

bYear = 0 ==> Year 2000

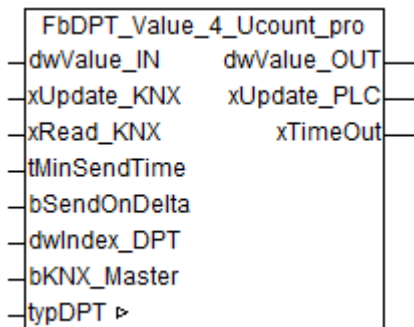
bYear = 4 ==> Year 2004

bYear = 99 ==> Year 1999

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 4-Byte Unsigned / EIS 11

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_Value_4_Ucount_pro	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
dwValue_IN	DWORD	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
bSendOnDelta	BYTE	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
dwValue_OUT	DWORD	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**dwValue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The parameter "**bSendOnDelta**" indicates the amount by which the input value "**dwValue_IN**" must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**dwValue_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

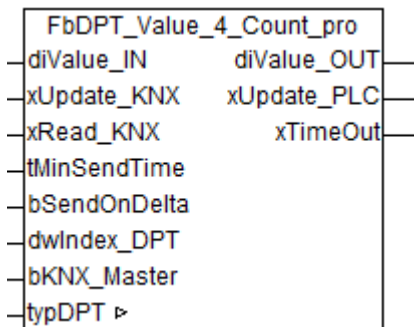
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
12.001	DPT_Value_4_Ucount	[0...4294967295]	counter pulse

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 4-Byte Signed / EIS 11

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
diValue_IN	DINT	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
bSendOnDelta	BYTE	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
diValue_OUT	DINT	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Value_4_Count:		
 <pre> FbDPT_Value_4_Count_pro - diValue_IN diValue_OUT --- - xUpdate_KNX xUpdate_PLC --- - xRead_KNX xTimeOut --- - tMinSendTime - bSendOnDelta - dwIndex_DPT - bKNX_Master - typDPT ▶ </pre>		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input. Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**diValue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The parameter "**bSendOnDelta**" indicates the amount by which the input value "**diValue_IN**" must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**diValue_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

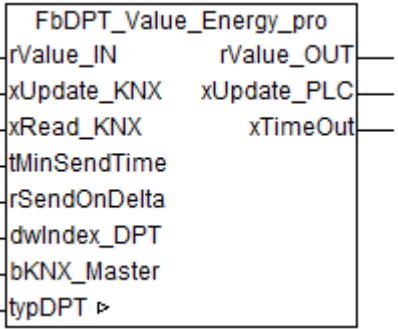
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
13.001	DPT_Value_4_Count	[-2147483648... 2147483647]	counter pulse
13.xxx	DPT_generic 4-byte		

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 4-Byte Float / EIS 9

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
rValue_IN	REAL	Input value
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
rSendOnDelta	REAL	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
rValue_OUT	REAL	Output value
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_Value_Energy:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**rValue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input. The parameter "**rSendOnDelta**" indicates the amount by which the input value "**rValue_IN**" must change before an update is initiated within the network. The sending frequency can be limited in this manner.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**rValue_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

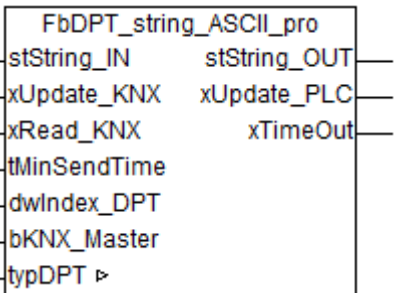
The above description applies to the following DPTs:

ID:	Name:	[min... max]	Unit:
14.031	DPT_Value_Energy		J
14.068	DPT_Value_Common_Temperature		°C

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 14-Byte (String) / EIS 15

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_xxx (see list of DPTs, page 6–8)	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
stString_IN	STRING (14)	Input character
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
rSendOnDelta	REAL	Hysteresis for sending conditions Default setting = 0
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
stString_OUT	STRING (14)	Output character
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration, example of DPT_String_ASCII:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**stString_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**stString_OUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

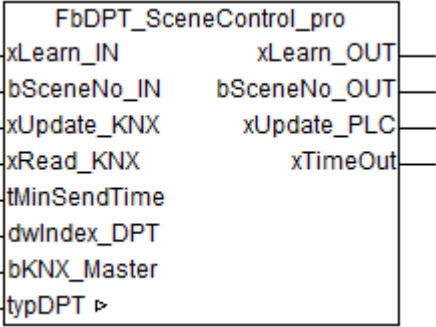
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
16.000	DPT_String_ASCII		
16.001	DPT_String_8859_1		

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 1-Byte SceneControl

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_SceneControl_pro	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
xLearn_IN	BOOL	Activate or learn scene
bSceneNo_IN	BYTE	Scene number Value range = 1...64
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
xLearn_OUT	BOOL	Scene is activated or learned
bSceneNo_OUT	BYTE	Scene number Value range = 1...64
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input. Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at inputs "**xLearn_IN**" or "**bSceneNo_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**xLearn_OUT**" and "**bSceneNo_OUT**" outputs. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

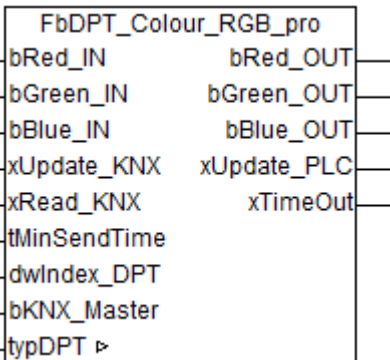
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
18.001	DPT_SceneControl		
	xLearn	[0...1]	
	bSceneNo	[1...64]	

Note:

The function block must be called up cyclically like the KNX master function block.

DPT 3-Byte Color_RGB

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_Color_RGB_pro	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
bRed_IN	BYTE	Value for red
bGreen_IN	BYTE	Value for green
bBlue_IN	BYTE	Value for blue
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
bRed_OUT	BYTE	Value read for red
bGreen_OUT	BYTE	Value read for green
bBlue_OUT	BYTE	Value read for blue
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input. Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at inputs "**bRed_IN**", "**bGreen_IN**" or "**bBlue_IN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced with frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**bRed_OUT**", "**bGreen_OUT**" or "**bBlue_OUT**" outputs. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

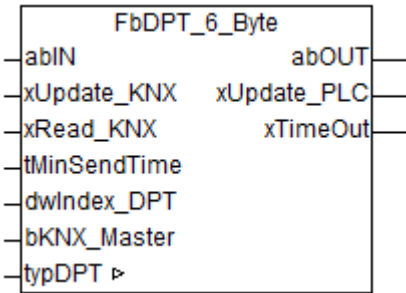
The above description applies to the following DPTs:

ID:	Name:	[min...max]	Unit:
232.600	DPT_Color_RGB		
	bRed	[0...255]	
	bGreen	[0...255]	
	bBlue	[0...255]	

Note:

The function block must be called up cyclically like the KNX master function block.

DPT-generic 6-Byte

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_6_Byte	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
abIN	ARRAY [0...5] OF BYTE	Input values
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description Default setting = 1
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
abOUT	ARRAY [0...5] OF BYTE	Output values
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**abIN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced by frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**abOUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values "**abOUT**" are also retained after resetting the controller.

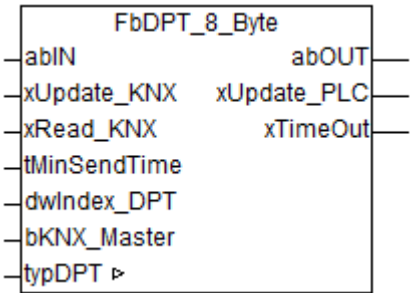
A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

Note:

The function block must be called up cyclically like the KNX master function block.

DPT-generic 8-Byte

WAGO-I/O-PRO Library Elements		
Category:	Building Automation	
Name:	FbDPT_8_Byte	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of library:	KNX_02.lib	
Applicable to:	Programmable fieldbus controllers 750-88x (≥ FW07), 750-820x (≥ FW03), 758-87x (≥ FW09)	
Input parameter:	Data type:	Comment:
abIN	ARRAY [0...7] OF BYTE	Input values
xUpdate_KNX	BOOL	Initiate telegram update
xRead_KNX	BOOL	Initiate readout of the current value
tMinSendTime	TIME	Parameter value for MinSendTime Default = t#40ms
dwIndex_DPT	DWORD	Index of DPT function blocks (optional fixed address assignment) Default setting = 0
bKNX_Master	BYTE	Index of the addressed KNX module See FbKNX_Master_646 for description
Input/output parameters:	Data type:	Comment:
typDPT	typDPT	KNX object value as RAW DATA for potentially saving as RETAIN variable.
Output parameters:	Data type:	Comment:
abOUT	ARRAY [0...7] OF BYTE	Output values
xUpdate_PLC	BOOL	Telegram received at KNX object
xTimeOut	BOOL	Timeout detection
Graphical illustration:		
		

Function description:

The function block exchanges data with a KNX object of the 753-646 module or the 750-889 KNX controller. The function block may only be used with a KNX master function block (FbKNX_Master_xxx).

Both function blocks are synchronized via the "**bKNX_Master**" input variable, which must be identical for both function blocks.

The optional "**dwIndex_DPT**" input can be used as an index of constant memory to address the DPT function block. When assigning this input, the ETS application only needs to be synchronized and transferred again when there are program changes that affect the KNX function blocks. If the input is assigned, the designation of the function block must include the "**Mx_yyy_**" prefix where "x" corresponds to the value of the "**bKNX_Master**" input and "yyy" to the value of the "**dwIndex_DPT**" input.

Example prefix: M1_003_BlockName → bKNX_Master = 1 / dwIndex_DPT = 3

The function block can be used either for sending or receiving object values.

Sending:

A value change at input "**abIN**" causes a telegram to be transmitted to the KNX module/controller. Sending can also be forced by a rising edge present at the "**xUpdate_KNX**" input.

The minimum time interval for sending telegrams can be defined for the function block using the parameter "**tMinSendTime**". The volume of telegram traffic can be reduced by frequently changing signals.

A rising edge at the "**xRead_KNX**" input causes a read telegram to be triggered by the transmitting group address.

Receiving:

If the function block is used for receiving data (output), the data received from the module/controller is signaled at the "**abOUT**" output. The non-scaled values for the received data are provided as a "**typDPT**" IN_OUT variable. This offers the user the possibility of also saving the values as a RETAIN variable, allowing the output values to be retained after a controller reset. The output values "**abOUT**" are also retained after resetting the controller.

A telegram update, initiated by a KNX group address, is signaled at output "**xUpdate_PLC**". The variable will then switch to TRUE for one program cycle.

With timeout monitoring activated for a KNX object (KNX plug-in setting), violation (exceeding) of the monitoring time is indicated by a signal at output "**xTimeOut**".

Note:

The function block must be called up cyclically like the KNX master function block.

Function Blocks “Transparent Mode”

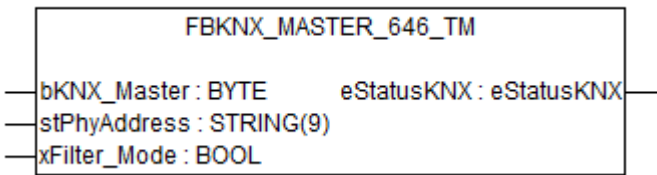
“Transparent Mode” (TM) is an alternative operating mode in the KNX module (753-646). With it, commissioning with the KNX commissioning software (ETS) is unnecessary. In contrast to the standard operating mode, the ETS plug-in is unnecessary.

A free physical address, stored directly in the PLC program, is needed to use the TM. In addition, the group addresses and data types of the data points needed must be known. Especially on more extensive KNX systems with line couplers, it must be ensured that the system is configured so the relevant telegrams are sent all the way to the KNX module.

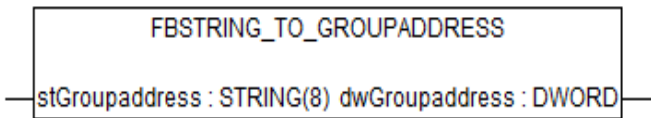
To establish communication between the PLC program and the KNX group addresses, the standard “FbDPT...” function blocks are used. As soon as the function blocks are connected with a group address, the KNX module filter table is extended. Conversion modules, or functions, must be used for entering the group addresses.

KNX Master Module (753-646) in “Transparent Mode”

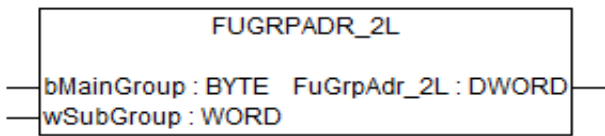
WAGO-I/O-PRO Library Elements		
Category:	Building technology	
Name:	FbKNX_Master_646_TM	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of Library:	KNX_02.lib	
Applicable to:	See Release Note	
Libraries Used:	SysLibGetAddress.lib WagoLibKBUS.lib	
Input Parameter:	Data Type:	Comment:
bKNX_Master	BYTE	Index of the KNX module (753-646) addressed on the controller Counting is from left to right. Value range = 1 ... 5 Default setting = 1
stPhyAddress	STRING (9)	KNX module physical address to be used (“xx.xx.xxx”), e.g., “1.1.1”
xFilter_Mode	BOOL	Activates/deactivates the filter mode Default setting = TRUE
Output Parameter:	Data Type:	Comment:
eStatusKNX	eStatusKN X	Output of status information

WAGO-I/O-PRO Library Elements		
		KNX_NOT_INIT KNX_OK KNX_TX_CHECKSUM KNX_NO_DEVICE_MODUS KNX_TimeOutSend KNX_TimeOutReceive KNX_TimeOutSYNC KNX_COM_ERROR KNX_POWER_FAILURE KNX_ERROR_MODULE KNX_SYNC KNX_CONFIG_FAILURE
Graphical Illustration:		
		
Function Description:		
<p>The FbKNX_Master_646 function block is used for communication with the KNX module (753-646) on 750-8xx fieldbus controllers with up to 255 group addresses. This function block detects all queued commands of the other KNX function blocks in the program and initiates their execution.</p> <p>The controller automatically recognizes the connected KNX modules and counts through them starting from the left. To address the function block to the required KNX module, the corresponding module index must be entered as a constant at the input “bKNX_Master”.</p> <p>This function block may be used only once per installed KNX module. Mixed operation with the block FbKNX_Master_646 is not permitted either. All other KNX function blocks must be linked with this function block via the same “bKNX_Master” input variable. Except when the block FbKNX_Master_646 is used, the physical address of the interface is not configured with the commissioning software (ETS), but directly at the input stPhyAddress as a character chain (e.g., “1.1.1”). The input xFilter_Mode activates and deactivates the filter function. For most applications, this function should remain activated. The filter table is automatically extended as soon as one of the “FbDPT...” function blocks is linked with a group address.</p> <p>The output variable “eStatusKNX” provides status information about the module communication. The message “KNX_CONFIG_FAILURE” appears if the maximum permissible number of group addresses used is exceeded.</p>		
<p>Important: All KNX function blocks must be called up in cycles within the same program mask.</p>		

Conversion Block "String Group Address"

WAGO-I/O-PRO Library Elements		
Category:	Building technology	
Name:	FbString_to_GroupAddress	
Type:	Function <input type="checkbox"/>	Function block <input checked="" type="checkbox"/> Program <input type="checkbox"/>
Name of Library:	KNX_02.lib	
Applicable to:	See Release Note	
Libraries Used:	SysLibGetAddress.lib WagoLibKBUS.lib	
Input Parameter:	Data Type:	Comment:
stGroupaddress	STRING(8)	Group address as character chain (e.g., "1/1/1")
Output Parameter:	Data Type:	Comment:
dwGroupaddress	DWORD	Calculated group address for linking with a communication block (input: dwIndex_DPT)
Graphical Illustration:		
		
Function Description:		
This block can be used to convert a character chain to a DWORD group address.		

“Two-Stage Group Address” Conversion Function

WAGO-I/O-PRO Library Elements		
Category:	Building technology	
Name:	FuGrpAdr_2L	
Type:	Function <input checked="" type="checkbox"/>	Function block <input type="checkbox"/> Program <input type="checkbox"/>
Name of Library:	KNX_02.lib	
Applicable to:	See Release Note	
Libraries Used:	SysLibGetAddress.lib WagoLibKBUS.lib	
Input Parameter:	Data Type:	Comment:
bMainGroup	BYTE	Main group address
wSubGroup	WORD	Group address
Output Parameter:	Data Type:	Comment:
dwGroupaddress	DWORD	Calculated group address for linking with a communication block (input: dwIndex_DPT)
Graphical Illustration:		
		
Function Description:		
This block can be used to create a DWORD group address from a two-stage template.		

“Three-Stage Group Address” Conversion Function

WAGO-I/O-PRO Library Elements		
Category:	Building technology	
Name:	FuGrpAdr_3L	
Type:	Function <input checked="" type="checkbox"/>	Function block <input type="checkbox"/> Program <input type="checkbox"/>
Name of Library:	KNX_02.lib	
Applicable to:	See Release Note	
Libraries Used:	SysLibGetAddress.lib WagoLibKBUS.lib	
Input Parameter:	Data Type:	Comment:
bMainGroup	BYTE	Main group address
bMiddleGroup	BYTE	Middle group address
wSubGroup	BYTE	Group address
Output Parameter:	Data Type:	Comment:
dwGroupaddress	DWORD	Calculated group address for linking with a communication block (input: dwIndex_DPT)
Graphical Illustration:		
Function Description:		
<p>This block can be used to create a DWORD group address from a three-stage template.</p>		
<p>In this example, the KNX module (753-646) with the physical address “1.1.254” is used. The group address “1/1/1” is addressed through the function block “FbDPT_Switch” and its status is read out. If additional group addresses are used, make sure the corresponding function block in the same PLC program is called up.</p>		



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