

RS-232C Serial Interface Documentation

Frequency Counter - Model: 1856D

Preliminaries:

Standard PC COM Port (DB-9) Pin assignments:

Pin1: Data Carrier Detect	Pin2: Receive Data	Pin3: Transmit Data
Pin4: Data Terminal Ready	Pin5: Signal Ground	Pin6: Data Set Ready
Pin7: Request to Send	Pin8: Clear to Send	Pin9: Ring Indicator

Pins used for frequency counter: 1856D

Pin2: RXD (Receive Data)
 Pin3: TXD (Transmit Data)
 Pin4: DTR (Data Terminal Ready) *DC power from PC (high 12V)*
 Pin7: RTS (Request to Send) *DC power from PC (low -12V)*

*Note: Check to make sure you have the proper serial cable. In general, the frequency counter requires a straight serial cable to communicate with PC.

*Pins 4 (DTR) should be ENABLED and 7 (RTS) should be DISABLED.

Communicating via RS232:

Output settings format:

Baud Rate: 9600bps
 Parity: none
 Data bits: 8
 Start bit: 1
 Stop bit: 1

Commands to communicate with frequency counter

COMMAND	PARAMETER	TERMINATE CODE	EXAMPLE
'H': HOLD	'0': OFF '1': ON '2': TOGGLE	CR (0DH)	'H1' : sets HOLD function to "ON"
'G': GATE	'0': 0.01 sec '1': 0.1 sec '2': 1 sec '3': 10 sec	CR (0DH)	'G3' : sets GATE TIME setting to "10 seconds"
'D': DATA REQUEST	DON'T CARE	CR (0DH)	'D1' : sends a request to counter to get display data

'F': FUNCTION SET	N* (refer to chart below)	CR (0DH)	'F3' : selects function to display period
'R': REMOTE	'0': OFF '1': ON	CR (0DH)	'R0' : sets REMOTE mode to "OFF"

Function set chart:

N*=	0	1	2	3	4	5	6	7
F/C	FA	NC	FC	PERIOD	TOTAL	RPM	NC	NC

F/C – Frequency Counter NC – Not available FA – Frequency from Input A FC – Frequency from Input C

Data Request format:

Data: 10Bytes (include decimal point)

Units: 4Bytes

CR: 1Byte

TOTAL: 15Bytes

Example codes using Visual Basic 6:

*Note: Use the MSComm1 class and its property to configure and communicate over RS-232 serial port.

```
Private Sub Form_Load()      ' initialize necessary variables for configuring COM port
```

```
    MSComm1.RThreshold = 1
    MSComm1.SThreshold = 0
    MSComm1.CommPort = 1
    MSComm1.DTREnable = True
    MSComm1.RTSEnable = False
```

```
End Sub
```

```
Private Sub Option1_Click()
```

```
    If MSComm1.PortOpen = True Then MSComm1.PortOpen = False
```

```
    If MSComm1.PortOpen = False Then
```

```
        MSComm1.Settings = "9600,N,8,1"
        MSComm1.PortOpen = True
    End If
```

```
    MSComm1.Output = "H0" + Chr(&HD)      'sets HOLD setting to off
```

Delay (1000)

End Sub

Private Sub Command2_Click() ' retrieves data

If MSComm1.PortOpen = True Then MSComm1.PortOpen = False 'resets port to ensure port
is not always opened

If MSComm1.PortOpen = False Then

 MSComm1.Settings = "9600,N,8,1" 'COM settings

 MSComm1.PortOpen = True

End If

MSComm1.OutBufferCount = 0 'initialize buffer counts

MSComm1.InBufferCount = 0

MSComm1.Output = "D1" + Chr(&HD) 'sends a data request command

Delay (1000)

Do

 DoEvents

Loop Until MSComm1.InBufferCount >= 14 'loop through the incoming buffer

 Text1.Text = MSComm1.Input 'prints output of data for display

End Sub