# MAGIC Telephone Hybrids Signalling and Control with



#### **Configuration Guide**



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- What is Ember+?
- Example 1: THipPro as Ember+ provider in combination with a LAWO crystal mixer.
- Example 2: THipPro as Ember+ Consumer Display of caller information on a DHD 52/TX mixer.
- Example 3: TH2plus as Ember+ Consumer Entering phone numbers via the keypad of a DHD 52/TX mixer.
- Ember+ Provider: Configuration
- Ember+ Provider: GPI Functions (Input)
- Ember+ Provider: GPO functions (Output)
- Ember+ Provider: Parameter tree
- Ember+ Consumer: Configuration
- Ember+ Consumer: Functions
- Appendix: Ember+ Viewer, Support





- Ember+ is a powerful control protocol and implemented as open standard.
- Created by an initiative of the LAWO group and L-S-B (since 2016 integrated in LAWO).
- Seamless connection to modern IP infrastructures.
- Avoiding proprietary interfaces and protocols.
- Increasingly supported in Video matrixes, mixing consoles etc.
- Freely available under <a href="https://github.com/Lawo/ember-plus">https://github.com/Lawo/ember-plus</a>.
- A system (or also software) supporting Ember+ can act as Provider or as Consumer.
  - A Provider publishes functions and parameters as parameter tree.
  - A Consumer acts as Client and can trigger provided function, read out status information and change parameter values, which are immediately visible as status changes at the Provider.
  - Via GPIO structures classic functions can be triggered and status information can be displayed at the Provider as well as at the Consumer.











#### **Combined Provider & Consumer Concept**



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## Example 1:

#### THipPro as Ember+ provider in combination with a LAWO crystal mixer.

On a LAWO crystal console, caller information (phone number / name) should be displayed above each fader. The call number is entered using the numeric keypad shown on the multifunction keys of the console. The phone number entered is displayed in the THipPro PC interface.



- The Ember+ functionality is available in the MAGIC THipPro by default from Release 2.300.
- Select page SYSTEM SETTINGS  $\rightarrow$  EMBER+ PROVIDER.
- Activate the function with ACTIVATE EMBER+ PROVIDER.
- Select the LAN INTERFACE (①) via which the communication is to be transmitted.
- Enter PORT 1 ... PORT 8 (②) corresponding to the Consumer configuration.
  - A maximum of eight consumers are supported.
- Under OPERATION SETTINGS the page EMBER+ is displayed.

Configuration		
Local	Ember+ Provider	
MAGIC THipPro ACin3 1		
	Activate Ember+ Provider	
	Ember+ Connection Parameters:	
- Signal Processing	LAN Interface: LAN 1 : 172.20.30.30 🗸 🚺	
- Line Labels		D 1 7 (C 7) 0007
Studio Settings	Port I (Lonsumer I):	Port / (Consumer /): 900/
Auto Answer	Port 2 (Consumer 2): 9002 Port 5 (Consumer 5): 9005	Port 8 (Consumer 8): 9008
- Answering Machine	Port 3 (Consumer 3): 9003 Port 6 (Consumer 6): 9006	
Night Service	Predefined CPTO Identifier: TwinProDialPad	
DTMF		
Actions	GPIO Identifier: THipproGPIO1	
Telephone Client Applicatior	Ember+ Input Functions	
GPIO	r-han Outsut Functions	
IIL / Relay	Embert Output Functions	
Ember+		
Input		
Surtem Settings		
General		
line Interface		
- Caller Line Grouning		
VoIP (LAN/SIP)		
- Audio Interface		
PRETALK Streaming		
LAN Interface		
VLAN		
DHD Audio Matrix		
Ember+ Provider		
Remote Light Protocol		
ACconnect		
I SNMP		
🖾 Login 🗸 🗸		
Client ID: 13 Studio: 1		OK Abbreshen
		Abbiechen

### **Basic configuration MAGIC THipPro (1)**



- Select the page *EMBER+*.
- If an external dial pad is to be used via Ember+, a DIAL PAD GPIO IDENTIFIER (<sup>®</sup>) must be defined.
  - The necessary functions to implement a dial pad are already pre-defined and do not have to be created.
  - The individual dial buttons are also implemented as GPI functions.
- There are 3 Blocks, each with 32 programmable GPIO functions. Every Block needs an identifier (④).
- The Identifier names that are used, must be entered identically at the Ember+ Consumer in the next step.
- To logically connect one or several Client PCs with one or several Ember+ Providers (e.g. to display the entry of a phone number), the desired combination must be selected under EMBER+ CONSUMER TO CLIENT ASSIGNMENT (③).



#### **Basic configuration MAGIC THipPro (2)**

- The LAWO crystal consoled is configured via the ZIRKON Software (from V5.0.0.2).
  - The following description takes a basic knowledge how to configure the LAWO console for granted.
- Select the page EMBER + under SYSTEM → DEFINITION .
- Enter the IP address of the MAGIC THipPro under *CONSUMER 01 ... 15 – REMOTE IP ADDRESS* (**1**).
- Now select the identical Port under *REMOTE PORT NUMBER* as entered in the MAGIC THipPro (2).

<u> </u>		
	Audio       Logic       0AC       TCP       Alarm       DMS       Matrix       EmBEL         Parameter       Local Consumers       Econsumers         Consumer 01       Remote IP Address       172.16.75.24         Consumer 02       Remote IP Address	
E——Vis Key	Consumer 15       Remote IP Address         Parameter       Local Providers         Provider 1       Local Port Number         Provider 2       Local Port Number         Provider 3       Local Port Number         Provider 4       Local Port Number         Provider 5       Local Port Number	Task Priorities       normal ~         Task Priorities       normal ~

#### **Basic configuration LAWO crystal console (1)**



- Select the page *EMBER*+(**③**) and open the context menu with the right mouse key.
- Click on INSERT ELEMENT.
- Select EMBER+ GPIO on the left side (3).
  - In this way 32 virtual GPIs and 32 virtual GPOs are created.
- Create a new Group on the right side with NEW.
- Enter as group name for the dial pad "THipProDialPad" for example (<sup>(G)</sup>).
- Now insert the new element with OK.
- Create a further element as described before.
  - Use as group name "THipProGPIO" for example (③).
- Both elements are visible in the Ember+ tree afterwards.

Treedefinition: EmBER+			
Audio Input     Audio Out Only     Audio Output     Audio Output			
Conf Bus	tt New element	- 🗆 X	
Element State	New element  EmBER+ GPI0  CmBER+ internal FuncCall	Group: Global	~
GPI/0 GPI/0 Network Hidden Label	EmBER+ Internal SrcDrI EmBER+ Internal SrcQuery EmBER+ Jade	iTunes Main Bus Microphones	
n Level Control n Logic n MF Key	EmBER+ Matrix EmBER+ Orban CODEC EmBER+ RAVENNA EmBER+ SrcRept	Monitoring HP Monitoring Zirkon Monitoring	×
Minimix Panel  Source  Source	EmBER+V_pro8 GPI	On Air Stal Enter new Groupname: Player Redlight SUM_ADA	OK Abbrechen
laSurface aSystem aVis Key		SUM_ADA SUM_ADA SUM_ADA SUM_ADA	
		SUM_SP4_SP3 Takback Tone	
		Delete New Renam	++ Treedefinition: EmBER+ / * THipProGPIO / EmBEF
	repetition: 1	Cancel OK	Audio Input
			Audio Output
			Balance Control
			HConnect
			Element State
			ÈEmBER+ È×THipProDialPad È×THipProGPI0 6
			GP Sum

#### **Basic configuration LAWO crystal console (2)**

- Select the element *THipProDialPad*.
- Enter the identical reference name on the page GLOBAL under EMBER+ GPIO as in the MAGIC THipPro (♥, Basic configuration MAGIC THipPro).
- Select the Option VIA LOCAL CONSUMER as LINK
   MODE.
  - The console consumes the information from the MAGIC THipPro.
- Select KEEP INPUT VALUES under BEHAVIOUR ON
   CONNECTION LOSS.
- Use the corresponding ID 1 ... 15 as LOCAL CONSUMER NO. (see System Definition).
- Now repeat all steps for the element THipProGPIO
  - Enter the corresponding reference name on the page GLOBAL under EMBER+ GPIO as in the MAGIC THipPro (③, Basic configuration MAGIC THipPro).



It Treedefinition: EmBER+ /* THipProGPIO / EmBER+ GPIO           Image: Audio Input	Global Logic Outputs 116 Logic Outputs 1732 Level Outputs 18
	EmBER+ GPI0       EmberAVTGPI0       8         Link Mode       Via Local Consumer        8         Behaviour on Connection Loss       Keep Input Values        9         Local Provider No.       none        8         Remote Consumer IP Address       9       9         Provider Monitoring allowed       1       1
e — Logic	v

#### **Basic configuration LAWO crystal console (3)**



- The dial pad function is already programmed in a fixed way in the MAGIC THipPro, so that this structure must be taken over at the Ember+ Consumer.
- The assignment in MAGIC THipPro is as follows:
  - GPI 1: 1 ... GPI 9: 9 and GPI 10: 0
  - GPI 11: \* GPI 12: #
  - GPI 13: CLEAR
    - To delete the entered phone number.
  - Select the element EMBER+ → <reference name> (in the example = *THipProDialPad*) in the ZIRKON Software (**①**) and program the parameters *GPO* 1 ... *GPO* 13 under *LOGIC OUTPUTS* 1...16 (**①**).
    - The labels 0...9 etc. can be selected freely.
  - The desired buttons of the crystal console which are to supposed to trigger the actions are entered as example under OUT.
    - It is taken for granted that the user knows how to program the *MF Keys* of the crystal console.



#### Setup dial pad at the crystal console (1)

- After the configuration has been transmitted to the console, the phone number entered at the crystal console is displayed at the Client PC connected with the Ember+ Provider.
- With the CLEAR function the last phone number entry can be deleted.
- The next step is the configuration for dialling the entered phone number or for accepting an incoming call.



#### Setup dial pad at the crystal console (2)



- The referencing between Ember+ Provider and Consumer is done via the previously configured GPIO IDENTIFIER.
  - Dial Pad GPIO Identifier: Pre defined set of dial pad functions.
  - GPIO Identifier: 32 functions per identifier. Up to 96 GPIO functions in 3 Nodes.

Local	Ember+										
MAGIC THipPro ACip3 1	Identifier										
Operation Settings     Operation Settings     Operation Seturity     Studio Definition     Database     Mode & Audio Line     Internal HOLD Signals	Dial Pad GP10 Identifier: GP10 Identifier:	THipPr THipPr THipPr THipPr	oDialP oGPIO oGPIO oGPIO	ad 1 2 3		(Predefi (132) (3364) (6596)	ned)				
Studio Audio Assignment Clients Audio Assignment	Ember+ Consumer to Clien	t assignm	ent								
– Remote Light Audio Assignn – Clients Restrictions – Signal Processing			Ember	+ Provid	der 3	4	5	6	7	8	ľ
Studio Settings Auto Answer	Client 1: MOD-A-1		<b>v</b>		Γ				$\square$		
Answering Machine Night Service	Client 2: MOD-A-2		Γ	<b>V</b>	Γ						
DTMF Actions	Client 3: MOD-A-3		ſ	Γ	<b>v</b>						
	Client 4: RED-A-1		$\square$	$\square$	$\square$	<b>~</b>			$\square$		
⊡- GPIO	Client 5: RED-A-2				Γ	~					
	Client 6: RED-A-3		ſ	Γ	Γ	~					
- System Settings	Client 7: RED-A-4		$\square$		$\square$	<b>~</b>					
General Line Interface Caller Line Grouping 	Client 8: PROD-A-1						<b>~</b>				

### **Assignment of virtual GPIOs (1)**



- Select OPERATION
   SETTINGS → GPIO →
   EMBER+ → Input or
   Output.
- The table lists all configured functions.
- Double click an entry to edit the function.
- Please note that a GPI at the crystal console is always assigned to a GPO at the MAGIC THipPro and vice versa.

Local         Impet           MAGIC THePro         ACp31           If Magic Th	Configuration					
MAGIC ThePro         ACg31           P. Operation Settings         •           - Client / Security         Dop/Well Line 1         •           - Studio Definition         -         -           - Database         •         •           - Mode & Audio Line         -         •           - Internal HOLD Signals         •         •           - Studio Audio Assignment         •         •           - Renote Light Audio Assignment         •         •           - Glents Audio Assignment         •         •           - Studio Advido Assignment         •         •           - Studio Assignment         •         •           - Studio Assignment         •         •           - Studio Settings         •         •           - Studio Settings         •         •           - Studio Settings         •         •           - Thelphone Client Application         •         •           - General         •         •           - Caller Line Groupr	Local	Input				
Operation Settings         Mathematical Setting         Mathematical Setting	MAGIC THipPro ACip3 1					
Studio Definition       1       DopLine1       Dipt/VolP Line 1       .         2       Calline1       Set Audio Line VolP Line 1       .       .         - Internal HOLD Signals       -       .       .       .         - Studio Audio Assignment       -       .       .       .       .         - Clents Audio Assignment       -       .       .       .       .       .         - Clents Restrictions       5       .	Operation Settings	##	Identifier	Function 1 (Positive Edge)	Function 2 (Negative Edge)	^
2 Sudio Definition       2 CalLine1       Set Audio Line VolP Line 1. Audio Line On Air 1       -         - Database       -       -       -       -         - Mode & Audio Line       -       -       -       -         - Internal HOLD Signals       -       -       -       -       -         - Studio Assignment       6       -       -       -       -       -         - Clients Restrictions       -	Clients / Security	1	DropLine1	Drop:VoIP Line 1		
Jatabase       3       -       -         Mode & Audio Ling       3       -       -         Internal HOLD Signals       5       -       -         Studio Audio Assignment       6       -       -         Clients Restrictions       -       -       -         Signal Processing       9       -       -         Line Labels       10       -       -         Studio Strings       11       -       -         Auto Answer       -       -       -         Auto Strings       11       -       -       -         Telephone Client Application       15       -       -       -         Telephone Client Application       -       -       -       -         General       -       -       -       -       -         YoliP (LA	Studio Definition	2	CallLine1	Set Audio Line:VoIP Line 1:Audio Line On Air 1		
Mode & Audio Line       -       -       -         Internal HOLD Signals       5       -       -         Studio Audio Assignment       6       -       -         Clients Audio Assignment       6       -       -         Remote Light Audio Assignment       6       -       -         Signal Processing       9       -       -         Line Labels       10       -       -         Studio Settings       11       -       -         Auto Answer       12       -       -         Auto Answer       12       -       -         Auto Answer       12       -       -         OTMF       14       -       -         OTMF       15       -       -         Actions       15       -       -         Telephone Client Application       16       -       -         Telephone Client Application       -       -       -         General       -       -       -       -         Line Interface       -       -       -       -         Caller Line Grouping       -       -       -       -         VolP (LAN/SP)	Database	3				
Internal HOLD Signals   Studio Audio Assignment   Clients Audio Assignment   Clients Audio Assignment   Clients Audio Assignment   Clients Restrictions   Signal Processing   Signal Processing   Sudio Settings   Line Labels   Studio Settings   Auto Answer   If   Auto Answer   If   Auto Answer   If   Auto Interface   Caller Line Grouping   VolP (LAN/SP)   Auto Interface   PRETALK Streaming	Mode & Audio Line	4				
Studio Addio Assignment       6       -         Clients Restrictions       8       -         Signal Processing       9       -         Line Labels       10       -         Studio Assignment       -       -         Auto Assignment       10       -         Signal Processing       9       -         Line Labels       10       -         Studio Settings       11       -         Auto Answer       -       -         Auto Answer       12       -         Assignment (gMachine       13       -         Night Service       14       -         DTMF       15       -         Actions       -       -         Telephone Client Application       -       -         If B       -       -       -         Qoutput       -       -       -         Qoutput       -       -       -         Qoutput       -       -       -         Qoutput       -       -       -         Quiput       -       -       -         Quiput       -       -       -         Quiput	Internal HOLD Signals	5				
Clients Audio Assignment Remote Light Audio Assignment Clients Restrictions Signal Processing Unclue Labels Studio Settings Auto Answer Answering Machine Night Service UTMF Actions Telephone Client Application General Caller Line Interface Caller Line Grouping Vol (LAN/SIP) Audio Interface PRETALK Streaming V Lett ID: 13 Stude: 1	Studio Audio Assignment	6			-	
- Remote Light Audio Assign       -       -       -         - Clients Restrictions       -       -       -         - Sudio Settings       -       -       -         - Auto Answering Machine       -       -       -         - Night Service       -       -       -         - DTMF       -       -       -         - Actions       -       -       -         Telephone Client Application       16       -       -         - TTL / Relay       18       -       -         9       -       -       -       -         - Output       -       -       -       -         - System Settings       -       -       -       -         - Caller Line Grouping       -       -       -       -         - Caller Line Grouping       -       -       -       -         - VolP (LAN/SIP)       -       -       -       -       -         - PRETALK Streaming       -       -       -       -       -         21       -       -       -       -       -       -         - PRETALK Streaming       -       -       -	Clients Audio Assignment			•	•	-
Clients Restrictions       8       -       -         Signal Processing       9       -       -         Line Labels       10       -       -         Studio Settings       10       -       -         Auto Answer       -       -       -         Auto Answer       12       -       -         Auto Answer       12       -       -         DTMF       -       -       -         Actions       15       -       -         Telephone Client Application       16       -       -         17       -       -       -         Output       19       -       -         Output       -       -       -         20       -       -       -         21       -       -       -         22       -       -       -         23       -       -       -         24       -       -       -         24       -       -       -         23       -       -       -         24       -       -       -         24       -       -<				•	•	
Signal Processing 9 -   - Line Labels -   - Sutiol Settings -   - Auto Answer -   - Answering Machine 11   - Answering Machine 13   - Answering Machine -   - DTMF -   - Actions -   - Telephone Client Application 16   - Telephone Client Application 16   - Telephone Strings -   - Output -   - System Strings -   - General -   - Line Interface -   - Caller Line Grouping -   - Volp (LAN/SIP) -   - Audio Interface -   - PRETALK Streaming -	- Clients Restrictions	8		•	-	-
Imputation       Imputation <td> Signal Processing</td> <td>9</td> <td></td> <td>•</td> <td>•</td> <td></td>	Signal Processing	9		•	•	
- Auto Joshings   - Answering Machine   - Night Service   - DTMF   - Actions   - Telephone Client Application   - General   - Line Interface   - Caller Line Grouping   - Volp (LAN/SIP)   - Audio Interface   - PRETALK Streaming	Chudia Cattinga	10		•	•	_
Auto Aviswell     Auto Aviswell     Auto Aviswell     Auto Aviswell     Night Service   DTMF   Actions   Telephone Client Application   GPIO   TTL / Relay   Ember+   Input   Output     System Settings   General   Line Interface   - Caller Line Grouping   VolP (UAN/SIP)   Audio Interface   PRETALK Streaming     Xient ID: 13     Studio: 1     Mit ID: 13     Studio: 1     It ID: 13     Studio: 1     It ID: 13     Studio: 1	Auto Answer	11		•	•	
Actions   Telephone Client Application   GPI0   TTL / Relay   Ember+   Output   System Settings   General   Line Interface   - Caller Line Grouping   VolP (LAN/SIP)   Audio Interface   PRETALK Streaming	Answering Machine	12				
Image: Construction   OTMF   Actions   Telephone Client Application   If   OF PIO   TTL / Relay   Ember+   Image: Construction   Output   System Settings   General   Line Interface   Caller Line Grouping   VolP (LAN/SIP)   Audio Interface   PRETALK Streaming	- Night Service	13		•	•	
Actions       15       -       -         Telephone Client Application       16       -       -         GPIO       -       -       -         TTL / Relay       16       -       -         Beneral       -       -       -         Coutput       -       -       -         System Settings       -       -       -         General       -       -       -         Line Interface       -       -       -         Caller Line Grouping       -       -       -         VolP (LAN/SIP)       -       -       -         Audio Interface       -       -       -         PRETALK Streaming       -       -       -         Xient ID: 13       Studio: 1       DK       Abbrechen       Anoliv N	DTME	14				
Telephone Client Application       16       .         GPIO       .       .         TTL / Relay       .       .         Ember+       .       .         Output       .       .         System Settings       .       .         General       .       .         Line Interface       .       .         Caller Line Grouping       .       .         VolP (LAN/SIP)       .       .         Audio Interface       .       .         PRETALK Streaming       .       .         Xient ID: 13 Studio: 1       DK Abbrechen Apply N	Actions	15		-		
Image: System Settings       Image: System Settings         - General       -         - Line Interface       -         - Caller Line Grouping       -         - VolP (LAN/SIP)       -         - Audio Interface       -         - PRETALK Streaming       -         Xient ID: 13 Studio: 1       DK		16				
Image: System Settings       18       .       .         System Settings       .       .       .         General       .       .       .         Line Interface       .       .       .         VoIP (LAN/SIP)       .       .       .         Audio Interface       .       .       .         PRETALK Streaming       .       .       .         Xient ID: 13       Studio: 1       DK       Abbrechen       Andiv N	GPIO	17				
Ember+       19       .         Output       .       .         Output       .       .         Output       .       .         Output       .       .         Ime Interface       .       .         Caller Line Grouping       .       .         VolP (LAN/SIP)       .       .         Audio Interface       .       .         PRETALK Streaming       .       .         Xient ID: 13 Studio: 1       DK Abbrechen Anniv N	TTL / Relay	18			•	
System Settings       -         - General       -         - Line Interface       -         - Caller Line Grouping       -         - VolP (LAN/SIP)       -         - Audio Interface       -         - PRETALK Streaming       -         Xient ID: 13 Studio: 1       DK	Ember+	19				
Output       21       .         System Settings       .         - General       .         - Line Interface       .         - Caller Line Grouping       .         - VolP (LAN/SIP)       .         - Audio Interface       .         - PRETALK Streaming       .         Wint ID: 13       Studio: 1	Input	20				-
System Settings - General - Line Interface - Caller Line Grouping - VolP (LAN/SIP) - Audio Interface - PRETALK Streaming - With Management of the set of the s	Output	21				-
- General     22     -       - Line Interface     23     -       - Caller Line Grouping     -     -       - VolP (LAN/SIP)     -     -       - Audio Interface     -     -       - PRETALK Streaming     -     -	System Settings	21				-
Line Interface - Caller Line Grouping - VoIP (LAN/SIP) - Audio Interface - PRETALK Streaming Wient ID: 13 Studio: 1	General	22		•	•	-
- Caller Line Grouping VolP (LAN/SIP) Audio Interface PRETALK Streaming Vient ID: 13 Studio: 1  IK Abbrechen Annly N	Line Interface	23		-	•	-
VoIP (LAN/SIP) Audio Interface PRETALK Streaming Wient ID: 13 Studio: 1	Caller Line Grouping	24		-	•	~
Audio Interface PRETALK Streaming Iter ID: 13 Studio: 1	VoIP (LAN/SIP)					
PRETALK Streaming       "Itert ID: 13       Studio: 1	Audio Interface					
Dient ID: 13 Studio: 1	PRETALK Streaming					
on second second second	Client ID: 13 Studio: 1				0K Abbrechen	Apply N

### **Assignment of virtual GPIOs (2)**



- Identifier: Can be chosen freely.
- Function Code: Select from a list of pre defined functions.
- There are several parameters to adjust, dependent on the function.
- For a list of functions see:
  - Inputs: <u>GPI functions</u>.
  - Outputs: <u>GPO</u> <u>functions</u>.

dentifier:	DropLine1	
Positive edge		
Function Code:	Set Audio Line 🗸 🗸	
VolP Line:	1	
Audio Line:	On áir 1 v	
Addio Ellio.		
Negative edge		
Negative edge Function Code:	Set Audio Line	
Negative edge Function Code: VoIP Line:	Set Audio Line V	
Negative edge Function Code: VoIP Line: Audio Line:	Set Audio Line ✓ 1 ✓ HOLD (Studio 1) ✓	
Negative edge Function Code: VoIP Line: Audio Line:	Set Audio Line 1 HOLD (Studio 1) V	
Negative edge Function Code: VoIP Line: Audio Line:	Set Audio Line ✓ 1 ✓ HOLD (Studio 1) ✓	

### **Configuration of virtual GPIOs**



- After the phone number has been entered via the external dial pad, the corresponding command to establish the connection via Ember+ must be sent to the MAGIC THipPro.
- As first step the function is defined in the MAGIC THipPro.
- Double click the desired ID on page *OPERATION SETTINGS*  $\rightarrow$  *EMBER*+  $\rightarrow$  *GPI*.
- Enter a reasonable name for the *INPUT IDENTIFIER* to simplify the identification of the functions at the crystal console later on.
  - The Identifier has just informative meaning and is not used for any other purposes.
- Select the function *EMBER+ CALL AT LINE GROUP* under *FUNCTION CODE.*
- Under *LINE GROUP* select the desired line group (or *UNASSIGNED*), in which the call is to be established.
- Now define the desired *AUDIO LINE* which is to be activated when the remote side answers the call.

SPI01 1	
Call_AcceptCall	
Ember+ CALL at Line Group V	
CALL-IN ~	
HOLD (Client 1 : MOD-A-1) V	
·	
	SPIOL 1  Call_AcceptCal  Ember+ CALL at Line Group  CALL-IN  HOLD (Client 1 : MOD-A-1)  .

### **Example: Dial phone number (1)**



- As final step a freely selectable key at the LAWO crystal console must be configured to trigger the dialling or to accept a call.
- Select the element *EMBER*+ → <*reference name*> (in the example = *THipProGPIO*) in the ZIRKON Software (④) and program the parameter *GPO 1* under *LOGIC OUTPUT 1...16.*
  - The label *Call\_AcceptCall* (②) can be selected freely and does not have to be identical with the *Input Identifier* at the MAGIC THipPro. However, the maintenance later on is much easier this way.
- The desired key of the crystal console to trigger the action has been entered as example under *OUT*.
  - It is taken for granted that the user knows how to program the *MF Keys* of the crystal console.
- After the configuration is transmitted, it is possible to call any phone number and to accept incoming calls via the crystal console.



#### **Example: Dial phone number (2)**



### Example 2:

#### THipPro as Ember+ Consumer -Display of caller information on a DHD 52/TX mixer.

On a DHD Multitouch Mixer, caller information (phone number/name) and the currently entered phone number should be displayed above each fader.



- First the configuration for the DHD console has to be created via the DHD Toolbox.
- Activate Ember+ functionality.
  - The standard port for Ember+ communication is "9000" with DHD.

Vertice       S2XX Style            General	Add       Defected         Add       Defected         Very model       S22 XX, Chine         Work of Control       Work of Control         Work of Control       S22 XX, Chine         Work of Control       S22 XX, Chine <t< th=""><th>Project View Transfer Options He</th><th>elp</th><th></th><th></th><th></th><th></th></t<>	Project View Transfer Options He	elp				
Add       interface         Order       S2:352         Week       S2:352	<ul> <li>Bedder Bereid</li> <li>Schall other</li> <li>Scha</li></ul>	Project	– 52/XS "52_TX", Ha	rdware definition			i
B2:08:00 Unite       S2:08:00 Unite         S2:00 Unite       S2:08:00 Unite         10:00 Verview       Wat 1         4: Add       User 1         4: Add       Verview         10:00 Verview       Wat 1         4: Add       Verview         10:00 Verview       Wat 1         4: Add       Verview         10:00 Verview       Wat 1         4: Add       Verview         10:00 Verview       Verview <t< th=""><th></th><th>General</th><th>Hardware units</th><th>Unit Options</th><th></th><th></th><th></th></t<>		General	Hardware units	Unit Options			
More Type:       12:1330 (St2 Core DSP/Corm. Urt, 4x4PC, 2.         Made       Maniferia         Made       Name         Made <td< td=""><td>Add Outer Dowce P opport/ 90% 10% 10% 10% 10% 10% 10% 10% 1</td><td>Global Control     S2_TX, Online     Hardware</td><td>52-1830 52-7498-1</td><td>Type: 52-1830 Description: XS2 Core DSP/Comm. Unit, 4xAPC, 2x GA or M</td><td>IADI audio capab</td><td></td><td></td></td<>	Add Outer Dowce P opport/ 90% 10% 10% 10% 10% 10% 10% 10% 1	Global Control     S2_TX, Online     Hardware	52-1830 52-7498-1	Type: 52-1830 Description: XS2 Core DSP/Comm. Unit, 4xAPC, 2x GA or M	IADI audio capab		
Audio         Working Location (unassigned)         Power Consumption: 22W (PSL: 143W of 150W, 95% load)         Power Consumption: 22W (PSL: 143W of 150W)         Power C	ib Addo ib Logic ib Logic ib Connected to Porer Consumption: 27V (PSU: 143W of 150W, 96% load) Porer Consumption: 27V (PSU: 143W of 140W	I/O Overview     Mixer 1		Change Type: 52-1830 (XS2 Core DSP/Comm. Unit,	4xAPC, 2 -		
Tri Veva       Mounting Location (unassigned)         Poer Consumption: 27W (PSU: 143W of 150W, 96% load)         Unit Ports         Poer Consumption: 27W (PSU: 143W of 150W, 96% load)         Port Name         Poet Device         Opp opacity         Oper opacity         Oper opacity         Defect Device         Utit New Loads         Add unit         Tempore Load         Vit Embor (Sectiones)         Change Type         2-1335 XS Multi I/O Box         2-135 XC Multi I/O Box	The Vends       Mounting Location (unassgred)         Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Unit Ports         Put I as 22/498-1.Output         PVR 2         SPP 2         Extension Side:       ACS 3         Acd       Delets Device:         P capacity       S2/498-1.Output         B0X       Set S57-1.Audio         Add       Delets Device:         P capacity       Set S57-1.Audio         Add       Delets Device:         P capacity       Set S57-1.Audio         B0X       Set S57-1.Audio         Delets Device:       Power Consumption: 270/ (PSU: 143W of 150W, 96% load)         B1       Set S57-1.Audio         Add       Delets Device:         P capacity       Set S57-1.Audio         B2       Set S57-1.Audio         Add       Delets Device:         P capacity       Set S57-1.Audio         B2       Set S57-1.Audio         Add       Delets Device:         P capacity       Set S57-1.Audio         B2       Set S57         B2       Set S57         B2       Set S57         B2       Set S57			Module Name 52-1830			
Add       Defete Device         90%       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Interfaced to       Prover Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W, 96% load)         Putt Torts       Power Consumption: 27W (PSU: 143W of 150W (PSU: 143W (PS	Ad Detets Device P copacity 90% 90% 90% 90% 90% 90% 90% 90% 90% 90%	TFT Views		Mounting Location (unarrighted)	-		
Add       Defete Dervice         Add       Defete Dervice         BoberExt       AVT Endor Connected to PVR 1         SP 2       SP 2         Extension Slot       #E557-LAudo APC 1         BoberExt       AVT Endor Connected to PVR 2         SP 2       Extension Slot         Extension Slot       #E557-LAudo APC 2         APC 2       APC 3         APC 4       S2-1333 XS Multi VO Box         S2-1330 VO 1830 analogue/digital VO S2-1132X Digital VO/GPIO Module       S2-1330 VO (B100 Module S2-7232 XC Mic/Line Module 824/84bu         S2-712 XC Digital VO/GPIO Module       S2-712 XC Digital VO/GPIO Module         S2-7255 XC Mic/Line Module 82, iso.       S2-712 XC Digital VO/GPIO Module         S2-7057 XCZ AESOF RAVENNA Interface, 32x Stereo Out       S2-7067 XCZ ESOF RAVENNA Interface, 32x Stereo Out         S2-7080 XC2 Darte Interface       S2-7080 XC2 Darte Interface, 32x Stereo Out         S2-7080 XC2 Darte Interface       S2-7321 MADI Multi Mode         S2-7080 XC2 Darte Interface, 42 Channels       S2-7321 MADI Multi Mode         S2-7321 MADI Multi Mode       S2-7325 Madi Multi Mode <td>Add       Pert Options         Port X22       S7-7498 - L.Output         SP1       S2-7498 - L.Output         SP2       Extension Slot         Add       Delete Device         P capacity       S2-7498 - L.Output         P capacity       S2-710 XK2 Data Strategy         Add Unit       Remove Unit         Add Unit       Remove Unit         Utities       S2-710 XK2 Data Strategy         S2-712 XK Dual 3G/HD/SDI De/Embedder       S2-710 XK2 Data Stree Out         S2-710 XK2 Data Stree, 6 dC Dannels       S2-7123 XMDI Multi Mode         S2-712 XK Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XMDI Multi Mode       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/ID/B Abrie Interlink, 48 Channels       S2-7121 MADI Multi Mode         S2-712 XMDI Multi Mode       S2-7123 XMDI Single Mode         APC Link APC Darte Interlink, 32-512 tannels       S2-7121 XMDI Multi Mode    </td> <td></td> <td></td> <td>Power Consumption: 27W (PSU: 143W of 150W, 96% load</td> <td>)</td> <td></td> <td></td>	Add       Pert Options         Port X22       S7-7498 - L.Output         SP1       S2-7498 - L.Output         SP2       Extension Slot         Add       Delete Device         P capacity       S2-7498 - L.Output         P capacity       S2-710 XK2 Data Strategy         Add Unit       Remove Unit         Add Unit       Remove Unit         Utities       S2-710 XK2 Data Strategy         S2-712 XK Dual 3G/HD/SDI De/Embedder       S2-710 XK2 Data Stree Out         S2-710 XK2 Data Stree, 6 dC Dannels       S2-7123 XMDI Multi Mode         S2-712 XK Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/HD/SDI De/Embedder       S2-7123 XMDI Multi Mode         S2-712 XMDI Multi Mode       S2-7123 XMDI Multi Mode         S2-712 XKD Dual 3G/ID/B Abrie Interlink, 48 Channels       S2-7121 MADI Multi Mode         S2-712 XMDI Multi Mode       S2-7123 XMDI Single Mode         APC Link APC Darte Interlink, 32-512 tannels       S2-7121 XMDI Multi Mode			Power Consumption: 27W (PSU: 143W of 150W, 96% load	)		
Add       Delete Device         OPP capacity       Add         OPP capacity       Add         Add Unt       Remove Unit         Add Unt       Remove Unit         Change Type       S2-1335 XS Multi I/O Box         S2-1335 XS Multi I/O Box       S2-1335 XS Multi I/O Box         S2-1335 XS Multi I/O Box       S2-1335 XS Multi I/O Box         S2-1335 XS Multi I/O Box       S2-1335 XS Multi I/O Box         S2-1335 XS Multi I/O Box       S2-1335 XS Multi I/O Box         S2-1335 XS Multi I/O Box       S2-1335 XS Multi I/O Box         S2-1325 XS Multi I/O Box       S2-1335 XS Multi I/O Box         S2-1325 XS Multi I/O Box       S2-1325 XS Multi I/O Box         S2-1325 XS Multi I/O Box       S2-1325 XS Multi I/O Box         S2-7225 XC Mic/Leadphone/GPIO Module       S2-725 XC Mic/Leadphone/GPIO Module         S2-7255 XC Mic/Leadphone/GPIO Module       S2-7255 XC Mic/Leadphone/GPIO Module         S2-7257 XC Dual 36/HD/SDI De/Embedder       S2-7007 XC2 AE567 RAVENNA Interface, 32: Stereo Out         S2-7251 MADI Multi Mode       S2-7251 MADI Multi Mode         S2-7252 MADI Single Mode       S2-7252 MADI Single Mode         S2-7251 MADI Multi Mide       S2-7351 MADI Single Mode	Add       Delete Device         P apaddy       S2-798-1.Output         90%       S2-798-1.Output         P capaddy       S2-798-1.Output         90%       S2-798-1.Output         P capaddy       S2-798-1.Output         90%       S2-1335 XS Multi VO Bex         52-1335 XS Multi VO Bex       S2-1335 XS Multi VO Bex         52-1325 XD (OfBIO Module       S2-1335 XS Multi VO Bex         52-712 XC Digital V/O/GPIO Module       S2-7135 XC Mic/Headphone/GPIO Module         52-7255 XC Mic/Life adphone/GPIO Module       S2-7255 XC Mic/Life adphone/GPIO Module         52-7255 XC Mic/Life adphone/GPIO Module       S2-7725 XC Mic/Life adphone/GPIO Module         52-7217 XC Dual 36/H0/SDI De/Embedder       S2-7257 XC XC Ads/S7 RAVENNA Interface, 32x Stereo Out         52-7731 MADI Multi Mode       S2-7731 MADI Multi Mode         52-7731 MADI Multi Mode       S2-7731 MADI Multi Mode         52-7731 MADI Multi Mode       S2-7732 Multi XO Banels			Unit Ports	Port Options		
Add       Delete Device         OpP capadity       Add         Mad Unit       Remove Unit         Add Unit       Remove Unit         Add Unit       Remove Unit         Add Unit       Remove Unit         Change Type       S2-1333 XS Multi I/O Box         S2-1330 V/O 1830 analogue/digital I/O         S2-1330 V/O 1830 analogue/digital I/O         S2-1325 XS Multi I/O Box         S2-1325 XS Multi I/O Box         S2-1325 XS Multi I/O Box         S2-1320 V/O 1830 analogue/digital I/O         S2-1325 XS Multi I/O Box         S2-1320 V/O 1830 analogue/digital I/O         S2-1325 XS Multi I/O Box         S2-725 XS Multi I/O Box         S2-727 Mox C2 Date Interface, 64 Channels         S2-728 MADI Single Mode         S2-728 MADI Single Mode         S2-728 MADI Single Mode         S2-728 MADI Single Mode         S2-728 MADI Single Mod	Add Celete Device PC capacity 90% 90% Change Type Change Type			Port Connected to	Port Name EmberExt		
Add       Delete Device         DSP capacity       AvC 1         S0X       AvC 1         Add Unit       Remove Unit!         Change Type       Avd Link iv O Box         S2-133 XS Multi I/O Box       S2-133 XS Multi I/O Box         S2-130 //O 1830 analogue/digital I/O       S2-130 //O 1830 analogue/digital I/O         S2-723 XS Divide Compact       S2-133 XS Multi I/O Box         S2-132 XS Multi I/O Box       S2-133 //O (SPIO Module         S2-723 XS Divide Compact       S2-132 //O (SPIO Module         S2-723 XS Divide Compact       S2-733 XS Multi I/O Box         S2-725 XC Mic/Lieadphone/GPIO Module       S2-723 XS Divide Compact         S2-725 XC Mic/Lieadphone/GPIO Module       S2-723 XS Divide Compact         S2-723 XADI Multi Mode       S2-732 MADI Multi Mode         S2-7321 MADI Multi Mode       S2-7321 MADI Multi Mode         S2-7321 MADI Single Mode       S2-7321 MADI Single Mode	Add Celete Device P capacity 90% 90% 10 Link are nove Units 10 Link bere to see more modules 10 Link bere to see more to see			PWR1 52-7498-1.00tput	Compatible Ports		
Add i Defete Device DDP capacity 90% 90% 10 <sup>10</sup> Change Type Remove Link Click here to see more modules 10 <sup>10</sup> Change Type Remove Completion 10 <sup>10</sup> Change Type Remove Completion 10 <sup>10</sup> Change Type Remove Completion 10 <sup>10</sup> Change Systems 10 <sup>10</sup> Change Systems	Add Cleate Device P capacity  P capacity  Add Unit Remove Unit  Change Type Remove S2-7133 XS Multi 1/O Box S2-713			SFP1			
Add i Dekte Device DSP capacity 90% 90% 90% 90% 90% 90% 90% 90%	Add Celete Device P2 capacity 90% 90% 90% 90% 90% 90% 90% 90%			Extension Slot AES67-1.Audio	in the second se		
Add DSP capacity DSP capacity DSP capacity DSP capacity Add Unit Remove Link Change Type Remove DElites DST Capacity DST Ca	Add       elete Device         \$P capacity       S0%         \$90%       Add         Change Type       Change Type         Remove       S2-1330 XS Multi VO Box         S2-180 VO/GPIO Module       S2-7112 XC Digital VO/GPIO Module         S2-7224 XC Analog VO/GPIO Module       S2-7224 XC Analog VO/GPIO Module         S2-725 XC Mic/Line Module 8ch, iso.       S2-7257 XC Mic/Line Module 8ch, iso.         S2-7180 XC Dual 3G/HD/SDI De/Embedder       S2-7180 XC Dual interface, 32x Stereo In, 32x Stereo Out         S2-7180 XC Duarte Interface, 64 Channels       S2-7321 MADI Multi Mode         S2-7391 GA Device Interfink, 32-512 channels       S2-7391 GA Device Interfink, 32-512 channels			APC 1 52TX.Uplink			
ABC 4         DSP capacity         90%         Add Unit         Remove Unit.         Click here to see more modules         Utilities         Utilities         52-7122 XC Dual 3G/HO/SDI De/Embedder         52-7123 XC Date Interface         52-7124 XC Date Interfin	Arc 4  SP capacity S0% S0% S0% S0% S135 Art Ender Goreat Change Type Remove S2-1335 XS Multi VO Box S2-1330 VO/GPIO Module S2-7112 XC Digital VO/GPIO Module S2-7212 XC Analog VO/GPIO Module S2-7235 XC Mic/Line Module 8ch, iso. S2-7127 XC Dual 3G/HD/SDI De/Embedder S2-7050 XC 22 Data Interface, 32x Stereo In, 32x Stereo Out S2-7180 XC Dual SG/HD/SDI De/Embedder S2-7080 XC2 Dante Interface, 64 Channels S2-7321 MADI Multi Mode S2-7391 GA Device Interlink, 32-512 channels S2-7391 GA Device Interlink,	Add Delete Device		APC 3			
DB <sup>12</sup> Capacity       Add       \$2-1335 XS Multi I/O Box         90%       Change Type       S2-1335 XS Multi I/O Box         Add Unit       Remove Unit       Cick here to see more modules         Ublitions       S2-7235 XC Mic/Line Module 8th, iso.         S2-7725 XC Mic/Line Module 8th, iso.       S2-7725 XC Mic/Line Module 8th, iso.         S2-7725 XC Duil 3/D/MD/SDI De/Embedder       S2-7725 XC Duil 3/D/SDI De/Embedder         S2-7725 XC Duil 3/D/SDI De/Embedder       S2-7725 XC Duil S2-7722 XD Duil S2 X Stereo 0ut         S2-7722 XD Duil Interface, 64 Channels       S2-77235 MADI Single Mode         S2-7725 XD Mic/Line Interface       S2-77235 MADI Single Mode         S2-7725 MADI Single Mode       S2-7725 MADI Single Mode	90%       Add       \$2-1335 XS Multi VO Box         90%       Change Type       Remove       \$2-1331 XS Multi VO Box         2.7112 XC Digital I/O/GPIO Module       \$2-7112 XC Digital I/O/GPIO Module       \$2-7224 XC Analog I/O/GPIO Module         Util 2/2015       Util 2/2015       \$2-725 XC Mic/Line Module 82h, iso.       \$2-7224 XC Analog I/O/GPIO Module         2.725 XC Mic/Line Module 82h, iso.       \$2-7725 XC Digital I/O/DE/Embedder       \$2-7705 XC Digital I/O/DE/Embedder         52-7780 XCD Dante Interface, 32x Stereo In, 32x Stereo Out       \$2-7780 XCD Dante Interface, 54 Channels       \$2-7321 MADI Multi Mode         52-7321 XADI Single Mode       APC Link APC Device Interlink, 32-512 channels       \$2-7391 KA Device Interlink, 32-512 channels       \$2-7391 KA Device Interlink, 32-512 channels			APC 4 EmberExt AVT Ember.CoreConnect			
Change Type       S2-1830 I/O 1830 analogue/digital I/O         Add Unit       Remove Unit         Click here to see more modules       S2-712 XC Digital I/O/GPIO Module         Utilities       S2-725 XC Mic/Line Module 8/24dBu         S2-725 XC Mic/Line Module 8ch, iso.       S2-712 XC Digital J/O/GPIO Module         S2-725 XC Mic/Line Module 8ch, iso.       S2-712 XC Digital J/O/GPIO Module         S2-717 XC Dual 3G/HD/SDI De/Embedder       S2-700 XC2 AES67 RAVENNA Interface, 32x Stereo In, 32x Stereo Out         S2-718 XC Digital I/O/GPIO Module       S2-710 XC Digital I/O/GPIO Module         S2-7172 XC Dual 3G/HD/SDI De/Embedder       S2-700 XC2 AES67 RAVENNA Interface, 32x Stereo In, 32x Stereo Out         S2-718 XD Digital Mode       S2-7325 MADI Single Mode         APC Link APC Device Interlink, 48 Channels       S2-7325 MADI Single Mode	Change Type       S2-1830 //O (1830 analogue/digital I/O         Add Unit       Remove         Cick here to see more modules       S2-712 XC Digital I/O/GPIO Module         Utilizions       S2-723 XC Analog I/O/GPIO Module         S2-723 XC Analog I/O/GPIO Module       S2-723 XC Mic/Line Module 8ch, iso.         S2-772 XC Dual 3G/HD/SDI De/Embedder       S2-705 XC Mic/Line Module 8ch, iso.         S2-7180 XC Dante Interface, 32x Stereo In, 32x Stereo Out       S2-7180 XC Dante Interface, 64 Channels         S2-7281 XC Dante Interface, 64 Channels       S2-7321 MADI Multi Mode         S2-7391 KCD Perice Interlink, 82 Channels       S2-7391 KCD Perice Interlink, 82 Channels	DSP capacity 90%		Add	52-1335 XS Multi I/O Box		
Remove       52-7112 XC Digital (VO/SPIO Module         Add Unit       Remove         Click here to see more modules       52-7232 XC Analogi (VO/SPIO Module         Utilities       52-7252 XC Mic/Line Module 8ch, iso.         52-7172 XC Dual 3G/HD/SDI De/Embedder       52-7057 XC2 AES67 RA/VENNA Interface, 32x Stereo In, 32x Stereo Out         52-7080 XC2 Dante Interface, 52-7321 MADI Multi Mode       52-7321 MADI Multi Mode         52-7325 MADI Single Mode       52-7325 MADI Single Mode         APC Link APC Desize Interlink 48 Channels       52-7325 MADI Single Mode	Add Unit       Remove         Cick here to see more modules       52-712 XC Digital /0/GPIO Module         Utbit       S2-722 XC Digital /0/GPIO Module         52-712 XC Digital /0/GPIO Module       52-723 XC Mic/Line Module 80/24Bu         52-723 XC Mic/Line Module 80/24Bu       52-723 XC Mic/Line Module         52-712 XC Digital /0/GPIO Module       52-723 XC Mic/Line Module         52-712 XC Digital /0/GPIO Module       52-723 XC Mic/Line Module 8ch, iso.         52-712 XC Digital /0/GPIO De/Embedder       52-708 XC2 Daste Interface, 32x Stereo Out         52-7080 XC2 Daste Interface, 32x Stereo In, 32x Stereo Out       52-7321 MADI Multi Mode         52-7321 MADI Multi Mode       52-7321 MADI Multi Mode         52-7327 XCD Link APC Device Interlink, 32-512 channels       52-7391 GA Device Interlink, 32-512 channels		4	Change Type	52-1830 I/O 1830 analogue/digital I/O		
Ad UML       permove Unit       S2-722 X C Analog (U/OPUD Module 15/24804         S2-723 X C Mic/Line Module Sch, iso.       S2-723 X C Mic/Line Module Sch, iso.         Utilities       S2-7172 XC Dual 3G/HD/SDI De/Embedder         S2-700 XC2 Abs/s RAVENNA Interface, 32x Stereo In, 32x Stereo Out         S2-732 MADI Multi Mode         S2-732 MADI Multi Mode         S2-732 MADI Single Mode         S2-732 MADI Single Mode         S2-732 MADI Single Mode	Add Unit::::::::::::::::::::::::::::::::::::		Address I amounted	Remove	52-7112 XC Digital I/O/GPIO Module		
Utilities       52-7157 XC Mir/Line Module Sch, iso.         Utilities       52-7172 XC Dual 3G/HD/SDI De/Embedder         52-7057 XC2 AES67 RAVENNA Interface, 32x Stereo In, 32x Stereo Out       52-7180 XC Dante Interface, 64 Channels         52-7323 MADI Multi Mode       52-7323 MADI Single Mode         52-7325 MADI Single Mode       52-7325 MADI Single Mode	Lack Like Like Index Index End (Line Module Sch Index End (Line Module		Add Unit Remove Unit		52-7224 XC Analog I/O/GPIO Module 18/24dBu		
Decidit         52-7172 XC Dual 3G/HD/SDI De/Embedder         52-7172 XC Dual 3G/HD/SDI De/Embedder           52-7067 XC2 AES67 RAVENNA Interface, 32x Stereo In, 32x Stereo Out         52-7180 XC Dante interface         52-7180 XC Dante interface, 64 Channels           52-7321 MADI Multi Mode         52-7321 MADI Single Mode         52-7325 MADI Single Mode         52-7325 MADI Single Mode	Decess       52-7172 XC Dual 3G/HD/SDI De/Embedder         52-7067 XC2 AES67 RAVENNA Interface, 32x Stereo Out       52-7067 XC2 Date interface         52-7080 XC2 Date interface       52-7080 XC2 Date interface         52-7080 XC2 Date interface       52-7080 XC2 Date interface         52-7080 XC2 Date interface       52-7080 XC2 Date interface         52-7321 MADI Multi Mode       52-7321 MADI Multi Mode         52-7391 GA Device Interlink, 48 Channels       52-7391 GA Device Interlink, 48 Channels				52-7255 XC Mic/Treadphotes of to Module		
52-7007 XC2 AES67 RAVENNA Interface, 52-7000 XC2 Dante Interface, 52-7000 XC2 Dante Interface, 52-7200 XC2 Dante Interface, 64 Channels 52-7231 MADI Multi Mode 52-7325 MADI Single Mode APC Link APC Device Interlink 48 Channels	52-7057 XC2 AES67 RAVENNA Interface, 32x Stereo Out 52-7067 XC2 AES67 RAVENNA Interface, 32x Stereo Out 52-7180 XC Dante Interface, 64 Channels 52-7321 MADI Multi Mode 52-7321 MADI Multi Mode 52-7325 MADI Single Mode APC Link APC Device Interlink, 48 Channels 52-7391 GA Device Interlink, 32-512 channels		Utilities		52-7172 XC Dual 3G/HD/SDI De/Embedder		1
22-700 XL2 Actor NAVENNAL INETACE, 2X Stereo ULE 52-700 XC2 Dante Interface 52-700 XC2 Dante Interface, 64 Channels 52-7321 MADI Multi Mode 52-7325 MADI Single Mode ACC Link AC Desize Interlink 48 Channels	22-7007 ACC AESO FAUCHIVA Interface, S2C Stereo Un 52-7180 XC Dante Interface 52-7080 XC2 Dante Interface, 64 Channels 52-7321 MADI Multi Mode 52-7325 MADI Single Mode APC Link APC Device Interlink, 48 Channels 52-7391 GAD evice Interlink, 32-512 channels				52 7067 VC2 AEC67 DAVENIA Laterform 22: Stores In 22: Stores Out		1
52-7000 XC2 Dante Interface, 64 Channels 52-7020 XC2 Dante Interface, 64 Channels 52-7321 MADI Multi Mode 52-7325 MADI Single Mode APC Link APC Device Interlink: 48 Channels	52-708 X/C2 Danie Interface, 64 Channels 52-7321 MADI Multi Mode 52-7325 MADI Single Mode APC Link APC Device Interlink, 48 Channels 52-7391 GA Device Interlink, 32-512 channels				52-7007 AC2 AES07 KAVENNA Interface, 52X Stereo In, 52X Stereo Out	1000	
52-7321 MADI Multi Mode 52-7325 MADI Single Mode APC Link APC Device Interlink: 48 Channels	52-7321 MADI Multi Mode 52-7325 MADI Single Mode APC Link APC Device Interlink, 48 Channels 52-7391 GA Device Interlink, 32-512 channels				52-7080 XC2 Dante Interface, 64 Channels		
52-7325 MADI Single Mode	52-7325 MADI Single Mode APC Link APC Device Interlink, 48 Channels 52-7391 GA Device Interlink, 32-512 channels				52-7321 MADI Multi Mode		
APC Link APC Device Interlink, 48 Channels	APC Link APC Device Interlink, 48 Channels 52-7391 GA Device Interlink, 32-512 channels				52-7325 MADI Single Mode		
Fill & Entering - O Contenting - O Contenting	52-7391 GA Device Interlink, 32-512 channels				APC Link APC Device Interlink, 48 Channels		

#### **Activate Ember+ with DHD**



- Then define the desired functions on page GLOBAL CONTROL → GLOBAL LABELS.
- For the example with MAGIC THipPro three labels are required.
  - ProCallerInfo1 and ProCallerInfo2 to display caller information for both faders.
  - ProDialNumber to display the currently entered phone number.
  - The label number is decisive for subsequent referencing (here: 4, 5, 6).

oiect					_
New Project	Global Control				
General	Logic Resources Potent	iometer   Channel Snapsh	not Types Global La	bels	
Global Control	Global Labels				
Linked Devices	# Description	Default Text	Master Device	Label Infos	
Talkback System	1 CallerInfo1	Line 1	52_TX		
<ul> <li>52_TX, Online</li> </ul>	2 CallerInfo2	Line 2	52_TX		
Hardware	3 DialPadNumber	DIAL	52_TX	52_TX.Hybrid TH2plus.{3}.Key 4 {3}	
I/O Overview	4 ProCallerInfo1	Line 1	52_TX		
+ Mixer 1	5 ProCallerInfo2	Line 2	52_1X		
. Hudio	7 ProbialNumber		52_17		
🛨 🛛 Logic	,				
TFT Views	9				
	10				
	11				
	12				
	13				
	14				
	15				
	16				
	17				
	Description:	ProCallerInfo1			
	Default Text:	Line 1			
	Master Device	52_TX	<b>•</b>		
	Reset				

### **Define Global Label for Ember+**



- Now on the page TFT VIEWS

   → HYBRID THIPPRO create
   three BUTTONS as desired.
- According to the previously created GLOBAL LABELS, the appropriate label numbers must now be assigned to each TEXT field.
  - The label numbers must be within braces, e.g. {4}.
- Finally, USER DEFINED must be selected under FUNCTION.
- The configuration can now be saved and transferred.



#### **Link DHD TFT view to Global Labels**



- The page OPERATION SETTINGS

   → GPIO → EMBER+ CONSUMER
   FUNCTIONS can be used to create
   up to 20 functions per CONSUMER
   (①).
- The following functions are currently available (2):
  - Transfer of caller information:
     Name, phone number, city, etc.
    - Transfer of preset names.
  - Transferring the call number via the DHD dialling keypad.
- Finally, the link to the Ember+ Consumer is established via the EMBER+ TREE IDENTIFIER, which can be conveniently transferred with PICK IDENTIFIER (€).

Configuration												×
Local	Consume	er Functions										
MAGIC THipPro ACip3 1	Consu	mer 1 Consumer	2						6			
									0	1 1	_	
- Auto Answer	##	Function		Parameter		Tree Location		Identifier		Pick Identifier	^	
Intro / Data Privacy Query	1	Caller Info	-	On Air 10	-	0.4.3	ß	GlobalLabel 4	Ø			
- Answering Machine	2	Caller Info	•	On Air 11	•	0.4.4	Ø	GlobalLabel 5	Ø			
- Night Service	3	String Info		DHD Dial String		0.4.5		Globall abel 6		🚯		
Actions		oung mo	<u> </u>	one planoung	Ľ	4.4.4		Circoarcaber 6	<u>ر</u>			
Telephone Client Application	4	-					2		ک			
GPIO	5	-	-				Emb	er+ Tree				×
TTL / Relay	6	-	-				😑 De	vice				
	7	-	-					Identity GPI				
E- Ember+	8		-					GPO Chappede				
Output	9	-						GlobalLabels				
Consumer Functions	-							GlobalLabel 1 GlobalLabel 2				
- System Settings	10	-						GlobalLabel 3				
General	11	-	-					GlobalLabel 5				
Line Interface	12	-	-					GlobalLabel 6 Routing				
VolP (LAN/SIP)	13	-	-									
- Audio Interface	14		•									
PRETALK Streaming	15											
AES67	10	-										
LAN Interface	16	-	-									
DHD Audio Matrix	17	-	-									
Ember+	18	-	-									
Remote Light Protocol								Sele	ct	Cano	el	
ACconnect							_		-			
SNMP V												
Client ID: 5 Studio: 1									ОК	Abbrechen	Apply Now	

#### **Configuring Ember+ Consumer Functions**





#### **Representation on a 52/TX display**

### Example 3:

#### TH2plus as Ember+ Consumer – Entering phone numbers via the keypad of a DHD 52/TX mixer.

On a DHD Multitouch Mixer, caller information (phone number/name) should be displayed above each fader. The integrated DHD keypad is to be used for entering call numbers.



- The basic programming is almost identical to example 2.
- For BUTTON 3 (= dial key) the function TFT FUNCTIONS
   -> SHOW KEYBOARD must now be selected, which opens up new configuration options:
  - First select the desired display (TO GROUP).
  - Select the SET GLOBAL LABEL function.
  - Then select NUMBER PAD under LAYOUT.
  - Finally select the correct GLOBAL LABEL NO. (here: DIALPADNUMBER)
- The configuration can now be saved and transferred.



### Linking the DHD keypad



- On the page OPERATION SETTINGS → GPIO → EMBER+ CONSUMER FUNCTIONS, the MAGIC TH2plus can create up to 10 functions per CONSUMER (●).
- The offered functions (②) are identical to example 1, as well as the assignment of the GLOBAL LABEL IDENTIFIER.
- To connect the DHD keypad, select EMBER+ CONSUMER 1 DIAL STRING (<sup>(G)</sup>) as the parameter.

Consu ## 1 2	mer 1 Consumer 2 Function Caller Info	2	Parameter				
Consu ## 1 2	mer 1 Consumer 2 Function Caller Info	2	Parameter				6
## 1 2	Function Caller Info		Parameter				
## 1 2	Function Caller Info		Parameter				C
1 2	Caller Info		T didiffecter	Tree Lo	cation	Identifier	Pick Identifier
2		-	Line 1	<ul> <li>0.4.0</li> </ul>	C	GlobalLabel 1	<b>3</b> •••
-	Caller Info	-	line 2	• 041		Globall abel 2	<b>7</b>
							-
3	String Info	•	Ember+ Consumer 1 Dial String	0.4.2	گ	GlobalLabel 3	<b>a</b>
4	-	-			Z		3
5	-	-			Ø		<b>2</b>
c							<b>7</b>
0					6		
7	-	•			٦		<b>3</b>
8	-	•			Ø		<b>2</b> •••
9	-	-			Ø		<b>7</b>
-					-		8
10	-	•			کا		<u>ه</u>
	5 6 7 8 9 10	5       -         6       -         7       -         8       -         9       -         10       -         11       -         11       -         12       -         13       -         14       -         15       -         16       -         17       -         18       -         19       -         10       - <td>5     -     •       6     -     •       7     -     •       8     -     •       9     -     •       10     -     •       10     -     •</td> <td>5     -     ×       6     -     ×       7     -     ×       8     -     ×       9     -     ×       10     -     ×       110     -     ×       110     -     ×       110     -     ×       110     -     ×       110     -     ×</td> <td>5       •         6       •         7       •         8       •         9       •         10       •         9       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •      &lt;</td> <td>5       -       •      </td> <td>5       -       •       C2         6       -       •       C2         7       -       •       C2         8       -       •       C2         9       -       •       C2         10       -       •       C2         110       -       •       C2         120       -       •       C2         131       -       •       ·         142       -       ·       ·         153       -       ·       ·         164       -       ·       ·</td>	5     -     •       6     -     •       7     -     •       8     -     •       9     -     •       10     -     •       10     -     •	5     -     ×       6     -     ×       7     -     ×       8     -     ×       9     -     ×       10     -     ×       110     -     ×       110     -     ×       110     -     ×       110     -     ×       110     -     ×	5       •         6       •         7       •         8       •         9       •         10       •         9       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         10       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •         •       •      <	5       -       •	5       -       •       C2         6       -       •       C2         7       -       •       C2         8       -       •       C2         9       -       •       C2         10       -       •       C2         110       -       •       C2         120       -       •       C2         131       -       •       ·         142       -       ·       ·         153       -       ·       ·         164       -       ·       ·

#### **Configuring Ember+ Consumer Functions**





#### **Representation on a 52/TX display**



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### **Ember+ Provider**

#### Configuration



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- On the EMBER+ page the network parameters for Ember+ control and signalling are configured.
- ACTIVATE EMBER+ PROVIDER activates the Ember+ provider:
  - LAN INTERFACE: LAN interface via which Ember+ consumers can establish a connection to the device.
  - PORT: TCP ports for up to eight Ember+ consumers. (Standard ports: 9000 - 9007) Unused ports should be deactivated by entering a 0.
  - The functions and signals are configured on the GPIO → EMBER+ → INPUT / OUTPUT page.
  - The Ember+ parameter tree also provides functions that can be called directly by consumers.

l e e e l	Fmber+					
AGIC THipPro ACin 3.1		_				
Signal Processing	Activate Ember+ Prov	ider				
Line Labels	Ember+ Connection Para	meters:				
Studio Settings	LAN Interface:	LAN 1 : 172.20.3	0.25 ~			
Auto Answer	Port 1 (Consumer 1):	9000	Port 4 (Consumer 4):	0	Port 7 (Consumer 7):	
Intro / Data Privacy Query	Port 2 (Consumer 2)	0000	Port F (Consumer F)	•	Pot 9 (Consumer P)	
Answering Machine	Port 2 (Lonsumer 2):	9001	Port 5 (Lonsumer 5):	U	Port 8 (Consumer 8):	
Night Service	Port 3 (Consumer 3):	9002	Port 6 (Consumer 6):	0		
U TIVIF Actions						
Actions Telenhone Client Annlication						
GPIO	Activate Ember+ Cons	umer				
- TTL / Relay	Connection Parameters:					
🖻 - Ember+	L AN Interface:	LAN 1 - 172 20 3	in 26 🗸			
Input	EAR Intendee.	200.00	0.20			
- Output		TUP/IP Address:		Port		
em Settings	Provider 1:			0		
General	Provider 2:			0		
Line Interface						
Caller Line Grouping						
Audio Interface						
PRETALK Streaming						
AES67						
LAN Interface						
VLAN						
DHD Audio Matrix						
Ember+						
Remote Light Protocol						
AUCONNECT SNIMD						
in						
¥						
5 Studio: 1					OK Abbrechen A	pply Now

### **Basic Configuration (1)**



- If an external keypad is to be used via Ember+, a corresponding DIAL PAD GPIO IDENTIFIER must be defined.
  - The functions required to implement a keypad are already predefined and do not have to be created individually.
  - The individual dial keys are also implemented as GPI functions.
- For further GPIO functions, three GPIO blocks with 32 input and 32 output functions each are available, for which the corresponding GPIO IDENTIFIER must be defined.
- EMBER+ CONSUMER TO CLIENT ASSIGNMENT: Assign client PCs to a provider to display a phone number entered via Ember+ in the PC software.

Local	Ember+										
MAGIC THipPro ACip3 1	(Idau) <sup>2</sup> Car										
- Operation Settings	Identifier										
Clients / Security	Dial Pad GPIO Identifier:	THipPre	oDialPa	ad		(Predefi	ned)				
Studio Definition	GPIO Identifier:	THipPre	oGPIO	1		(132)					
Database		THipPre	oGPIO	2		(3364)					
Internal HOLD Signals		TUE	0010			(					
Studio Audio Assignment		THipPre	oGPIU	3		(6596)					
- Clients Audio Assignment											
	Ember+ Consumer to Clien	nt assignme	ent								
- Clients Restrictions			Ember	+ Provid	der						^
Signal Processing			1	2	3	4	5	6	7	8	
Line Labels			· ·	1-	) °	1	l •	) °	1.	1	
Studio Settings	Client 1: MOD-A-1		<b>v</b>								
Auto Answer					-				_		
- Answering Machine	Client 2: MOD-A-2			<b>~</b>							
Night Service	Class 2 HOD 4 2										
Actions	Client 3: MUD-A-3				V						
- Telephone Client Application	Client 4: RED-A-1					<b>~</b>					
GPIO					,	1				,	
TTL / Relay	Client 5: RED-A-2		$\square$	$\square$		<b>~</b>					
Ember+											
Input	Client 5: RED-A-3										
- Output	Client 7: RED-A-4					<b>~</b>					
- General			_	_	_	_	_	_	_	_	
- Line Interface	Client 8: PROD-A-1						$\checkmark$				
- Caller Line Grouping											~
VoIP (LAN/SIP)											
Audio Interface											
- PRETALK Streaming											

### **Basic Configuration (2)**



- On page OPERATION SETTINGS → GPIO → EMBER+ → select INPUT or OUTPUT.
- The table shows an overview of all configured functions.
- A double click on a row opens the configuration of this function.

MAGIC THipPro ACin3 1					
Operation Settings	##	Identifier	Function 1 (Positive Edge)	Function 2 (Negative Edge)	
Clients / Security	1	DropLine1	Drop:VoIP Line 1		
Studio Definition	2	CallLine1	Set Audio Line:VoIP Line 1:Audio Line On Air 1		
Database	3				
Mode & Audio Line	4				
Internal HOLD Signals	5				
Cliente Audio Assignment	6				
Remote Light Audio Assignment	7				
- Clients Bestrictions	8				
- Signal Processing	9				
- Line Labels	10				
Studio Settings	11				
- Auto Answer	12				
Answering Machine	12		•	-	
Night Service	13		•	•	
DTMF	14		•	•	
Actions	15		•	-	
Telephone Client Applicatior	16		•		
⊟- GPIO	17		•	•	
TTL / Relay	18		•	•	
E-Ember+	19		•	•	
Outrast	20				
System Settings	21			-	
General	22		-	-	
Line Interface	23			•	
Caller Line Grouping	24			-	
VoIP (LAN/SIP)					
- Audio Interface					
PRETALK Streaming					

#### **GPIOs**



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- IDENTIFIER: The identifier can be freely selected.
- Under FUNCTION CODE you can select from a list of predefined functions.
- Depending on the function, various parameters must be set.
- For a list of functions, see:
  - Inputs: <u>GPI Functions</u>
  - Outputs: <u>GPO Functions</u>

Identifier:	DropLine1	
Positive edge		
Function Code:	Set Audio Line 🗸	
VoIP Line:	1 ~	
Audio Line:	On Air 1 ~	
Negative edge		
Negative edge Function Code:	Set Audio Line 🗸	
Negative edge Function Code:	Set Audio Line ~	
Negative edge Function Code: VoIP Line:	Set Audio Line ~	
Negative edge Function Code: VoIP Line: Audio Line:	Set Audio Line V 1 V HOLD (Studio 1) V	
Negative edge Function Code: VoIP Line: Audio Line:	Set Audio Line V 1 V HOLD (Studio 1) V	
Negative edge Function Code: VoIP Line: Audio Line:	Set Audio Line v 1 v HOLD (Studio 1) v	
Negative edge Function Code: VoIP Line: Audio Line:	Set Audio Line v 1 v HOLD (Studio 1) v	

### **Configuration of a virtual GPIO**



## **Ember+ Provider**

#### **GPI Functions (Input)**

#### **Remark:**

Please note that some functions described here are not available for MAGIC TH2<sub>plus</sub> and MAGIC TH6. This applies in particular to the line group functions.



Function	Parameter		Description
Call Out / Accept Call In / Drop	Line: Audio Line: Number:	LI: 116 AI: HOLD – PRETALK - ON AIR #: <phone number=""></phone>	<ul><li>Dials a phone number # on caller line LI and sets the Audio line to AI.</li><li>Accepts a call on caller line LI and sets the Audio line to AI.</li><li>Drops the connection on caller line LI.</li></ul>
Accept Call In	Line: Audio Line:	LI: 116 AI: HOLD – PRETALK – ON AIR	Accept an incoming call on caller line LI and set the audio line to AI.
Set Audio Line / Accept Call In	Line: Audio Line:	LI: 116 AI: HOLD – PRETALK – ON AIR	Set audio line AI of line LI. Accept an incoming call if there is one.
Call preallocated number	Line: Audio Line: Clear Preallocation:	LI: 116 AI: CP: yes/no	Dial the preallocated number on caller line LI and set the audio line to AI. Set CP to yes to clear the preallocated number, set it to no to keep it.

### **GPI Functions (1)**


Function	Parameter		Description
Transfer Call	Command: Line: Audio Line: Number:	<ul> <li>CM: Start Transfer</li> <li>Finish Transfer</li> <li>Retrieve Connection</li> <li>LI: 116</li> <li>AI: HOLD – PRETALK – ON AIR</li> <li>#: <phone number=""></phone></li> </ul>	<ul> <li>Call forwarding (ECT).</li> <li>Start Transfer: Set caller line LI to audio line AI and forward the call to the phone number #.</li> <li>Finish Transfer: Terminate call forwarding on caller line LI. (= Drop line LI on the telephone hybrid).</li> <li>Retrieve Connection: Retrieve forwarded call on caller line LI and set it to audio line AI.</li> </ul>
Drop	Line:	LI: 116	Drops the connection on caller line LI.

#### **GPI Functions (2)**



Function	Parameter		Description
Set Audio Line	Line: Audio Line:	LI: 116 AI: HOLD – PRETALK - ON AIR	Sets the caller line LI to Audio line AI.
Load Preset	Preset:	#: <preset name="" preset="" super=""></preset>	Loads the Preset (Operation Settings) with the name #. Loads the Super Preset (Operation & System Settings) with the name #.
Set Information Base Entry	Entry ID: Value:	#1 #2	Special developer function.
String Command	Command:	#1	Special developer function.

#### **GPI Functions (3)**



Function	Parameter		Description
Start Recording of HOLD Signal	Signal: Audio Interface: Show Info Window:	<ul><li>IH: Internal HOLD Signal 14</li><li>AI: Audio Interface</li><li>ID: No, ClientID</li></ul>	Records the internal HOLD Signal IH via the audio interface AI with visual display on the PC with the selected ID.
Stop Recording of HOLD Signal	Signal:	IH: Internal HOLD Signal 14	Stops recording of the internal HOLD Signal IH.
Start Test Recorded HOLD Signal	Signal: Audio Interface:	IH: Internal HOLD Signal 14 AI: Audio Interface	Plays back the internal HOLD Signals IH via the audio interface AI.
Stop Test Recorded HOLD Signal	Signal:	IH: Internal HOLD Signal 14	Stops play-back of the internal HOLD Signal IH.

#### **GPI Functions (4)**



Function	Parameter		Description
Set Control Interface on Client	Client:ID:Application:ANIP Address:IP:Port:PTNetwork Interface: NI:	<ul> <li>Client-PC</li> <li>LAN Client, Screener,</li> <li>LAN Client and Screener</li> <li>IP Address</li> <li>Port Number</li> <li>Local IP address of the PCs network interface</li> </ul>	The application AN, which runs on the client PC with the selected ID, connects to the device which has the IP address IP. For this it uses the network interface NI and the port PT. The NI network interface of the client PC must be specified using its local IP address.
Select Studio (enabled by Operation Restriction)	Studio: ST	: Studio 1 6	Switches all Client PCs to Studio ST for which the Operation Restriction Flag "Select Studio" is enabled.
Select Studio on Client	Studio: ST Client: ID:	: Studio 1 6 : Client-PC	Switches the Client PC with the selected ID to the Studio ST.
Import System Configuration File	File Path: #:	<path>\<file></file></path>	Imports and activates the complete system configuration from the file #.

#### **GPI Functions (5)**



Function	Parameter	Description
Execute External Program on Client	Client:ID: Client-PCShow Command:OP: Hide/Show/Show Active/Show Min.Command:#1: <program name=""> #2: <parameter></parameter></program>	Executes any external program #1 (or any batch file) with the optional parameter #2 on the Client PC with the selected ID in the display mode OP.
Trigger Action on Client	Action:AC: "NEXT" action (see ACTIONS)Client:ID: Client-PC	Triggers an action defined under ACTIONS on the Client PC with the selected ID. Only ACTIONS of the type "Set NEXT line at Line Group" are available for selection.
Disable ON AIR Button	Available ON AIR Lines: AI: Configured ON AIR Audio Line	Disables the selected ON AIR Audio lines on all Client PCs (ON AIR buttons are displayed greyed out).
Disable Line Group on Client	Line Group:GR: Configured Line GroupClient:ID: All Clients, Client-PC	Deactivates the telephone lines of the selected line group GR on the client PC with the selected ID, or all client PCs. (All telephone line buttons are grayed out)

#### **GPI Functions (6)**



Function	Parameter	Description	
As soon as a line-group-related PRETALK and/or ON AIR Function has been programmed, the callers which are the longest time in the system are automatically highlighted as "Next PRETLAK" (green text colour) or as "Next ON AIR" (red text colour)			
Toggle Night Service / Answering Machine On/Off	Line Group:GR:Configured Line GroupMode:M:1. Night Service: Transfer incoming call2. Night Service: Call Forwarding incoming callincoming call3. Night Service: Call Forwarding (Provider)(Provider)4. Answering Machine: Auto Message and DROPand DROP5. Answering Machine: Record Caller*Number:#:*	<ul> <li>Toggle night service or answering machine mode on line group GR:</li> <li>1. Forward call per ECT to #.</li> <li>2. Forward call per hybrids CF line to #.</li> <li>3. Program call forwarding of PBX.</li> <li>4. Play a message and drop.</li> <li>5. Record a message.</li> <li>Only modes configured under ANSWERING MACHINE or NIGHT SERVICE for the corresponding line group are available.</li> </ul>	
Accept Next Incoming Call	Line Group: GR: Configured Line Group Audio Line: AI: HOLD (Studio), PRETALK, ON AIR	Accepts the next caller within the line group GR and sets the Audio line to AI.	

#### **GPI Functions (7)**



Function	Parameter		Description
As soon as a line-group-related PRETALK and/or ON AIR Function has been programme automatically highlighted as "Next PRETLAK" (green text colour)			, the callers which are the longest time in the system are as "Next ON AIR" (red text colour)
Set PRETALK at Line Group	Line Group: GR: Conf Audio Line: AI: Conf HT: -, HC Post State: PO: HOL	figured Line Group figured PRETALK Audio Line OLD Toggle Mode D READY (Studio), DROP	Switches the next caller within the line group GR to Audio line AI. The selection depends on the state of the callers in ascending order: HOLD, incoming, "HOLD was ON AIR", HOLD READY (Do various callers have the same priority, the longest waiting wins.) If HOLD Toggle Mode is enabled and a caller is in AI, he will be set to HOLD READY without setting the next one to AI. Only with the subsequent signal the next caller is set to AI. If a caller within the line group GR is in PRETALK already, it is switched to the Post-Status PO.

#### **GPI Functions (8)**



Function	Parameter		Description
As soon as a line-group-r aut	, the callers which are the longest time in the system are as "Next ON AIR" (red text colour)		
Set ON AIR at Line Group	Line Group: GI Audio Line: AI H <sup>T</sup> Post State: PC	R: Configured Line Group I: Configured ON AIR Audio Line IT: -, HOLD Toggle Mode O: HOLD (Studio), DROP	Switches the next caller within the line group GR to Audio line AI. The selection depends on the state of the callers in ascending order: HOLD READY, "HOLD was ON AIR", PRETALK, incoming (Do various callers have the same priority, the longest waiting wins.) If HOLD Toggle Mode is enabled and a caller is in AI, he will be set to "HOLD was ON AIR" without setting the next one to AI. Only with the subsequent signal the next caller is set to AI. If a caller within the line group GR is in ON AIR already, it is switched to the Post-Status PO.

#### **GPI Functions (9)**



Function	Parameter	Description			
As soon as a line-group- au	As soon as a line-group-related PRETALK and/or ON AIR Function has been programmed, the callers which are the longest time in the system are automatically highlighted as "Next PRETLAK" (green text colour) or as "Next ON AIR" (red text colour)				
Set ON AIR at Line Group (from HOLD READY only)	Line Group:GR: Configured Line GroupAudio Line:AI: Configured ON AIR Audio LineHT: -, HOLD Toggle ModePost State:PO: HOLD (Studio), DROP	Switches the next caller within the line group GR to ON AIR Audio line AI but only if the caller is in the status HOLD READY. If HOLD Toggle Mode is enabled and a caller is in AI, he will be set to "HOLD was ON AIR" without setting the next one to AI. Only with the subsequent signal the next caller is set to AI. If a caller within the line group GR is in ON AIR already, he is switched to the Post-Status PO.			
Set Audio Line at Line Group	Line Group:GR: Configured Line GroupPre State:PR: HOLD, PRETALK, ON AIRAudio Line:AI: HOLD, PRETALK, ON AIR	Switches a caller (or also several callers) to audio line AI within the line group GR, if he is in the Pre-Status PR (PRETALK and/or ON AIR).			

#### **GPI Functions (10)**



Function	Parameter		Description
(PC): Functions marked wit	h (PC) in the functi	on name require at least one client to be con	nected to the system.
DROP at Line Group	Line Group: Audio Line: Or:	<ul><li>GR: Configured Line Group</li><li>AI: None, Audio line type</li><li>SI: None, inbound / outbound calls</li></ul>	Drops one or several connections within the line group GR, if they are in the Audio line status AI or were established in direction SI.
LOCK Lines at Line Group	Line Group: Command:	GR: Configured Line Group SI: LOCK, UNLOCK	Sets the line status SI within the line group GR.
Toggle LOCK state of lines at Line Group	Line Group:	GR: Configured Line Group, Any	Toggle line lock of line group GR.
Toggle Recording (PC)	Client:	ID: Client-PC	Start and stop pretalk stream recording of a client PC.
Ember+ Call at Line Group	Line Group: Audio Line:	GR: Configured Line Group AI: HOLD (Studio), PRETALK, ON AIR	Dials the phone number which has been entered via Ember+ within line group GR and sets the Audio line to AI as soon as the called partner answers the call. Stops the dialling.

#### **GPI Functions (11)**



Funktion	Parameter		Beschreibung
Ember+ Redial last CALL at Line Group	Line Group: Audio Line: Dial Number Source:	<ul> <li>GR: Configured Line Group</li> <li>AI: HOLD (Studio), PRETALK, ON AIR</li> <li>NS: Ember+ Provider</li> <li>Ember+ Consumer 1</li> <li>Ember+ Consumer 2</li> </ul>	Redial the last number dialed via NS on line group GR. If the connection is established, the audio line AI is set. End dialing.

#### **GPI Functions (12)**



# **Ember+ Provider**

#### **GPO Functions (Output)**

#### **Remark:**

Please note that some functions described here are not available for MAGIC TH2<sub>plus</sub> and MAGIC TH6. This applies in particular to the line group functions.



Function	Parameter	Description
Fixed Low	-	Sets static "0". (Relay open)
Fixed High	-	Sets static "1". (Relay closed)
Connection Status	Line: LI: 116, AC1, AC2, Any Connection State: SI: Disconnect, Calling, Incoming Call, Connect	Activated if the connection status on caller line LI (Any: on at least one caller line) corresponds to the status SI.
Connection Status at Line Group	Line Group:GR:Configured Line GroupConnection State:SI:Disconnect, Calling, Incoming Call, Connect	Activated if the connection status on at least on one caller line within the line group GR corresponds to the status SI.
Audio Line	Line:LI:116, AC1, AC2, AnyAudio Line:AI:HOLD (Studio), PRETALK, ON AIR	Activated if the Audio line status on caller line LI (Any: on at least one caller line) corresponds to the status AI.
Audio Line at Line Group	Line Group:GR: Configured Line GroupAudio Line:AI: HOLD, PRETALK, ON AIR	Activated if the Audio line status on at least one caller line within the line group GR corresponds to the status AI.

#### **GPO Functions (1)**



Function	Parameter		Description
ON AIR	Line:	LI: 116, AC1, AC2, Any	Activated if the Audio line status on caller line LI (Any: on at least one caller line) is ON AIR.
PRETALK	Line:	LI: 116, AC1, AC2, Any	Activated if the Audio line status on caller line LI (Any: on at least one caller line) is PRETALK.
Ringing State Connected State	Line:	LI: 116, AC1, AC2, Any	Activated if the connection status on caller line LI (Any: on at least one caller line) is RINGING or CONNECTED.
Ringing / ON AIR	Line:	LI: 116, AC1, AC2, Any	Activated if the connection status In caller line LI (Any: on at least on caller line) is INCOMING CALL or ON AIR.

#### **GPO Functions (2)**



Function	Parameter		Description
LOCK State of Caller Line	Line:	LI: 116, AC1, AC2, Any	Activated if the caller line LI (Any: at least one caller line) is locked.
LOCK State of Line Group	Line Group:	GR: Configured Line Group	Activated if line group LI is locked.
Information Base Entry	Entry ID: Value:	#1 #2	Special developer function.
Any System Alarm Pending	-		Activated if at least one System Alarm (see System Monitor) is active.
Application Alarm Pending	Application Alarms:	AA: Configured application alarms	Activated if at least one of the selected Application Alarms (see System Monitor) is active.

#### **GPO Functions (3)**



Function	Parameter	Description
(PC): Functions marked wit	h (PC) in the function name require at least one client to be con	nected to the system.
DTMF Digit Received	-	Activated if a DTMF tone has been received.
Recording or Test of HOLD Signal Active	Int. HOLD Signal: ICH: Internal HOLD Signal 14, Any	Activated if an internal HOLD Signal IH is recorded via the function Start Recording of HOLD Signal or played back via the function Start Test Recorded HOLD Signal.
Audio Interface used for HOLD Signal Recording	Audio Interface: PI: Audio Interface	Activated if the audio interface PI is being used for the HOLD Signal Recording.
Connection Status in Studio (PC)	Studio:ST:Studio 1 6Connection State:SI:Disconnect, Calling, Incoming Call, Connect	Activated if the connection status on at least one caller line in studio ST corresponds to the status SI.

#### **GPO Functions (4)**



Function	Parameter	Description	
(PC): Functions marked wit	h (PC) in the function name require at least one client to be con	nected to the system.	
ON AIR in Studio (PC)	Studio:       ST:       Studio 1 6         ON AIR Line:       AI:       all configured ON AIR Audio Lines,         Any	Activated if the Audio line status on at least one caller line in the studio ST corresponds to the ON AIR status AI.	
PRETALK in Studio (PC)	Studio: ST: Studio 1 6 PRETALK Line: AI: all configured PRETALK Audio Lines, Any	Activated if the Audio line status on at least one caller line in the studio ST corresponds to the PRETALK status AI.	

#### **GPO Functions (5)**



Funktion	Parameter	Beschreibung
(PC): Functions marked wit	h (PC) in the function name require at least one client to be con	nected to the system.
Night Service or Answering Machine at Line Group	Line Group:GR: Configured Line GroupMode:M:1. Any Night Service or Answering Machine2. No Night Service or Answering Machine3. Night Service: Transfer incoming call3. Night Service: Call Forwarding incoming call3. Night Service: Call Forwarding (Provider)6. Answering Machine: Auto Message and DROP3. Answering Machine: Record Caller	<ul> <li>Activated if mode M matches state of Line Group GR:</li> <li>1. Night Service or Answer Machine is active.</li> <li>2. Neither Night Service nor Answering Machine is active.</li> <li>3. Forward call per ECT is active.</li> <li>4. Forward call per hybrids CF line is active.</li> <li>5. Call forwarding in PBX is programmed.</li> <li>6. Play a message and drop is active.</li> <li>7. Recording messages is active.</li> </ul>
Set Output by Action (PC)	-	Makes this output available for the SET GPO action, which can be created on the ACTIONS configuration page.

#### **GPO Functions (6)**



Funktion	Parameter	Beschreibung
(PC): Functions marked wit	n (PC) in the function name req	uire at least one client to be connected to the system.
Client is Recording (PC)	Client: ID: Client-PC	Activated if the client PC with the selected ID is currently recording a call.
Recordings Playback active on Client (PC)	Client: ID: Client-PC	Activated when a recording of a call is played back on the client PC with the selected ID.

#### **GPO Functions (7)**



## **Ember+ Provider**

#### **Parameter Tree**



Element	Description	
Node	Background colour indicates the position of the node in the tree hierarchy.	
Parameter	The value of the node can only be read.	
Parameter	The value of the node can be changed.	
Function	Function call executed by the telephone hybrid	
Info	Description of a node.	
	Connects nodes.	
	Links to a description of a node.	
Find information about audio line assignments following the EmBER+ tree description.		

#### **EmBER+ Tree - Key**





























Nr.	Audio line	Remarks
3 - 34	ON AIR 1 – ON AIR 32	-
35 - 54	PRETALK 1 – PRETALK 20	Pretalk of clients 1 – 20
57 - 66	Dynamic PRETALK	Can not be assigned to individual clients.
67 - 86	HOLD 1 - HOLD 20	HOLD-Signal of clients 1 – 20
87	HOLD News Desk Clients	Mutual HOLD-Signal of all News Desk clients.
89-92	HOLD Night Service / Answering Machine	HOLD-Signals for night service and answering machine.
93 - 98	HOLD Studio 6 – HOLD Studio 1	HOLD-Signals of studios 1-6 in descending order.
99 - 104	HOLD Remote Light 6 – HOLD Remote Light 1	HOLD-Signals of Remote Light clients 1 – 6 in descending order.
192 - 197	Off Conference 1 – Off Conference 6	Off Conference of studios 1 – 6.

#### **Audio Lines Assignment**



# **Ember+ Consumer**

#### Configuration



- Activate the Ember+ Consumer function on the SYSTEM SETTINGS → EMBER+ page.
- Under LAN INTERFACE, select the network interface of the telephone hybrid via which the connection to the Ember+ provider is to be established.
- The device can connect to two Ember+ providers.
  - TCP/IP ADDRESS: IP address of the Ember+ provider.
  - PORT: TCP/IP port of the Ember+ provider

Configuration						X
Local	Ember+					
MAGIC HilpPro AC[p31 - Studio Audio Assignment ∧ - Clients Audio Assignment - Remote Light Audio Assignn - Clients Restrictions - Signal Processing - Line Labels - Studio Settings - Auto Answer - Intro / Data Privacy Query	✓ Activate Ember+ Provide Ember+ Connection Parame LAN Interface: Port 1 (Consumer 1): Port 2 (Consumer 2): Port 3 (Consumer 3):	r ters: LAN 1 : 172.20.30.25 9000 9001 9002	Port 4 (Consumer 4): Port 5 (Consumer 5): Port 6 (Consumer 6):	0 0 0	Port 7 (Consumer 7): 0 Port 8 (Consumer 8): 0	
<ul> <li>Answering Machine</li> <li>Night Service</li> <li>DTMF</li> <li>Actions</li> <li>Telephone Client Application</li> <li>⊕ GPIO</li> <li>⇒System Settings</li> <li>General</li> <li>Line Interface</li> <li>Caller Line Grouping</li> </ul>		LAN 1 : 172.20.30.26 TCP/IP Address: 172.20.30.15 172.20.30.16	~	Port: 9010 9011		
VolP (LANXIP)  - Audio Interface  - PRETALK Streaming  - AES67  - LAN Interface - VLAN - DHD Audio Matrix - Embers - Remote Light Protocol - ACconnect - SNMP - Login						
Client ID: 5 Studio: 1					OK Abbre	chen Apply Now
Client ID: 5 Studio: 1					OK Abbred	chen Apply Now

#### **Ember+ Consumer – Configuration (1)**



- Up to 20 functions can be defined on the GPIO → EMBER+ → CONSUMER FUNCTIONS page.
- Select a device's data field in the FUNCTION column.
- The data field is specified in more detail under PARAMETER.
- Now an element from the Ember+ tree of the provider must be linked with this data field. This is possible in two ways:
  - Via PICK IDENTIFIER an entry from the provider's Ember+ tree can be selected. TREE LOCATION and IDENTIFIER are set automatically.
  - It is also possible to specify TREE LOCATION and IDENTIFIER directly.

#### **Consumer Functions** Local MAGIC THipPro ACip31 Consumer 1 Consumer 2 Studio Settings ^ Auto Answer ## Function Parameter Tree Location Identifier Pick Identifier ~ Intro / Data Privacy Query Phone Number Line 1 • 1.2.4.1.3 Answering Machine String Info Phone Number 1 **ø** ... 1 Night Service • 1.2.4.1.4 2 Caller Info Caller Info **a** DTMF Last Name Line 1 • 1.2.4.1.4 **3** ... 3 🕑 Name Actions Telephone Client Application • Ø **ø** ... 4 📥 GPIO • Ø 0 5 --- TTL / Relay • R **a** ... 🖶 DHD 6 📥 Ember+ • 1 **a** ... 7 Input Ember+ Tree × • 8 - Output • Device 9 🛓 System Settings Identity • 10 - 😑 GPI - General - e GPO - Deneral - 😔 Channels GlobalLabels GlobalLabel 1 GlobalLabel 2 Ø GlobalLabel 3 GlobalLabe GlobalLabel 5 Ø GlobalLabel 6 - Routing Select Cancel

### Ember+ Consumer – Configuration (2)



## **Ember+ Consumer**

#### **Functions**

#### **Remark:**

Please note that some functions described here are not available for MAGIC TH2<sub>plus</sub> and MAGIC TH6. This applies in particular to the extended screening information (like age and rating).



Function	Parameter	Description
None	-	No data field is selected.
String Info	<ol> <li>Active Preset Name</li> <li>Phone Number Line 116</li> <li>SIP Display Name 116</li> <li>Ember+ Consumer 1 Dial String</li> <li>Ember+ Consumer 2 Dial String</li> <li>Ember+ Provider Dial String 18</li> <li>DHD Dial String</li> <li>Custom Value</li> </ol>	<ul> <li>The telephone hybrid exchanges information in text form with the Ember+ provider:</li> <li>Name of the active preset on the telephone hybrid. (W)</li> <li>Telephone number of the subscriber on line 116 (W)</li> <li>Received SIP Display Name of subscriber on line 116 (W)</li> <li>Telephone number that can be used for dialling via Ember+ Input or DHD Set Logic. Should be set by the provider to whom the Ember+ Consumer 1 is connected. The telephone hybrid deletes the number after the call has been established. (RW)</li> <li>Telephone number that can be used for dialling via Ember+ Input or DHD Set Logic. Should be set by the provider to whom the Ember+ Consumer 2 is connected. The telephone hybrid deletes the number after the call has been established. (RW)</li> <li>Telephone number that can be used for dialling via Ember+ Input or DHD Set Logic. Should be set by the provider to whom the Ember+ Consumer 2 is connected. The telephone hybrid deletes the number after the call has been established. (RW)</li> <li>Telephone number that can be used for dialling via Ember+ Input or DHD Set Logic. One entry per Ember+ provider. This entry is also filled via the predefined Ember+ GPI keypad. (RW)</li> <li>Telephone number that can be used for dialling via Ember+ Input or DHD Set Logic. This entry is also filled via the predefined Ember+ GPI keypad. (RW)</li> <li>Special developer function.</li> <li>(W): Value is set but not evaluated by the device.</li> <li>(RW): Value is set and evaluated by the device.</li> </ul>

#### **Consumer Functions (1)**



Function	Parameter	Description
Screening info in general: All entries from the database's screening information have these parameters:	<ol> <li>Line 116</li> <li>HOLD Studio 16</li> <li>HOLD Client 120</li> <li>PRETALK 132</li> <li>ON AIR 132</li> </ol>	<ul> <li>The telephone hybrid sets the entry with the respective information from the caller database. The subscriber is selected based on the parameter:</li> <li>1. Subscriber on a telephone line.</li> <li>2. Subscriber in HOLD of a Studio.</li> <li>3. Subscriber in HOLD of a Client PC.</li> <li>4. Subscriber in selected PRETALK.</li> <li>5. Subscriber in selected ON AIR.</li> </ul>
Caller Info	See screening info in general.	The telephone hybrid sets this entry with a combination of call number, first name and surname of the caller depending on the availability of information.
Mood as String	See screening info in general.	The telephone hybrid sets this entry with the mood of the subscriber as a string. Values: "Unknown", "Happy", "Neutral", "Sad".
Mood as Integer	See screening info in general.	The telephone hybrid sets this entry with the mood of the subscriber as a numerical value. Values: $0,1,2,3$ 0 = unknown 1 = happy 2 = neutral 3 = sad

#### **Consumer Functions (2)**



Function	Parameter	Description
Rating as String	See screening info in general.	The telephone hybrid sets this entry with the rating of the subscriber as a String. Values: "0", "1", "2", "3", "4", "5", "6" "0" = not rated yet.
Rating as Integer	See screening info in general.	The telephone hybrid sets this entry with the rating of the subscriber as a numerical value. Values: 0, 1, 2, 3, 4, 5, 6 0 = not rated yet.
Gender as String	See screening info in general.	The telephone hybrid sets this entry with the gender of the subscriber as a string. Values: "Unknown", "Male", "Female", "Audio Codec"
Gender as Integer	See screening info in general.	The telephone hybrid sets this entry with the gender of the subscriber as a numerical value. Values: 0, 1, 2, 3 0 = unknown 1 = male 2 = female 3 = Audio Codec

#### **Consumer Functions (3)**


Function	Parameter	Description
Age as String	See screening info in general.	The telephone hybrid sets this entry with the age of the subscriber as a string.
Age as Integer	See screening info in general.	The telephone hybrid sets this entry with the age of the subscriber as a numerical value.
Phone Number	See screening info in general.	The telephone hybrid sets this entry with the phone number of the subscriber as a string.
Last Name	See screening info in general.	The telephone hybrid sets this entry with the last name of the subscriber as a string.
First Name	See screening info in general.	The telephone hybrid sets this entry with the first name of the subscriber as a string.
Town	See screening info in general.	The telephone hybrid sets this entry with the town of the subscriber as a string.
Info	See screening info in general.	The telephone hybrid sets this entry with the content of the information field of the subscriber as a string.

### **Consumer Functions (4)**



## Appendix

Ember+ Viewer Support



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- With the *Ember+ Viewer* Software the complete Ember+ tree of a Provider can be displayed.
- Via the Viewer you can also change the available parameters for testing and read out the available information.
- To use the Viewer, an additional Port must be enabled in the telephone hybrid.
  - Page SYSTEM SETTINGS → EMBER+ PROVIDER.
  - Select free port from *PORT 1* ... *PORT 8* and enter e.g. 9001.
  - Enter this port in the Ember+ Viewer correspondingly (•).

Ember+ Viewer v1.6.2.0 - GlowDTD v2.31 - EmBER Encod	↔ _ □	
🖁 Use Qualified Glow Types   Enquire: 💿 All 🔿 Identifie	r 🔿 Value 索 Keep-Alive 💭	Show Descriptions in Tree T <sub>0</sub> <sup>o</sup> Clear Tree on Disconnect
nmunication Ports Add		Contents
• 172.16.75.24:9001	^	Tag Field Type Value
▲ 💿 001 THipPro		C-0 Identifier UTF8 Call
🔺 👳 001 Status		C-2 Arguments Sequence 🚍 🗸
Ø 001 Firmware Version		
🔺 🌚 002 Operation	Arguments:	
🔺 👳 001 Line Functions	Phone Number(UTF8)	
<u>f</u> x 001 Accept Incall	Result:	
fx 002 Call		Invocations
fx 003 Disconnect		invocations.
002 Line 1		
003 Line 2     0		
004 Line 3		
005 Line 4		
D 🕥 006 Line 5		
▷ 👻 007 Line 6		
•  •  008 Line 7		
009 Line 8		
010 Line 9		
011 Line 10		
• • 012 Line 11	~	
.16.75.24:9001/THipPro/Operation/Line Functions/Call		Invoke
Time Message		
0/2017 6:06:05 PM 🛛 🕕 172.16.75.24:9001 - Glow Error: G	low DTD version mismatch: foun	nd version 2.30, expected
0/2017 6:06:05 PM 1 EndPoints created		
0/2017 6:06:05 PM EmberPlusView v1 6 2 0 started		

#### **Ember+ Viewer**



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#### Support



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