Application Note

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MC35 Cellular Engine

The extra compact module for voice and data transmission

Application Note:	**Multiplex Mode: An Overview**
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Contents

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1 Introduction

MC35 supports multiplex operation according to the GSM 07.10 Multiplexer protocol and enables one physical serial interface to be partitioned into three virtual channels. This allows you to take advantage of three simultaneous sessions running on the serial interface. For example, you can send or receive data on the first channel, while the other two channels are free to control the GSM engine with AT commands. The purpose of this document is to provide a brief outline of the Multiplex mode architecture and its benefits.
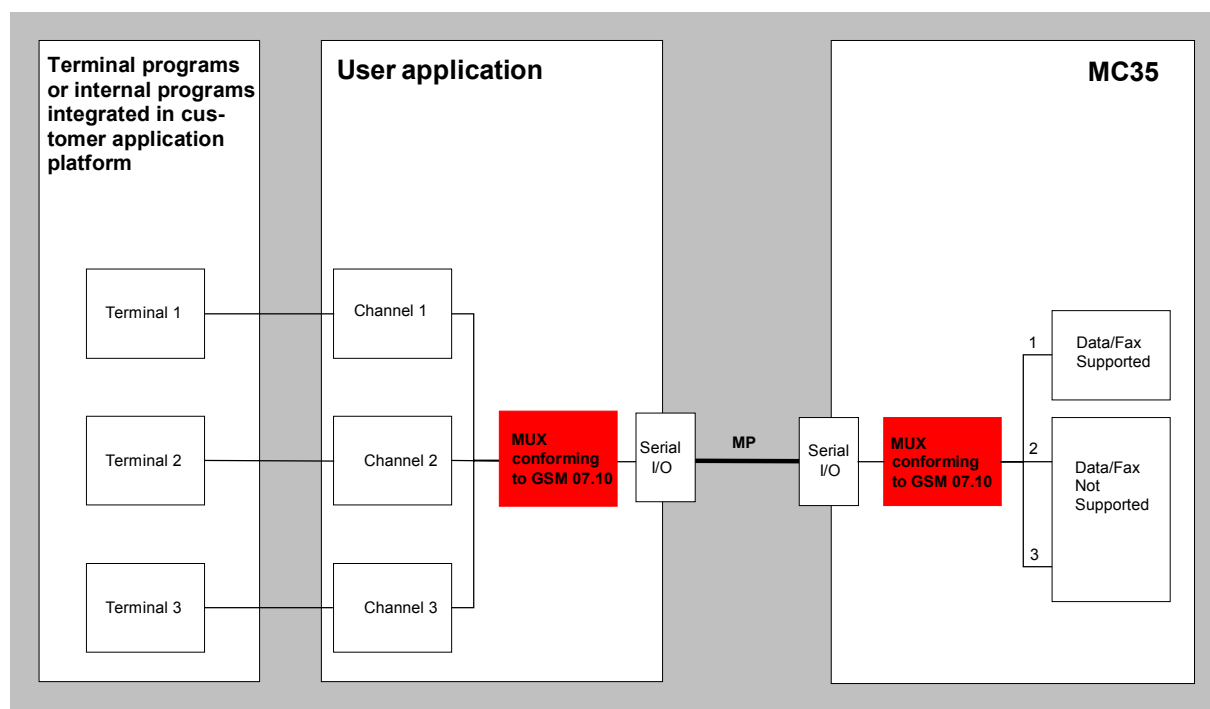
1.1 References

[1] Digital Cellular Telecommunications Systems (Phase 2+); Terminal Equipment to Mobile Station (TE-MS) "Multiplexer Protocol"; ETSI TS 101 369 V7.1.0 (1999-11), GSM 07.10 Version 7.1.0, Release 1998

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2 System Overview

The Multiplex mode allows MC35 to communicate with different user applications simultaneously over one serial interface. This is achieved by providing three virtual interfaces using a Multiplexer (MUX). The MC35 Multiplexer Protocol (MP) implements a subset of the functionality described in the Multiplexer Protocol Standard GSM 07.10 (Basic Mode) [1].

Multiplexer architecture:

To make the three virtual interfaces (channels) available, both the MC35 module and the user application must contain MUX components which communicate over the Multiplexer Protocol. In the MC35 module, the MUX/MP software is already incorporated. The user application should either integrate the MC35 MUX/MP software or include a MUX/MP developed by the customer.

2.1 Functionality of the Virtual Interfaces

The functionality scope varies with the MUX channels. Channel 1 supports the full range of functions, while channel 2 and 3 are a subset of the functionality of channel 1. The table shows what features are available on each channel.

	Voice calls incoming/outgoing	Data / Fax calls incoming/outgoing	SMS incoming/outgoing	Phonebook management	AT commands
Channel 1	●	●	●	●	●
Channel 2, 3	●	---	●	●	● [1]

●   indicates that the functionality is <u>available</u> on the channel
---   indicates that the functionality is <u>not available</u> on the channel
[1]   except for AT commands related to data / fax

Examples: While a data call is in progress on channel 1, you can send an SMS on channel 2 and edit the phonebook on channel 3.
Or, while a fax is received on channel 1, you can check the battery capacity using an AT command on channel 2 or 3.

Note: Data and voice calls are not possible at the same time. For further restrictions of the multiplexer mode please refer to the AT Command Set supplied with MC35 (file name as per September 2001: MC35_ATC_01_v0100.pdf, chapter 4.24.1).

2.2 Support

The source files of the MC35 MUX/MP software and the technical documentation can be supplied on request. Please contact your local distributor for more information.