TalkSafe™

Microphone Splitter

for Icom Data Mics HM98 / HM133 / HM151

TMS-IDM

Data Protocol

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Contents

1. Overview

The ICOM TMS data protocol follows a number of general rules listed below.

Within this document the carriage return character (0x0D) is referred to as <cr>,

Within this document the line feed character (0x0A) is referred to as <lf>,

All <cr> and space messages received as part of a command message are discarded by the ICOM TMS.

All commands are case insensitive.

All command replies are terminated with a <cr><lf> pair.

1.1 Key codes

Keys code arguments listed in command descriptions (k) are encoded as follows:

ASCII Key code	HM98S and Hm133	HM151
0	Key 0	Key 0
1	Key 1	Key 1
2	Key 2	Key 2
3	Key 3	Key 3
4	Key 4	Key 4
5	Key 5	Key 5
6	Key 6	Key 6
7	Key 7	Key 7
8	Key 8	Key 8
9	Key 9	Key 9
A	Key A	
B	Key B	
C	Key C	
D	Key D	
M		MODE
F		FIL
G		GENE
E		F-INP/ENT
*	Key *	Key *
#	Key #	Key #
d	DOWN	DOWN
u	UP	UP
v	VFO	
m	MR	
b	BAND	
s		SPCH/LOCK
t		TUNER/CALL
x		XFC
v		V/M
m		MW
f	F-1	F-1
g	F-2	F-2
L	Locked Keyboard	Locked Keyboard
?	Unknown Key	Unknown Key

1.2 Transmit states

PTT transmit states (s).

State	MIC (98S)	MIC (151)	TalkSafe	PC
0 No PTT, No Audio Switch	Off	Off	Off	Off
1 PTT, No Audio Switch (*)	Off	Off	Off	**On**
2 PTT, No Audio Switch	Off	Off	**On**	Off
3 PTT, No Audio Switch (*)	Off	Off	**On**	**On**
4 PTT, Audio Switch	Off	**On**	Off	Off
5 PTT, Audio Switch	Off	**On**	Off	**On**
6 PTT, Audio Switch	Off	**On**	**On**	Off
7 PTT, Audio Switch	Off	**On**	**On**	**On**
8 PTT, Audio Switch	**On**	Off	Off	Off
9 PTT, Audio Switch	**On**	Off	Off	**On**
A PTT, Audio Switch	**On**	Off	**On**	Off
B PTT, Audio Switch	**On**	Off	**On**	**On**
C PTT, Audio Switch	**On**	**On**	Off	Off
D PTT, Audio Switch	**On**	**On**	Off	**On**
E PTT, Audio Switch	**On**	**On**	**On**	Off
F PTT, Audio Switch	**On**	**On**	**On**	**On**

(*) Audio switch from PC PTT can be enabled using 'A' command.

DTMF transmit states (d).

0	DTMF Tone Off
1	DTMF Tone Transmit

2 Commands

2.1. Configuration Commands

Set Audio Switch Mode:

Command	Arguments	
A	n	

n=0 --- Disable Audio Switch action on PC PTT (default).
n=1 --- Enable Audio Switch action on PC PTT.
The Audio Switch connects the Radio set audio input to the Microphone audio output when active and the TalkSafe audio output when inactive.

Set Comparator Threshold:

Command	Arguments	
C	nn	

nn=Comparator Threshold, default 0x2A.
The comparator threshold has two ranges, low and high.
Low Range Value:
Value=((Vref/5)*24)+32
High Range Value:
Value=((Vref-1.25)/5)*32

Set Handset Model:

Command	Arguments	
H	n	

n=0 --- HM98S and HM133 models (default)
n=1 --- HM151 model

Set operating mode:

Command	Arguments	
M	m	

m=0 --- Disable echo of MIC data
        No data is returned for decoded keys

m=1 --- Echo MIC data, decode known keys
        Key values are decoded where possible and returned as <Type><k>.
        Data that cannot be decoded is returned in mode 2 format.
        Key value types.

K	Normal 16 keypad key
F	Function shifted 16 keypad key
D	DTMF 16 keypad key
P	PTT state
X	DTMF transmit state

m=2 --- Echo MIC data
        Echo MIC data stream in the format "Rn—n" where n—n is the received data in
HEX nibbles.
m=3 --- Echo MIC data in raw mode
        Echo MIC data stream in the format "Wbcn—n" where bc is the received bit
count, and n—n is the received data in HEX nibbles.

2.2. Key Commands

Send a key:

Command	Arguments	
K	k	

Send a function key:

Command	Arguments	
F	k	

Send a DTMF key:

Command	Arguments	
D	k	

Send a DTMF transmit state:

Command	Arguments	
X	d	

d=0 --- Stop DTMF tone.
d=1 --- Transmit DTMF tone.
Sending a DTMF tone requires a sequence of commands.
'Dk' command to set the required tone.
'X1' commands sent for the duration of the tone period.
'X0' command to stop the tone (MIC sends 5 of these)

Send a PTT key:

Command	Arguments	
P	S	

s=0 --- Open PTT switch (Radio sends 5 of these).
s=1 --- Close PTT switch.

2.3. Data Command

Transmit a normal data packet:

Command	Arguments	
T	n--n	

n--n is one to 1-9 HEX digits to be sent to the attached radio set.

Transmit a raw data packet:

Command	Arguments	
W	bc	n—n

bc is the number of bits to transmit, specified in HEX.
n--n is one to 1-18 HEX digits to be sent to the attached radio set.

3 Replies

3.1. Solicited Replies

Success reply:

Command	Arguments	
O	None	

Error reply:

Command	Arguments	
E	None	

3.2. Unsolicited Replies

Normal Key:

Command	Arguments	
K	k	

Function Key:

Command	Arguments	
F	k	

DTMF Key:

Command	Arguments	
D	k	

DTMF State:

Command	Arguments	
X	d	

PTT State:

Command	Arguments	
P	s	

Received Data:

Command	Arguments	
R	n—n	

n--n is one to 1-9 HEX digits received from the attached MIC.

Received Raw Data:

Command	Arguments	
W	bc	n—n

bc is the number of bits received, specified in HEX.
n--n is one to 1-18 HEX digits received from the attached MIC.