



Zypcom Application Note

Product:

Z34-SX, Z34-RX, Z34-SE, Z34-RE, Z32t-SX, Z32t-SE, Z32t-RX, Z32b-SX, Z32b-SE, Z32b-RE and Z32b-RX

Application:

DTR Dial with Asynchronous Data

Asynchronous dial-on-DTR modem configuration is setup up using AT commands. Two basic asynchronous setups are described below. Your application may require some additional commands.

When selecting speed it is important to remember that the serial port speed and the line speed are independent of one another when using asynchronous buffered mode (&Q0) or error control mode (&Q6 or &Q5). One can have the serial port locked at 38,400bps (AT%X=38.4 #L1 &W) and the line rate forced at 19,200 (ATS37=21 N0 &W).

Asynchronous Dial-on-DTR application considerations are:

DTE port speed (%X=) _____

Note: Example, AT%X=19.2

Port speed lock (#Ln) Yes (#L1) or No (#L0)

Line speed (S37=nn) Auto (S37=0) or selectable (S37=nn)

Line speed forced (Nn) Yes (N0) or No (N1)

Note: N1 allows the modem to select the best line rate and allows the modem to lower speed if lines conditions change. The command N0 forces the line to a specific speed. It is a good idea to use N1 with line rates above 19,200bps and use N0 on line rates below 19,200bps.

Flow control (&Kn) RTS/CTS (&K3) or Xon/off (&K4)

Note: Use RTS/CTS if possible, but most importantly the DTE and modem flow control settings must match

Messages off (Qn) On (Q0) or Off (Q1)

Note: After setup usually turn off (Q1)

Echo off (En) On (E1) or Off (E0)

Note: After setup usually turn off (E0)

Error control mode (&Q) Auto, V.42bis, MNP, None

Note: Usually auto mode (&Q6) or off (&Q0)

Force error control (S36) Yes (S36=0) or No (S36=1)

Note: It is best to force error control (S36=0) if calling a modem that supports error control. Do not force error control (S36=1) if the remote modem does not support error control or if you are unsure that it supports error control

EIA signals: CXR (&Cn) Normal (&C1) or Forced (&C0)

 DSR (&Sn) Normal (&S1) or Forced (&S)

 DTR should be set to &D4

Phone number to dial: _____

Dial-Up Telco Cable:

Zypcom has several different dial-up cables depending on the modem model. For all RX-/RE-Series modems use 91009-200 an octopus chassis cable for dial-up operation. For the SE-Series and SX-Series modems use cable 15047-004 for dial-up operation. On external modems all dial-up telco cables are installed into the modems modular phone jack labelled WALL.

AT Command Setup

Modem options use AT commands to setup dial-on-DTR operation. You will need a device (Win95 PC or terminal) to send your commands to the modem you are optioning.

57,600bps Dial-on-DTR with Error Control

57,600bps DTR Dial with Asynchronous Data—Answer Side

The following procedure explains how to setup DTR dial operation for an answer-side modem using AT commands. The following sample command strings might need to be changed slightly for your application. The command &W writes the command settings to memory.

1. Set the EIA and speed options and any other options required for your application. Store the telephone number in memory location 0 (&Z0=tel.number). Often CXR (&C1) and DSR (&S1) need to be set to normal. Also, set flow control (&K) and other parameters needed. Also, you probably want the modem to auto-negotiate the line speed (N1 S37=0) for your application. Set the serial port speed and lock it (%X=57.6 #L1) so the modem ignores data at any speed except the desired modem serial port speed.

57,600 Async. DTR Dial Setup: 57,600bps serial port locked, line rate auto mode and EIAs normal.

```
AT &C1 &S1 &Q6 &K3 N1 S37= 0 %X=57.6 #L1 &W<ENTER>
```

2. Issue the register S0 setting, turn off echo/messages and DTR command for normal (&D2).

```
AT &D2 S0=1 %Q1 E0 Q1 &W<ENTER>
```

NOTE: The OK message is not sent after the command in step 2 due to Q1 command.

3. Turn power off and then on.

57,600bps DTR Dial with Asynchronous Data—Originate Side

1. Store the dial-up telephone number, EIA and speed options and any other options required for your application. Store the telephone number in memory location 0 (&Z0=tel.number). Often CXR (&C1) and DSR (&S1) need to be set to normal. Also, set flow control (&K) and other parameters needed. Also, you probably want the modem to auto-negotiate the line speed (N1 S37=0) for your application. Set the serial port speed and lock it (%X=57.6 #L1) so the modem ignores data at any speed except the desired modem serial port speed.

57,600 Async. DTR Dial Setup: 57,600bps serial port locked, line rate auto mode and EIAs normal.

```
AT&Z0=T 123 456 7890<ENTER>
```

```
AT &C1 &S1 &Q6 &K3 N1 S37= 0 %X=57.6 #L1 &W<ENTER>
```

2. Issue the register S0 setting, turn off echo/messages and DTR command for dial-on-DTR (&D4).

```
AT &D4 S0=0 %Q1 E0 Q1 &W<ENTER>
```

NOTE: The OK message is not sent after the command in step 2 due to Q1 command.

3. Turn power off and then on. If the modem starts to dial and you want to cancel it push the Data key one time to hang up the modem.

1200bps Dial-on-DTR with No Error Control or Flow Control

1200bps Dial-on-DTR with Asynchronous Data—Answer Side

1200 Async. Setup: 1200bps serial port locked and forced line rate of 1200bps.

```
AT &Q0 &C1 &S1 &K0 &D2 N0 S37=5 %X=1.2 #L1 &W<ENTER>
```

```
AT S0=1 %Q1 E0 Q1 &W<ENTER>
```

1200bps Dial-on-DTR with Asynchronous Data—Originate Side

1200 Async. Setup: 1200bps serial port locked and forced line rate of 1200bps.

```
AT &Q0 &C1 &S1 &K0 N0 S37=5 %X=1.2 #L1 &W<ENTER>
```

```
AT&Z0=T 123 456 7890<ENTER>
```

```
AT &D4 S0=0 %Q1 E0 Q1 &W<ENTER>
```