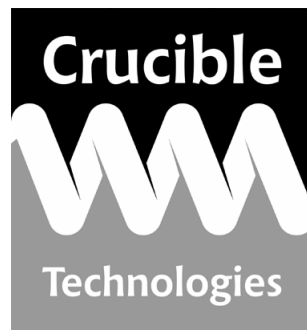
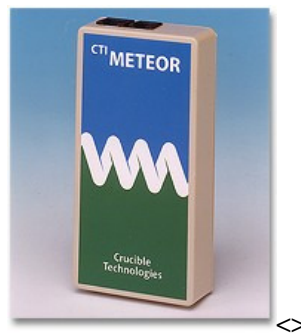


CTI METEOR PLUS

Single line Caller ID device for the PC
with recording

General Information for CTI Software Developers



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1.0 GENERAL

CTIMeteor Plus is a device for decoding the Caller ID from the telephone line and presenting it on a serial Port of a PC. It also detects dialled digits and the telephone going on/off hook. It has an audio connection to the sound card of the PC to enable telephone conversation recording. With the right PC application the CTIMeteor Plus will allow one to record the following details from a telephone call:

- Number dialled or Caller ID
- Time & date of call
- Whether it was answered
- How long the telephone rang
- How long the call lasted
- What was said during the conversation

The following information describes the operation of the device and gives some details about the presentation of the data. This will allow CTI software developers to provide turn-key applications. Some information regarding Caller ID is also presented.

ActiveCID, an ActiveX component is available for use with the CTIMeteor Plus. It can be pulled into software such as Visual Basic Professional, Visual FoxPro Professional etc. It handles all the following data and makes interfacing the hardware very simple. This is available directly from www.pathwaydata.co.uk

2.0 SPECIFICATION

There are four major types of Caller ID to be found around the world. They can be categorised as follows:

- US FSK: Ring, FSK data, Ring.
- ETSI FSK: Ring, FSK data, Ring.
- BT FSK: Line reversal, FSK data, Ring
- ETSI DTMF: Ring, DTMF data, Ring

The CTIMeteor Plus is designed to work with all of the FSK data formats ie US FSK, ETSI FSK and BT FSK. It can do this because it detects ring OR line reversal signal as the start of the Caller ID sequence.

There are minor differences between the FSK types as to how the data is formatted. However, the CTIMeteor Plus does not try to interpret the data it receives from the PSTN. It checks the data for errors by using the checksum and then passes it as received to the PC. In this way, any differences between the FSK types can be resolved with the application running on the PC.

The CTIMeteor Plus detects and reports the following events on the telephone line:

- Ring
- Line reversal
- Caller ID

- Off-hook (from any extension)
- On-hook (from any extension)
- DTMF dialling (from any extension)

3.0 HARDWARE

The CTIMeteor Plus is powered from the RS232 interface. When the relevant application is run, the red LED comes on to indicate that the unit is ready to receive messages. When a call comes in, the red LED flashes to indicate ringing. The green LED flashes briefly to indicate that data is being received. This can be a useful diagnostic, eg to check that the service has actually been switched on by BT, or that the telephone line is connected. When an extension telephone is off-hook, the red LED flashes continuously.

4.0 TELEPHONE CONVERSATION RECORDING

The CTIMeteor Plus is supplied with a lead that connects to the sound card of the PC. The PC application can then record all conversations to the hard disk. The serial port information will allow the application to decide when to start and stop the conversation.

5.0 EXAMPLES OF DATA

The serial data is presented at a baud rate of 1200, with 1 start and 1 stop bit. The data is sent whenever there is activity on the telephone line. The CTIMeteor Plus does not receive any data from the PC. Below are examples of the data that is sent:

5.1 Ring with no Caller ID.

EVENT	MESSAGE
Ring	OFF-LINE <cr>
Ring	OFF-LINE <cr>

Notes: It is up to the PC application to determine whether the OFF-LINE data represents ringing. For example, if the unit is in use in the UK, the silence between the ring bursts is 2 seconds. If there is a gap, of say less than 3 seconds between the ringing, then the OFF-LINE messages can be interpreted as reporting ringing. If the gap is more than 3 seconds, then it may be odd transients, or line reversals that have caused the OFF-LINE to be generated.

5.2 Caller display and ringing followed by answer and then hang-up

EVENT	MESSAGE
Caller display	caller display data
Ring	OFF-LINE <cr>

Ring	OFF-LINE <cr>
Answer	ON-LINE <cr>
Hang-up	OFF-LINE <cr>

Notes: The fact that call answer is reported allows the PC application to monitor answered and unanswered calls. If the telephone conversation is being recorded, then this could start at the point of answer.

5.3 Off-hook, dial and hang-up

EVENT	MESSAGE
Off-hook	ON-LINE <cr>
Dial 653265	653265
Hang-up	OFF-LINE <cr>

Notes: The reporting of outward dialled digits allow logging of all calls with duration.

6.0 CALLER ID DATA STRUCTURE

Within the FSK data types, there are two types of message structures. The one used in Europe (including the UK) and most of the US is known as the Multiple Data Message Format, MDMF, and is described below. The other message structure is known as the Single Data Message Format, SDMF, and is not described here. It is only used in some parts of the US. The MDMF Caller ID message typically consists of the following.

Message type (always sent)	1 byte	
Message length Checksum) (always sent)	1 byte	(= all the bytes to follow, except the
Parameter type (at least 1 sent)	1 byte	
Parameter length	1 byte	(= x)
Parameter	x bytes	(actual displayable information)
Parameter type	1 byte	
Parameter length	1 byte	(= y)
Parameter	y bytes	(actual displayable information)
.... (more parameters. Actual number of parameters sent can be 1 or more)		
Checksum	1 byte	(used for checking for any errors)

Message type

For valid Caller ID this will in most instances be 80H. For message waiting 82H is sent but this is little used. In general, if 80H is not received from the serial port, the whole Caller ID string can be discarded.

Message length

This is a total of all the bytes to follow, except the Checksum. It is useful as an error check.

Parameters

This is the actual payload of the Caller ID data. There are a number of parameters that are defined. The most important ones are outlined below. Any other parameters received need to be accounted for, but then can be ignored.

6.1 Time & Date=01H

This parameter is always sent with a length of 8 and is structured as follows. (This can be assumed to be "real time" accurate to within 1 minute and can be used to update the PC clock if required.)

First 2 bytes	Month
Next 2 bytes	Day
Next 2 bytes	Hours
Last 2 bytes	Minutes

6.2 Calling Line Number=02H

The maximum length of the number sent is 18 characters. Spaces and/or dashes are sent as delimiters.

6.3 Reason for absence of number=04H

This parameter is set as follows:
WITHHELD=50H (P ASCII)
UNAVAILABLE=4FH (O ASCII)

6.4 Calling Line Name=07H

This parameter was initially designed to send the callers name. However, international calls have "INTERNATIONAL" in this field, and some payphone calls have "PAYPHONE" in this field..

6.5 Call Type=11H

This parameter is only sent for ETSI FSK and BT FSK. In general it can be ignored. There are three call types defined:

Voice call	01H
Ring back when free	02H
Message waiting	81H

Notes: The parameters can be sent in any order.

7.0 MESSAGE EXAMPLE

Byte sent (decimal)	Description
128	Message Type
34	Message Length
17	Call Type Parameter
1	Parameter length
1	Call type = 1 (Voice Call)
1	Date & Time Parameter
8	Parameter length = 8
49	1
48	0 (Month = 10)
49	1
48	0 (Day = 10)
48	0
51	3 (Hour = 3)
51	3
48	0 (Minutes = 30)
2	Calling Number Parameter
10	Parameter length = 10
49	1
50	2
51	3
52	4
53	5
54	6
55	7
56	8
57	9
48	0 (Number = 1234567890)
7	Calling Name Parameter
7	Parameter length = 7
80	P
69	E
84	T
69	E
82	R
32	(Space)
82	R
161	Checksum

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