



**OCEAN SONICS**

# icTalk User Guide



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Version 2.1

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## Introduction

The **icTalk** Smart Projector is an all-in-one calibrated projector that produces a complex range of tones, sweeps and clicks. It can be set up by an operator once, and used indefinitely after that, requiring only charging of its battery.

This Smart Projector is well suited for tank calibrations, field QC, and as being a general purpose, low power test projector.

Users communicate with **icTalk** Smart Projectors through a PC program called **Talk Assistant**. This program lets users set up the operating mode and create the output pattern that the instrument will project.

We hope you enjoy your experience with your **icTalk** product and look forward to receiving feedback on your experience using it.

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The **icTalk HF** is a 10 – 200 kHz smart projector, having configurable output patterns and operating modes. The **icTalk HF** can be used in a tethered mode or run from battery power.

In tethered mode, output can be initiated either by sending commands over the communications channel or configuring the unit to output sound continuously. The **icTalk HF** communicates over RS422 at a baud rate of 19200 bits per second.

When running from battery power, sound output can be configured to run continuously or activated by the shorting plug.

Output patterns can be built using tones, sweeps, clicks and rests in an event table containing up to 40 events. The output pattern can be configured to repeat continuously, or a set number of times per triggering event. The time between pattern repetitions is also configurable.

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## Specifications

<b>WEIGHT</b>	~584 g (in air)
<b>DIMENSIONS</b>	42 mm dia. by 250 mm long

## Features

• Frequency Range: 10 to 200 kHz	• Configurable output patterns
• Max depth: 200 m / 3500 m	• Can be run from battery or tethered
• Interface: RS422 (19200 bits/second)	• Configurable output triggering mechanisms

# Ocean Sonics icTalk Quick Start

**OSL Tip:** For a quick setup install Ocean Sonics' Software Programs **Talk Assistant** on your PC prior to setting up your icTalk.

## Unbox

**List of Contents**

- 1** A) Power Cord  
B) Serial Cable  
C) Shorting Plug
- 2** D) Power Adaptor  
E) Hardware Reset Tool  
F) Connector Lubricant
- 3** G) USB Drive  
H) icTalk

## Connect

**CAUTION :** Connect equipment in order shown below.

## Install

## Setup

14. Load a Configuration File or Create an icTalk Pattern
15. Set additional information if applicable: Instrument Time, Start Delay, Sync
16. Click the Play Button to start pattern

Type	Duration	Unit	Start Freq (Hz)	End Freq (Hz)	Level(dB)	Phase (Deg)
1	0.3	Seconds	18030	200000	7	+45
2	0.3	Seconds	18030	200000	7	+45
3	0.3	Seconds	20070	200000	4	+45
4	0.3	Seconds	20070	200000	4	+45
5	0.3	Seconds	20117	200000	3	+45
6	0.3	Seconds	20117	200000	3	+45
7	0.3	Seconds	20151	200000	3	+45
8	0.3	Seconds	40150	200000	2	+45
9	0.3	Seconds	40150	200000	2	+45
10	0.3	Seconds	55140	200000	1	+45

## Talk Assistant

The software used to talk to the **icTalk** projectors is a PC program called **Talk Assistant**. It provides an interface for setup and testing of **icTalk** instruments.

The interaction of the software has been designed for field operations personnel, making it simple to use.

## Main Display

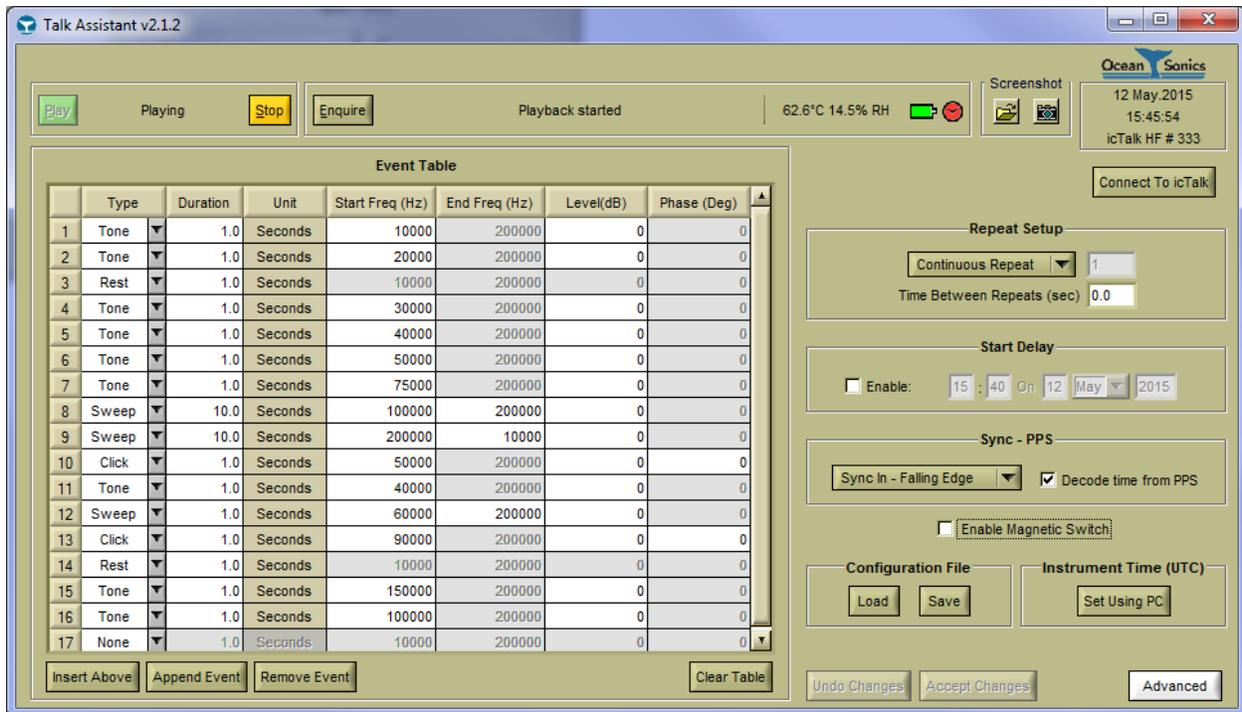


Figure 1. Main Display

The main display of **Talk Assistant** allows access to all setup and control functions available to **icTalk**. All buttons whose functions require a connection to the device will be disabled while no unit is connected. If the connected unit does not support certain functions, those functions will remain disabled even after a connection has been established.

The status line, above the event table, will display a status based on the responses received whenever commands are issued.

The upper right area of the screen displays the current date and time on the computer running **Talk Assistant**, as well as the type of device connected, and the serial number of the unit.

## Using the Software

This section describes how to use the software to connect to an **icTalk** device, and how to configure and control the device from the software.

### Starting the program

Start-up of **Talk Assistant**, as with other Windows applications, can be done from the Windows Start menu, or a shortcut can be created to start directly from the desktop. It can be found on the start menu under:

Start->All Programs->Ocean Sonics->Talk Assistant

### Connecting to an icTalk Device

In order to use an **icTalk** device, we must connect to it. This utility supports connections through a COM port on the PC. **Talk Assistant** will remember the previously connected unit and try to automatically establish the connection when started. If the automatic connection is unsuccessful, the **Connection Setup** panel will open automatically. If the desired connection is to a different unit, or the panel was closed, the panel may also be opened by pressing the **Connect To icTalk** button.

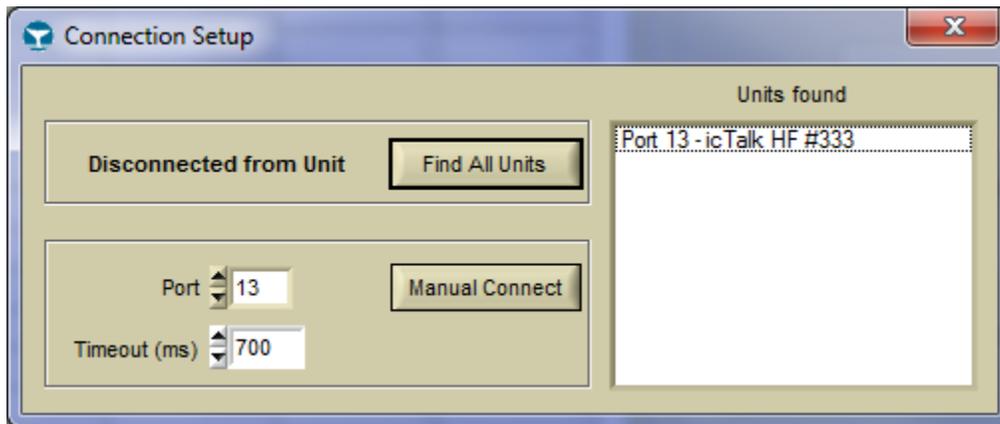


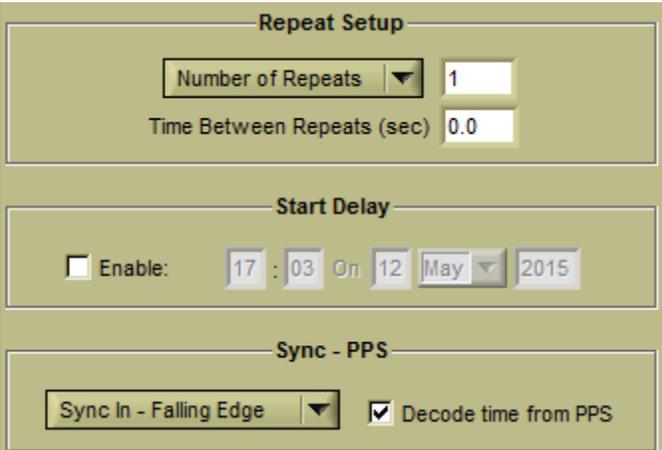
Figure 2. Connection Setup

If the COM port is known, it can be typed into the **Port** field, and the **Connect** button can be pressed to connect to the device.

If the COM port is not known, the **Find All Units** button can be pressed, which will search for any connected units. Any devices found will be listed in the **Units found** list. Double clicking on a device in this list will connect to it.

## Job Setup

The job setup is automatically read from **icTalk**, when a connection is established.



The screenshot shows a 'Job Setup' interface with three main sections:

- Repeat Setup:** Contains a dropdown menu for 'Number of Repeats' set to '1' and a text input for 'Time Between Repeats (sec)' set to '0.0'.
- Start Delay:** Features an 'Enable:' checkbox (unchecked) and a date/time selector showing '17 : 03 On 12 May 2015'.
- Sync - PPS:** Includes a dropdown menu for 'Sync In - Falling Edge' and a checked checkbox for 'Decode time from PPS'.

Figure 3. Job Setup

The settings are updated when **Accept Changes** is pressed. The current settings in the unit can be retrieved by pressing **Undo Changes**.

The parameters which can be configured include:

**Continuous Repeat/Number of Repeats:** The number of repeats is how many times the event table will repeat before stopping. If continuous repeat is selected, the events, once started, will play until a “Stop” command is sent.

**Time Between Repeats:** The duration, in seconds, of the delay between cycles of the event table.

**Start Delay:** The start delay is the time when playback will start if enabled. Note that the unit must be in “Playing” mode to start. The unit is put into “playing” mode by pressing the **Play** button. The start delay time is set in Local Time.

**Sync – PPS:** The sync PPS settings are used for the PPS (pulse per second) input/output settings. “Sync In” will have the **icTalk** sync to a PPS source of the same polarity (Rising or Falling edge), while “Sync Out” will cause the **icTalk** to generate a PPS signal for other devices to sync to. If this setting is set to “Disabled”, **icTalk** will ignore the state of the sync pin.

## Editing the Event Table

Sound output from the **icTalk** is controlled using an event table. Available events are tone, sweep (linear), click, and rest (silence).



	Type	Duration	Unit	Start Freq (Hz)	End Freq (Hz)	Level(dB)	Phase (Deg)
1	Tone	1.0	Seconds	10000	200000	0	0
2	Tone	1.0	Seconds	20000	200000	0	0
3	Rest	1.0	Seconds	10000	200000	0	0
4	Tone	1.0	Seconds	30000	200000	0	0
5	Tone	1.0	Seconds	40000	200000	0	0
6	Tone	1.0	Seconds	50000	200000	0	0

Buttons: Insert Above, Append Event, Remove Event, Clear Table

Figure 4. Event Table Controls

Events can be added to the table by pressing the **Insert Above** or **Append Event** buttons below the chart.

Removing an event is done by selecting the event, then pressing **Remove Event**.

Clearing all events is done by pressing the **Clear Table** button below the table.

The table is "refreshed" by retrieving the event data from the **icTalk** instrument. The entire table can be reloaded from **icTalk**, by pressing the **Undo Changes** button.

These actions can all also be performed by selecting the appropriate items from a menu that appears when right clicking the table.

When all changes are complete, and the events are as desired, the changes can be sent to **icTalk** by pressing the **Accept Changes** button.

## General Controls

Sound output can either be stopped or started using the button controls available on the main display (**Play** and **Stop** buttons).



Figure 5. General Controls

The device information (firmware version and serial number) can also be refreshed at any time by pressing the **Enquire** button. Between the **Play** and **Stop** buttons, the current playback mode of the connected **icTalk** is displayed, when available.

## Taking Screenshots

Screenshot controls are contained in the screenshot section near the top right side of the main display.



Figure 6. Screenshot Controls

Pressing the folder button will select the folder to which screenshots will be saved, and pressing the camera button will take the screenshot. The screenshot will be saved as `TalkAssistant_Unit#_yymmdd_hhmmss.bmp`, where `#` is replaced with the serial number of the connected unit (or 0 if none is connected), `yymmdd` is the date, and `hhmmss` is the time of day.

## Configuration Files

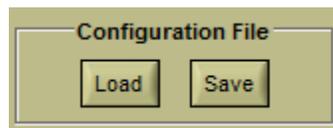


Figure 7. Configuration File Controls

Configuration files are files with the extension “.`tlk`” which contain a set of events and setup for an **icTalk**. **Talk Assistant** can store these files from the event table/settings, by pressing the **Save** button. These files can also be loaded when connected to an **icTalk**, by pressing **Load**.

When files are loaded, you must click **Accept Changes** or **Play** in order to send the new settings to the **icTalk**.

## Instrument Time (UTC)

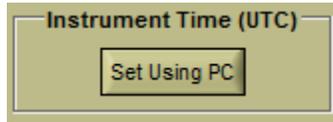


Figure 8. Instrument Time Control

The time of the **icTalk** can be set using the **Set Using PC** button. This will set the time of the **icTalk** to the time on the computer running **Talk Assistant**.

## Advanced Settings

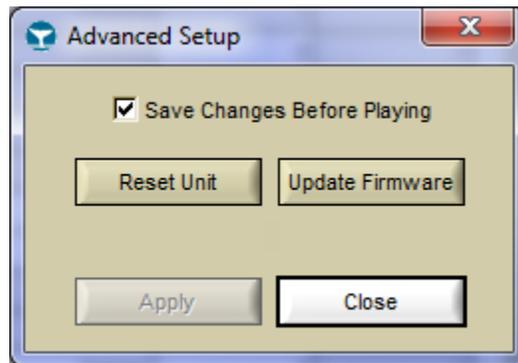


Figure 9. Advanced Settings

**Talk Assistant**'s advanced settings can be opened by clicking the **Advanced** button, on the lower right of the panel. The advanced settings include the ability to reset the **icTalk** and update the firmware. It also includes the option for whether clicking **Play** will automatically send any setup changes (**Save Changes Before Playing**).

## Update Firmware

If you need to update the firmware in your **icTalk** this can be done in the Advanced Settings Menu, above. To check if there is an update in firmware for your **icTalk** device please visit: <https://sites.google.com/a/oceansonics.com/ocean-sonics-resource-site/Current-Releases/talk-assistant>

Click Update Firmware and choose the file with the updated firmware. Please ensure the **icTalk** is powered throughout the process of updating.

## Deployment

**icTalk** may be deployed in tethered mode, with a communication link and power connected, or autonomously run from the battery without a communication link.

### Tethered Mode - Cabled

When running with a communications link present, the playback can be initiated and stopped by sending the proper commands over the communication link. In this mode the unit may also still be controlled by setting the unit to run in continuous mode.

### Autonomous Mode

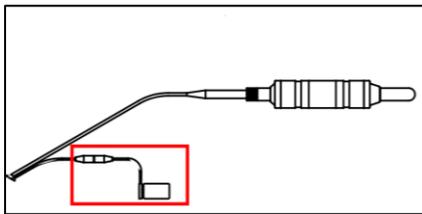
When running from battery the output mode must either be set to continuous. In continuous output mode, the output pattern will play continuously from the time the unit is powered on.

To power the **icTalk** device, either a communications cable or shorting plug must be connected to the device. It is important to make sure that the **icTalk** connector is fully inserted into the whip cable or shorting jumper before tightening the backshell. Do not use the backshell to force the connector in place. Doing so may cause damage to the connector.

When using **icTalk** without a communication link it is important to ensure that the device has been set up for deployment, with the proper running mode and output pattern configured.

## Recovery

1. Rinse the icTalk and associated equipment with fresh water.
2. The icTalk can be **Powered Down** to retain battery at 100%.
  - a. Attach test cable.
  - b. Insert the Hardware Reset Tool (9V battery) momentarily (~1-2 seconds).



## Maintenance

- The icTalk should be thoroughly rinsed with fresh water after each deployment to remove saltwater and debris.
  - This will prevent salt buildup and corrosion during storage.
- The icTalk should be powered down after each deployment to prevent the batteries draining.

## Troubleshooting icTalk

### *Instrument not communicating*

- Check wiring. Re-seat plugs and connectors.
- Connect to battery charger to ensure battery is fully charged.
- Check data link interface on PC with another device to ensure PC interface is working.
- Ensure baud rate is correct. If the cable was wired up manually or modified, ensure that the TX and RX lines are not reversed.

### *I need to find out the firmware version and serial number*

- While running **Talk Assistant**, click the 'Enquire' button and note the response to the button's right.



Figure 10. Talk Assistant status bar

- Note that if the instrument is not working, the instrument's firmware version number is not accessible. The instrument's serial number is printed on the side of instrument, and the carrying case.

## Contact Ocean Sonics Ltd.

To download Ocean Sonics Software please visit:

<https://sites.google.com/a/oceansonics.com/ocean-sonics-resource-site/>

### Service

To request an RMA or technical support

Email: [support@oceansonics.com](mailto:support@oceansonics.com)

Phone: 1-902-655-3000

### Sales

For general sales inquiries

Email: [sales@oceansonics.com](mailto:sales@oceansonics.com)

Phone: 1-902-655-3000

### Website

<https://OceanSonics.com>

### Mailing and Shipping Address

Ocean Sonics

110 Parkway Dr.

Truro Heights, NS Canada

B6L 1N8

## Appendix A.

	HF	UNITS
<b>SIGNAL PERFORMANCE</b>		
Bandwidth, Standard	30 – 200	kHz
SPL, Standard (+/- 3 dB)	132	dB re $\mu$ Pa @ 1 m
Bandwidth, Extended	10 – 200	kHz
SPL, Extended (+/- 10 dB)	126	dB re $\mu$ Pa @ 1 m
Harmonic Distortion (THD)	1.0	%
Frequency Resolution	1.0	Hz
Attenuation	0 – 20	dB
<b>SOFTWARE / INTERFACE</b>		
Communications Interface	RS-422	
Talk Assistant Software Support	Yes	
Continuous Tone	Yes	
Frequency Sweep	Yes	
Ping / Click	Yes	
<b>POWER</b>		
Internal Battery Life (active)	7	Hours
Internal Battery Life (standby)	36	Hours
Metallic Lithium Equivalent Content	780	mg
Recommended Supply Voltage	18 – 36	V
Supply Voltage Limits	15 – 42	V
External Power (typ)	1.8	W
External Power (charging)	3.8	W
<b>MECHANICAL</b>		
Mass (Titanium Case)	0.953	kg
Mass (Plastic Case)	0.437	kg
Volume (Displacement)	320	cm
Overall Length, including connector	267	mm
Sensor Element Length	65	mm
Body (Can) Length	165	mm
Element Diameter	22	mm
Body Diameter	48	mm

The following chart shows typical **icTalk HF** over the frequency range 10 kHz to 200 kHz

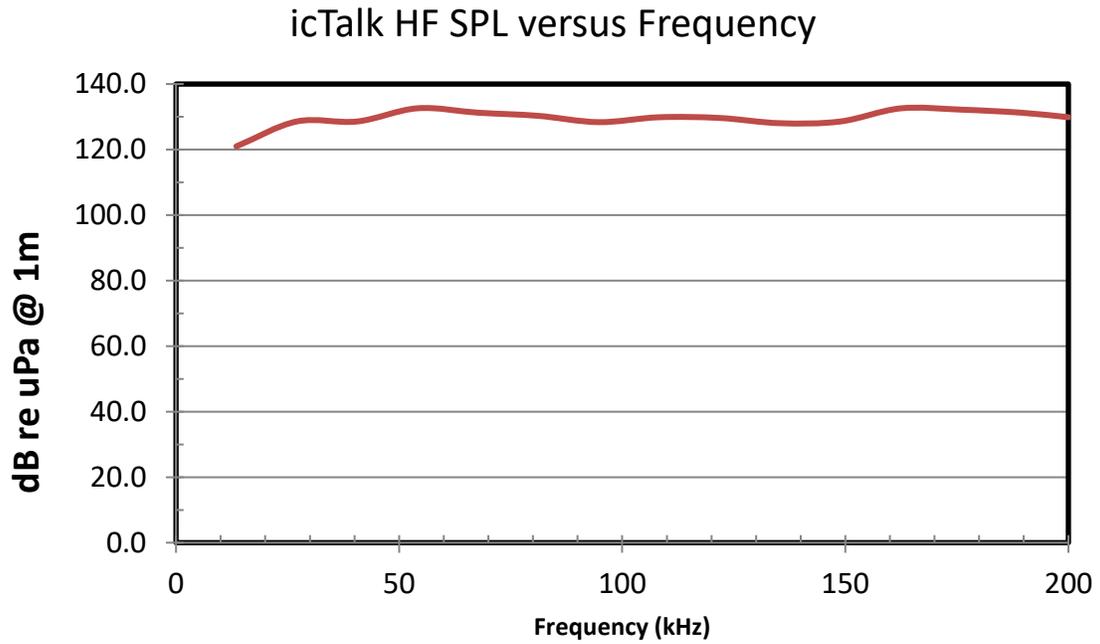
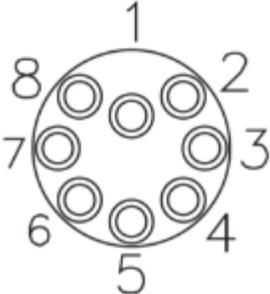


Figure 11: icTalk HF Signal Power Level vs. Frequency (Typical)

## Appendix B. Wiring Tables for icTalk

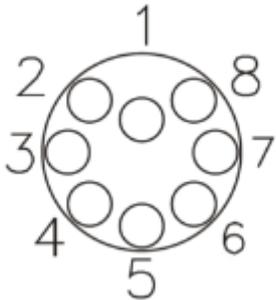
The following are standard pinouts used with molded cables and shorting jumpers provided by Ocean Sonics. As your application may have specific requirements, please refer to the wiring table provided with your unit.

### RS422 Interface

Subconn	Signal	 <p style="text-align: center;"><i>Subconn MCBH8M male face</i></p>
MCBH8M	Name	
1	DC-	
2	COM	
3	TX-	
4	TX+	
5	RX-	
6	RX+	
7	DC+	
8	SYNC+	

### Shorting Jumper

The shorting jumper is used to run **icTalk** in battery mode, and to protect the pins on the **icTalk** bulkhead connector.

Subconn Shorting Jumper			 <p style="text-align: center;"><i>Subconn MDC8F female face</i></p>
Pin #	Circuit Name	Wire Colour	
1	A	Not Defined	
2	A		
3	B		
4	B		
5	C		
6	C		
7	A		
8	A		

## Recommended Connectors

The following table lists all the connectors used by **icTalk**. Please ensure you check the number of pins and the connector gender before ordering connectors or whips from another vendor.

All listed are rated to 3500 M depth.

Connection	Maker	Pins	Part #	Thread	Mate & Backshell	Dummy/Short Plug
Bulkhead - Male	<b>Subconn</b>	8	MCBH8M	7/16 x 20	MCIL8F & MCDLSF	MCDC8F

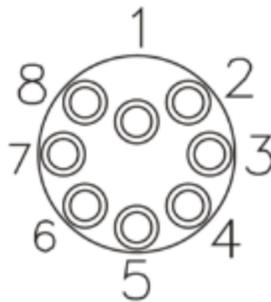
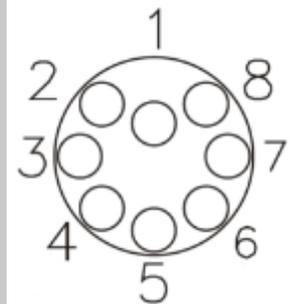


Figure 12: Subconn MCBH8M male face

## RS422 Cable

The wiring table below is for units configured with RS-422 / USB adapter cables

Subconn	Signal	Whip (4-UTP) Colour	USB Adapter Pin	DC Power Connector	
	Name			Colour	Pin
MCIL8F					
1	DC-	BRN	-	BLK	-RING
2	GND	BLU	GND	BLK	-RING
3	TX- (icTalk out)	GRN	RXD-	-	-
4	TX+ (icTalk out)	WHT/GRN	RXD+	-	-
5	RX-	ORG	TXD-	-	-
6	RX+	WHT/ORG	TXD+	-	-
7	DC+ (12 or 24 V)	WHT/BRN	-	BLK/WHT	TIP
8	SYNC	WHT/BLU	-	-	-



Subconn MCOM8F female face