STEINWAY LYNGDORF

MODEL D AND C DEVICE CONTROL INTERFACE

INTERFACE

MANUAL

VERSION 2.0

TABLE OF CONTENTS

INTRODUCTION

This Installation Manual was created to assist with installation and use of the Steinway Lyngdorf device control interface for Model D and C music systems.

For assistance with Steinway Lyngdorf speakers or electronics or with RoomPerfect™, please see associated installation manuals. Please read all material carefully prior to installation. If you need additional assistance, contact your Steinway Lyngdorf representative or email service@steinwaylyngdorf.com.

COMPLIANCE

WEEE

The European Parliament and the Council of the European Union have issued the Waste Electrical and Electronic Equipment Directive. The purpose of the Directive is to prevent waste of electrical and electronic equipment and to promote reuse, recycling, and other forms of waste recovery. Steinway Lyngdorf products and the accessories packed with them are subject to the WEEE Directive. Please dispose of any waste materials in accordance with your local recycling regulations. Products and equipment which must be collected for reuse, recycling, and other forms of recovery are marked with the icon of the crossed-out waste receptacle.
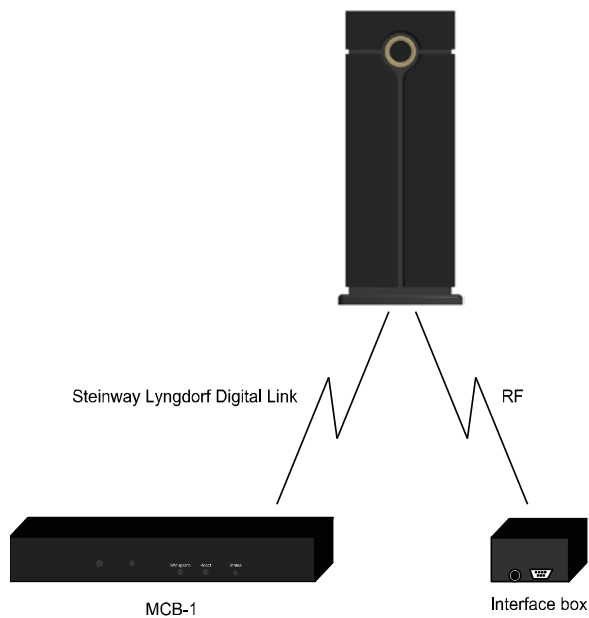
FCC

Steinway Lyngdorf products and accessories comply with parts 15 and 68 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference; and (2) this device must accept any interference received, including any interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed.

SERIAL INTERFACE

This document describes the interface to control a Steinway Lyngdorf system through an MCB-1 and RF interface box. The interface between PC and interface box is UART based.

This section briefly describes a standard UART based communication protocol to be used in the interface. The protocol is a peer-to-peer communication for basic control of a Steinway Lyngdorf system.
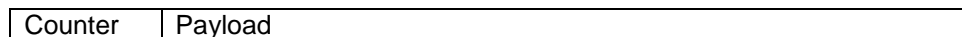
Layer 1
Layer 1 communication is standard asynchronous serial communication 8N1 at a speed that may vary depending on the project.

For the Crestron RF interface a speed of 38400 has been chosen.
For the MCB-1 interface a speed of 115200 has been chosen.

Layer 2
Layer 2 handles framing of telegrams using a 1 byte counter

Counter	Payload

The counter contains the size of the payload (without the counter itself!).

Layer 3-7
The only functionality on the higher layers is a switch to send the telegram to the appropriate part of the software. For this purpose, the first byte of the payload is treated as an object-byte. The rest of the payload is treated differently depending on the value of the object-byte.

TELEGRAMS

This section describes the structure of the payload of the telegrams.

Payload

The first BYTE in the payload is the object, and dependent on the value of this, the rest of the telegram is structured.

Object	Value	Description
RF_SETUP_OBJECT	0x00	Commands to the Interface box.
RF_DEVICE_CONTROL_OBJECT	0xF1	Commands to control Steinway Lyngdorf system. See description in the next chapter.

For RF_SETUP_OBJECT the commands and replies are constructed as shown below:

Object	Command	Param_0	…	Param_n

For RF_DEVICE_CONTROL_OBJECT the commands are constructed as shown below:

Object	Device Type	Command	Param_0	…	Param_n

The Device type for this interface is a constant value defined as:

Device type: DEVICE_TYPE_HEAD_UNIT = **0x00**

Reply telegrams follow the same structure, except that the first parameter of each reply telegram contains a STATUS which tells whether the telegram was processed correctly. A value of 0x00 means success.

Object	Device Type	Command	Status	Param_0	…	Param_n

COMMANDS

This chapter describes the commands, and their parameters, that can be sent to the Steinway Lyngdorf System. In the table below, each command is listed together with its value, parameters, parameter type, and the reply generated from the command.

RF_SETUP_OBJECT commands

Command	Value	Parameters	Size	Reply
RESET_AND_SCAN	0x00	None	2	None
RF_INFO	0x01	None	2	RF info [5 BYTES]
SW_VER	0x02	None	2	SW version [5 BYTES]
NO_RF_CONNECTION	0x03	See below	See below	See below

RESET_AND_SCAN [0x00]

Telegram: 0x02 0x00 0x00

Reply: None

Description: This telegram resets the Interface box, and scans for a Steinway Lyngdorf unit.

RF_INFO [0x01]

Telegram: 0x02 0x00 0x01

Reply: 0x05 0x00 0x01 0xYY 0xZZ 0xZZ

Description: This telegram can be used to request info on the current RF connection.

 The reply contains (0xYY) channel id and (0xZZ) PAN id

SW_VER [0x02]

Telegram: 0x02 0x00 0x02

Reply: 0x05 0x00 0x02 0xHH 0xLL 0xSS

Description: Returns the SW version of the interface box.

 This reply contains High version, Low version and Sub version (ASCII)

NO_RF_CONNECTION [0x03]

Telegram: N/A (Sending this telegram has no effect.)

Reply: 0x03 0x00 0x03 0xEE

Description: This telegram is sent back after a transmission, if the interface box doesn't have a connection on RF. (EE is a value used in development.)

RF_DEVICE_CONTROL_OBJECT commands

Command	Value	Parameters	Size	Reply
ON	0x00	None	-	Status
OFF	0x01	None	-	Status
STANDBY	0x02	None	-	Status
SELECT_INPUT	0x10	Input select	1 BYTE	Status
SELECT_ROOMPERFECT	0x11	RP filter select	1 BYTE	Status
SELECT_VOICING	0x12	Voicing select	1 BYTE	Status
VOLUME_SET	0x20	Volume	2 BYTES	Status
VOLUME_ADJUST	0x21	Delta volume	2 BYTES	Status
MUTE_TOGGLE	0x22	None	-	Status
MUTE_SET	0x23	0=demute, !0=mute		Status
CD_PLAY	0x30	None	-	Status
CD_PLAY_PAUSE	0x31	None	-	Status
CD_PAUSE	0x32	None	-	Status
CD_STOP	0x33	None	-	Status
CD_RESUME	0x34	None	-	Status
CD_NEXT	0x35	None	-	Status
CD_PREVIOUS	0x36	None	-	Status
CD_SELECT_TRACK	0x37	Track	1 BYTE	Status
CD_PLAY_MODE	0x38	Play mode	1 BYTE	Status
CD_START_WIND	0x39	None	-	Status
CD_STOP_WIND	0x3A	None	-	Status
CD_START_REWIND	0x3B	None	-	Status
CD_STOP_REWIND	0x3C	None	-	Status
CD_EJECT	0x3D	None	-	Status
GET_STANDBY	0x80	None	-	Standby Status
GET_INPUT	0x81	None	-	selected input
GET_INPUT_NAME	0x82	None	-	Name string [16 BYTES]
GET_ROOMPERFECT	0x83	None	-	RP filter [1 BYTE]
GET_RP_DATA	0x84	None	-	RP data [4 BYTES]
GET_VOICING	0x85	None	-	Voicing [1 BYTE]
GET_VOLUME_DATA	0x86	None	-	Vol. data [3 BYTES]
GET_CD_DATA	0x87	None	-	CD data [14 BYTES]

ON [0x00]

Telegram: 0x03 0xF1 0x00 0x00

Reply: 0x04 0xF1 0x00 0x00 0x00

Description: Turns the system on from standby.

OFF [0x01]

Telegram: 0x03 0xF1 0x00 0x01

Reply: 0x04 0xF1 0x00 0x01 0x00

Description: Sets the system in standby.

Standby [0x02]

Telegram: 0x03 0xF1 0x00 0x02

Reply: 0x04 0xF1 0x00 0x02 0x00

Description: Toggles On/Off.

SELECT_INPUT [0x10]

Telegram: 0x04 0xF1 0x00 0x10 **0xSS**

Reply: 0x04 0xF1 0x00 0x10 0x00

Description: Selects desired input. 0xSS can be one of the following:

            0x00 = CD
            0x01 = DIGITAL_1
            0x02 = DIGITAL_2
            0x03 = DIGITAL_3
            0x04 = DIGITAL_4
            0x05 = DIGITAL_5
            0x06 = ANALOG_1
            0x07 = ANALOG_2
            0x08 = ANALOG_3
            0x09 = ANALOG_4

SELECT_ROOMPERFECT [0x11]

Telegram: 0x04 0xF1 0x00 0x11 **0xRR**

Reply: 0x04 0xF1 0x00 0x11 0x00

Description: Selects desired RoomPerfect filter.

            0x00 = BYPASS
            0x01 − 0x08 = FOCUS 1 − 8
            0x09 = GLOBAL

SELECT_VOICING [0x12]

Telegram: 0x04 0xF1 0x00 0x12 **0xVV**

Reply: 0x04 0xF1 0x00 0x12 0x00

Description: Selects desired Voicing.

            0x00 = "Neutral"

            0x01 = "Music 1"

            0x02 = "Music 2"

            0x03 = "Relaxed"

            0x04 = "Open"

            0x05 = "Open Air"

            0x06 = "Soft"

VOLUME_SET [0x20]

Telegram: 0x05 0xF1 0x00 0x20 **0xVH 0xVL**

Reply: 0x04 0xF1 0x00 0x20 0x00

Description: Selects desired Volume. [0 – 999 in .1 dB steps]

            VH is high part of volume VL is low part.

            (example: Volume 88.0 => VH = 0x03 and VL = 0x70)

VOLUME_ADJUST [0x21]

Telegram: 0x05 0xF1 0x00 0x21 **0xDH 0xDL**

Reply: 0x04 0xF1 0x00 0x21 0x00

Description: Adjusts volume with the delta value.

            DH is high part of delta-volume DL is low part. (Signed 16-BIT value)

MUTE_TOGGLE [0x22]

Telegram: 0x03 0xF1 0x00 0x22

Reply: 0x04 0xF1 0x00 0x22 0x00

Description: Toggles between mute/de-mute.

MUTE_SET [0x23]

Telegram: 0x04 0xF1 0x00 0x23 **0xMM**

Reply: 0x04 0xF1 0x00 0x23 0x00

Description: sets mute/de-mute.

            0x00 = de-mute

            0x01 = mute

CD_PLAY [0x30]

Telegram: 0x03 0xF1 0x00 0x30

Reply: 0x04 0xF1 0x00 0x30 0x00

Description: Sets CD in play mode.

CD_PLAY_PAUSE [0x31]

Telegram: 0x03 0xF1 0x00 0x31

Reply: 0x04 0xF1 0x00 0x31 0x00

Description: Toggles play/pause mode.

CD_PAUSE [0x32]

Telegram: 0x03 0xF1 0x00 0x32

Reply: 0x04 0xF1 0x00 0x32 0x00

Description: Sets CD in pause mode.

CD_STOP [0x33]

Telegram: 0x03 0xF1 0x00 0x33

Reply: 0x04 0xF1 0x00 0x33 0x00

Description: Sets CD in stop mode.

CD_RESUME [0x34]

Telegram: 0x03 0xF1 0x00 0x34

Reply: 0x04 0xF1 0x00 0x34 0x00

Description: Resumes CD after a stop.

CD_NEXT [0x35]

Telegram: 0x03 0xF1 0x00 0x35

Reply: 0x04 0xF1 0x00 0x35 0x00

Description: Selects next CD track.

CD_PREVIOUS [0x36]

Telegram: 0x03 0xF1 0x00 0x36

Reply: 0x04 0xF1 0x00 0x36 0x00

Description: Selects previous CD track.

CD_SELECT_TRACK [0x37]

Telegram: 0x04 0xF1 0x00 0x37 0xTT

Reply: 0x04 0xF1 0x00 0x37 0x00

Description: Selects specific CD track. TT is track-number.

CD_PLAY_MODE [0x38]

Telegram: 0x04 0xF1 0x00 0x38 **0xPM**

Reply: 0x04 0xF1 0x00 0x38 0x00

Description: Sets CD play mode.

0x00 = Normal

0x01 = Repeat one

0x02 = Repeat All

0x03 = Random

CD_START_WIND [0x39]

Telegram: 0x03 0xF1 0x00 0x39

Reply: 0x04 0xF1 0x00 0x39 0x00

Description: Starts winding CD.

CD_STOP_WIND [0x3A]

Telegram: 0x03 0xF1 0x00 0x3A

Reply: 0x04 0xF1 0x00 0x3A 0x00

Description: Stops winding CD.

CD_START_REWIND [0x3B]

Telegram: 0x03 0xF1 0x00 0x3B

Reply: 0x04 0xF1 0x00 0x3B 0x00

Description: Starts rewinding CD.

CD_STOP_REWIND [0x3C]

Telegram: 0x03 0xF1 0x00 0x3C

Reply: 0x04 0xF1 0x00 0x3C 0x00

Description: Stops rewinding CD.

CD_EJECT [0x3D]

Telegram: 0x03 0xF1 0x00 0x3D

Reply: 0x04 0xF1 0x00 0x3D 0x00

Description: Toggles Open/Close.

GET_STANDBY [0x80]

Telegram: 0x03 0xF1 0x00 0x80

Reply: 0x05 0xF1 0x00 0x80 0x00 0xSS

Description: Returns standby status.

0x00 = Not in STANDBY

0x01 = STANDBY

GET_INPUT [0x81]

Telegram: 0x03 0xF1 0x00 0x81

Reply: 0x05 0xF1 0x00 0x81 0x00 0xSS

Description: Returns current selected input. (See select input command)

GET_INPUT_NAME [0x82]

Telegram: 0x03 0xF1 0x00 0x82

Reply: 0x12 0xF1 0x00 0x82 0x00 …

Description: Returns name of current selected input. (14 Chars)

GET_ROOMPERFECT [0x83]

Telegram: 0x03 0xF1 0x00 0x83

Reply: 0x05 0xF1 0x00 0x83 0x00 0xRR

Description: Returns current selected RoomPerfect filter. (See select roomperfect)

GET_RP_DATA [0x84]

Telegram: 0x03 0xF1 0x00 0x84

Reply: 0x08 0xF1 0x00 0x84 0x00 0xR1 0xR2 0xR3 0xR4

Description: Returns RoomPerfect data.

R1: Status (Existing Focus positions)

R2: No. of measurements

R3: Room knowledge

R4: Room Correction

GET_VOICING [0x85]

Telegram: 0x03 0xF1 0x00 0x85

Reply: 0x05 0xF1 0x00 0x85 0x00 0xVV

Description: Returns current selected voicing. (See select voicing)

GET_VOLUME_DATA [0x86]

Telegram: 0x03 0xF1 0x00 0x86

Reply: 0x07 0xF1 0x00 0x86 0x00 0xMM 0xVH 0xVL

Description: Returns mute status and volume level.

        0xMM: Mute status (0x01 = MUTE)

        0xVH: High part of volume

        0xVL: Low part of volume

GET_CD_DATA [0x87]

Telegram: 0x03 0xF1 0x00 0x87

Reply: 0x12 0xF1 0x00 0x87 0x00 …

Description: Returns CD data. (14 BYTES)

cd_state

pause_state

cd_direction

repeat_state

random_state

title minimum

title maximum

disc minutes

disc seconds

disc frames

track title

track index

track minutes

track seconds

SERVICE INFORMATION

In order to obtain warranty service you must contact your original dealer or the Steinway Lyngdorf distributor of the region or country where you are located. If you have trouble locating an authorized representative, please contact the Steinway Lyngdorf Customer Service Department using the contact information at **www.steinwaylyngdorf.com**, or you may email service@steinwaylyngdorf.com.

Steinway Lyngdorf
Ulvevej 28
DK 7800 Skive
Denmark
Service Hotline: +45 4084 2230
Fax: +45 9614 5601

In some cases, the Customer Service Department may solve a service problem without the need of repair or any other measures, thereby avoiding further inconvenience or delay. In some cases it may be necessary to return the equipment to Steinway Lyngdorf or an authorized service provider for repair; therefore, it is recommended that you save your original packing materials. Steinway Lyngdorf will not be responsible for any damage due to unauthorized packing or shipment in non-original packing materials. If return is made in authorized packaging, risks are borne by Steinway Lyngdorf. Additional charges may occur if new packing materials are required for return shipment.