


<b>somfy®</b>	<b>GME-STD-116 R1</b>	<b>2009-06-18</b>
Window & Blind Business Group	<b>RS485 RTS TRANSMITTER - SOMFY RS485 Protocol</b>	Version 0.4

# RS485 RTS TRANSMITTER Profile SOMFY RS485 Protocol

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Revision	Object	Author	Date
0.0 R0	First draft based on specifications	A.Millet	2008/08/21
0.4 R1	Updates. Version for the product's commercial launching.	V. Vanderschaeve	2009/06/19

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## 1 Introduction

This document applies to SOMFY **RS485 RTS TRANSMITTER** as described in SDEV-CDCF 176:

### *Product perimeter*

The RS485 RTS transmitter is a 16 channels U80 RTS transmitter that enables a 3<sup>rd</sup> party (home automation control system) to control SOMFY RTS motors and receivers.


### *Applications*

The interface is compatible with all RTS applications:

- Roller shutters
- Awnings
- Black-out shades
- Internal & External Screens
- Curtains
- Interior venetian blinds
- Lighting receivers
- Projection screens.




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Status	Retrieve Mode of channels	GET_CHANNEL_MODE (A0h)	>> In
		POST_CHANNEL_MODE (B0h)	Out >>
	Retrieve Tilt FrameCount	GET_TILT_FRAMECOUNT (A1h)	>> In
		POST_TILT_FRAMECOUNT (B1h)	Out >>
	Retrieve Dim FrameCount	GET_DIM_FRAMECOUNT (A2h)	>> In
		POST_DIM_FRAMECOUNT (B2h)	Out >>
	Retrieve Lock Status	GET_DCT_LOCK(A4h)	>> In
		POST_DCT_LOCK (B4h)	Out >>

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### 3 Applicable Standards

#### 3.1 Functional Standards

- n/a

#### 3.2 Technical Standards

- GME-STD-062      ILT Protocol overview
- GME-STD-063      RS485 Physical Layer
- GME-STD-064      ILT@ Data-Link Layer
- GME-STD-065      ILT Standard Messages


Product designation	NodeType / AppID	Node Family
RS485 RTS TRANSMITTER	05h	SLAVE

Address Range	
05:80:00	05:FF:FF

Typical Response time of the transmitter is from 5 to 10 ms.

Regarding Specific frames, mainly the ones that trigger an RTS Transmission (80h, 81h, 82h), the typical response time is from 100 to 110 ms.

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## 4 Table of Supported Messages


### 4.1 Mandatory Messages

Mandatory messages are used for basic networking features: address / group / acknowledgment / diagnosis / software information. Definition of these messages can be found in GME-STD 065 “ILT Standard Messages”.

MSG In	MSG Out	Name	Description
40h		GET_NODE_ADDR	Read NodeID / AppID
	60h	POST_NODE_ADDR	Send NodeID / AppID on network
41h		GET_GROUP_ADDR	Read NodeID of designated group (1 on 16)
51h		SET_GROUP_ADDRESS	Write NodeID of designated group (1 on 16)
	61h	POST_GROUP_ADDR	Send NodeID of designated group (1 on 16)
45h		GET_NODE_LABEL	Read Label of the node
55h		SET_NODE_LABEL	Write Label of the node
	65h	POST_NODE_LABEL	Send Label of the node
4Ch		GET_SERIAL_NUMBER	Read Serial Number of the node
	6Ch	POST_SERIAL_NUMBER	Send Serial Number of the node
4Dh		GET_NETWORK_ERROR_STAT	Read Error counter of the stack
	6Dh	POST_NETWORK_ERROR_STAT	Send Error counter of the stack
4Eh		GET_NETWORK_STAT	Read network communication diagnosis
5Eh		SET_NETWORK_STAT	Configure and reset diagnosis counters
	6Eh	POST_NETWORK_STAT	Send network communication diagnosis
	6Fh	NACK	Send acknowledgment with error code
70h		GET_NODE_STACK_VERSION	read version of the stack
	71h	POST_NODE_STACK_VERSION	send version of the stack
74h		GET_NODE_APP_VERSION	read version of the software
	71h	POST_NODE_APP_VERSION	send version of the software
	7Fh	ACK	Send acknowledgment

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## 4.2 ILT Standard Messages Compatibility (40h – 7Fh)

	40h		50h		60h		70h
40	GET_NODE_ADDR	50		60	POST_NODE_ADDR	70	GET_NODE_SW_VERSION
41	GET_GROUP_ADDR	51	SET_GROUP_ADDR	61	POST_GROUP_ADDR	71	POST_NODE_SW_VERSION
42		52		62		72	
43		53		63		73	
44		54		64		74	GET_NODE_APP_VERSION
45	GET_NODE_LABEL	55	SET_NODE_LABEL	65	POST_NODE_LABEL	75	POST_NODE_APP_VERSION
46		56		66		76	
47		57		67		77	
48		58		68		78	
49		59		69		79	
4A		5A		6A		7A	
4B		5B		6B		7B	
4C	GET_NODE_SERIAL_NUMBER	5C		6C	POST_NODE_SERIAL_NUMBER	7C	
4D	GET_NETWORK_ERROR_STAT	5D		6D	POST_NETWORK_ERROR_STAT	7D	
4E	GET_NETWORK_STAT	5E	SET_NETWORK_STAT	6E	POST_NETWORK_STAT	7E	
4F		5F		6F	NACK	7F	ACK

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## 5 Application-specific Messages

### 5.1 Messages Table

	80h		90h		A0h		B0h
80h	CTRL_POSITION	90h	SET_CHANNEL_MODE	A0h	GET_CHANNEL_MODE	B0h	POST_CHANNEL_MODE
81h	CTRL_TILT	91h	SET_TILT_FRAMECOUNT	A1h	GET_TILT_FRAMECOUNT	B1h	POST_TILT_FRAMECOUNT
82h	CTRL_DIM	92h	SET_DIM_FRAMECOUNT	A2h	GET_DIM_FRAMECOUNT	B2h	POST_DIM_FRAMECOUNT
		93h	SET_SUN_AUTO				
		94h	SET_DCT_LOCK	A4h	GET_DCT_LOCK	B4h	POST_DCT_LOCK
		97h	SET_CHANNEL				
		98h	SET_OPEN_PROG				
		9Ah	SET_IP				

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## 5.2 Setting Functions

### 5.2.1 SET\_CHANNEL\_MODE (90h)

➤ Set the modes to use for the selected channel. This mode is used to determine the number of RTS frame to send on **CTRL\_POSITION** and **CTRL\_TILT** Orders.

MSG	Name	DATA Length	FRAME Length	Addressing		
90h	SET_CHANNEL_MODE	4	15	P2P	GROUP	BROADCAST


DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to set
US/CE mode	Byte	0	1	Used for UP/DOWN/TILT
Rolling/Tilting Mode	Byte	0	1	Used for UP/DOWN
Modulis Mode	Byte	0	1	Used for motors/receivers compatible with Modulis = tilting or dimming

US/CE mode	Description	Remarks
00h	CE mode	
01h	US Mode	Default

Rolling/Tilting Mode	Description	Remarks
00h	Rolling mode	Default
01h	Tilting Mode	

Modulis Mode	Description	Remarks
00h	Normal mode	
01h	Modulis Mode	Default

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### 5.2.2 SET\_TILT\_FRAMECOUNT (91h)

➤ Set the number of RTS frames the product should send on a **CTRL\_TILT** order.

MSG	Name	DATA Length	FRAME Length	Addressing		
91h	SET_TILT_FRAMECOUNT	3	14	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to set
Number of frames to send for US mode	Byte	4	255*	Default Value: 5
Number of frames to send for CE mode	Byte	2	13	Default Value: 2

\*Remark: the number of frames will be effectively limited to 10 seconds of sending.

### 5.2.3 SET\_DIM\_FRAMECOUNT (92h)

➤ Set the number of RTS frames the product should send on a **CTRL\_DIM** order.

MSG	Name	DATA Length	FRAME Length	Addressing		
92h	SET_DIM_FRAMECOUNT	2	13	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to set
Number of frames to send	Byte	4	255*	Default Value: 5

\*Remark: the number of frames will be effectively limited to 10 seconds of sending.

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## 5.2.4 SET\_SUN\_AUTO (93h)

➤ Send RTS ON/OFF orders to the selected output.

MSG	Name	DATA Length	FRAME Length	Addressing		
93h	SET_SUN_AUTO	2	13	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to use for RTS
Function	Byte	0	1	

Function	Description	Remarks
00h	SET Sun Auto ON	
01h	SET Sun Auto OFF	

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## 5.2.5 SET\_DCT\_LOCK (94h)

➤ Signal to product that actions on specified DCT should not be routed through RTS layer.

MSG	Name	DATA Length	FRAME Length	Addressing		
94h	SET_DCT_LOCK	2	13	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
DCT Index	Byte	0x00	0x05	
Function	Byte	0x00	0x01	

DCT Index	Description	Remarks
0x00	All	Lock/Unlock all DCTs
0x01	DCT1	Lock/Unlock DCT1
0x02	DCT2	Lock/Unlock DCT2
0x03	DCT3	Lock/Unlock DCT3
0x04	DCT4	Lock/Unlock DCT4
0x05	DCT5	Lock/Unlock DCT5

Function	Description	Remarks
0x00	Unlock	
0x01	Lock	

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## 5.2.6 SET\_CHANNEL (97h)

➤ Send RTS Prog frames to a receiver

MSG	Name	DATA Length	FRAME Length	Addressing		
97h	SET_CHANNEL	1	12	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel number to set for RTS

## 5.2.7 SET\_OPEN\_PROG (98h)

➤ Send RTS Prog frames to a receiver

MSG	Name	DATA Length	FRAME Length	Addressing		
98h	SET_OPEN_PROG	1	12	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel number to set for RTS

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### 5.2.8 SET\_IP (9Ah)

➤ Send RTS Record/Delete IP order to the selected output.

MSG	Name	DATA Length	FRAME Length	Addressing		
9Ah	SET_IP	1	12	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to use for RTS

Remark:

- if RTS receiver has an IP stored => IP is deleted
- if RTS receiver position is different from stored IP or if there is no IP stored => new position is stored as IP

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## 5.3 Control Functions

### 5.3.1 CTRL\_POSITION (80h)

- Send RTS Up/Down/Stop/IP orders to the selected motor output.
- Send RTS On/Off orders to the selected non motor output.

MSG	Name	DATA Length	FRAME Length	Addressing		
80h	CTRL_POSITION	2	13	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to use for RTS
Function	Byte	1	4	

Function	Description	Remarks
01h	Move to UP Limit / LIGHT ON	See Remark below
02h	Move to DOWN Limit / LIGHT OFF	See Remark below
03h	STOP	No effect for non motor receivers
04h	Move to Intermediate Position / LIGHT ON with favorite light position	

Remark: Number of RTS frames effectively sent depends on CE/US/ROLLING mode of the corresponding channel (see SET\_CHANNEL\_MODE)

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### 5.3.2 CTRL\_TILT (81h)

➤ Send RTS Tilt+/Tilt- orders to the selected motor output.

MSG	Name	DATA Length	FRAME Length	Addressing		
81h	CTRL_TILT	3	14	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to use for RTS
Function	Byte	0	1	
Tilting Amplitude	Byte	1	127	Only significant when the channel is configured as running in « Modulis Mode ». Ignored otherwise

Function	Description	Remarks
00h	TILT+	
01h	TILT-	

Remark:

- If the specified channel is in “Modulis” mode, amplitude of tilting depend on the “Tilting Amplitude” parameter.
- If the specified channel is not in “Modulis” mode but is in “Tilting” mode (see SET\_CHANNEL\_MODE), amplitude of tilting depend on “Number of frames to send” parameter set according to the current mode (see SET\_TILT\_FRAMECOUNT).
- If the specified channel is neither in “Modulis” mode nor “Tilting” mode (see SET\_CHANNEL\_MODE), Command is rejected. (NACK with “CANNOT\_TILT\_IN\_ROLLING\_MODE” status)

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### 5.3.3 CTRL\_DIM (82h)

➤ Send RTS Dim+/Dim- orders to the selected receiver.

MSG	Name	DATA Length	FRAME Length	Addressing		
82h	CTRL_DIM	3	14	P2P	GROUP	BROADCAST


DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to use for RTS
Function	Byte	0	1	
DIM Amplitude	Byte	1	127	Only significant when the channel is configured as running in « Modulis Mode ». Ignored otherwise

Function	Description	Remarks
00h	DIM+	
01h	DIM-	

Remark: If the channel is not a “Modulis” one (see SET\_CHANNEL\_MODE), amplitude of tilting depend on “Number of frames to send” parameter set (see SET\_DIM\_FRAMECOUNT).

If the channel is a “Modulis” one, amplitude of tilting depend on the “DIM Amplitude” parameter.

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## 5.4 Status Functions

### 5.4.1 GET\_CHANNEL\_MODE (A0h)

➤ Get the modes used for the selected channel. This mode is used to determine the number of RTS frame to send on **CTRL\_POSITION** and **CTRL\_TILT** Orders.

MSG	Name	DATA Length	FRAME Length	Addressing		
A0h	GET_CHANNEL_MODE	1	12	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to get modes from

### 5.4.2 GET\_TILT\_FRAMECOUNT (A1h)

➤ Get the number of RTS frames the product should send on a **CTRL\_TILT** order.

MSG	Name	DATA Length	FRAME Length	Addressing		
A1h	GET_TILT_FRAMECOUNT	1	12	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to set

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### 5.4.3 GET\_DIM\_FRAMECOUNT (A2h)

➤ Get the number of RTS frames the product should send on a **CTRL\_DIM** order.

MSG	Name	DATA Length	FRAME Length	Addressing		
A2h	GET_DIM_FRAMECOUNT	1	12	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel to set

### 5.4.4 GET\_DCT\_LOCK (A4h)

➤ To know which DCT are locked or unlocked.

MSG	Name	DATA Length	FRAME Length	Addressing		
A4h	GET_DCT_LOCK	0	11	P2P	GROUP	BROADCAST

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#### 5.4.5 POST\_CHANNEL\_MODE (B0h)

➤ Post the modes used for the selected channel. This mode is used to determine the number of RTS frame to send on **CTRL\_POSITION** and **CTRL\_TILT** Orders.

MSG	Name	DATA Length	FRAME Length	Addressing		
B0h	POST_CHANNEL_MODE	4	15	P2P	GROUP	BROADCAST


DATA	TYPE	MIN	MAX	Description
Channel Number	Byte	0	15	Channel
US/CE mode	Byte	0	1	Used for UP/DOWN/TILT
Rolling/Tilting Mode	Byte	0	1	Used for UP/DOWN
Modulis Mode	Byte	0	1	Used for motors/receivers compatible with Modulis = tilting or dimming


US/CE mode	Description	Remarks
00h	CE mode	
01h	US Mode	Default

Rolling/Tilting Mode	Description	Remarks
00h	Rolling mode	Default
01h	Tilting Mode	

Modulis Mode	Description	Remarks
00h	Normal mode	
01h	Modulis Mode	Default

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#### 5.4.8 POST\_DCT\_LOCK (B4h)

➤ Signal which DCT should not be routed through RTS layer.

MSG	Name	DATA Length	FRAME Length	Addressing		
B4h	POST_DCT_LOCK	1	12	P2P	GROUP	BROADCAST

DATA	TYPE	MIN	MAX	Description
DCT LOCK	Byte	0x00	0xFF	Bit field

DCT LOCK	Description	Remarks
b0	Reserved	Ignored
b1	DCT1 Lock status	0:Unlocked / 1: Locked
b2	DCT2 Lock status	0:Unlocked / 1: Locked
b3	DCT3 Lock status	0:Unlocked / 1: Locked
b4	DCT4 Lock status	0:Unlocked / 1: Locked
b5	DCT5 Lock status	0:Unlocked / 1: Locked
b6	Reserved	Ignored
b7	Reserved	Ignored

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