

DOS-Drive

- ❑ Complete solution for applications using PC Cards with MS-DOS format
- ❑ Supports all features according to DOS FAT file system (MS-DOS 6.x)
- ❑ Functions to create, read, write, organize and format files and directories
- ❑ Communication via asynchronous serial interface and various transceiver types
- ❑ Supports all common PC Card ATA memory technologies
- ❑ Highly recommended for industrial use
- ❑ Extended temperature range (-40°C to +85°C)
- ❑ Simple integration to micro controller, *embedded systems*, PCs, etc.
- ❑ Option: *DOS-Drive SDK* (Software Development Kit)



Typical applications

PC Cards are more and more used as an universal, flexible and reliable media for data exchange between devices, machines and systems.

- ☞ **Production technique:**
data for installation of machines,
information for production control,
data recording for process monitoring
- ☞ **Traffic technique:**
data recorder (for recording of vehicle data),
navigation systems (coordinates and maps provided on PC Cards),
guiding systems (road-map/schedule and logbook provided on PC Cards)
- ☞ **Quality management:**
Recording of all involved data allows registration, analysis and transfer of interested information's to computer systems.
- ☞ **Record printer:**
For connection to scales and data acquisition systems instead of paper printers.

Universal data format for PC Cards

The Microsoft DOS FAT file system is commonly used and can be processed at most of the computers with PC card drives (e.g. **OmniDrive**) and various operating systems.

Hence, an often demand is to handle data, stored on PC cards, compatible to MS-DOS FAT file system directly at the specific application system.

Therefore especially at *embedded and micro controller based systems* specific hard- and software development is necessary.

For this task TecSys offers the **DOS-Drive**, an universal and complete solution. This product takes profit from our **experience over many years** of secure application and handling of different PC card technologies.

With the *DOS-Drive* a **professional and perfected standard-product** can be used directly. Your final system reaches the expected functionality without the expense and risk of an individual system development.

DOS-Drive features

The *DOS-Drive* offers an outstanding conception, functionality and power:

- ☞ **file system full compatible to MS-DOS 6.x**
12-bit FAT and 16-bit FAT is supported
- ☞ **extensive file functions:**
*create, open, close,
read, write, positioning,
rename, delete,
read/define date and attribute*
- ☞ **support of subdirectories:**
change, create, delete, show
- ☞ **format of PC Cards**
with MS-DOS compatible format
- ☞ **sector access for special applications**
*format-independent access to all sectors of the
PC Card (read and write)*
- ☞ **request of status information's**
*PC Card inserted/changed,
Info about PC Card (type, size, format)*
- ☞ **full functionality**
*user defined file names,
up to 16 files opened at the same time,
max. number of files in the root directory, only
limited by format*
- ☞ **huge effective data transfer rate**
*Access is optimized by an internal cache for
data and FAT.*

Universal serial interface

The requirements to the **Host-System** are minimal. Only an **asynchronous serial interface** and no handshake lines are needed.

The *DOS-Drive* provides, depending of the ordered version, various line transceiver types (**RS232** or **RS422/485**).

Especially RS422/485 are optimal for long distance applications, because of its **high speed and trouble resistance** features. A bigger separation of host-system and *DOS-Drive* is no problem.

The *DOS-Drive* detects **automatically** the **Baud rate** used by the host-system. The maximum Baud rate is optimized to the line transceiver type:

max. 115,200 Baud at RS232

max. 500,000 Baud at RS422/485

DOS-Drive can be used either using **full duplex** (RS232 or RS422) or **half duplex** (RS485) data transmission.

Professional communication protocol

For communication between host-system and *DOS-Drive* commands and data are transferred via an asynchronous interface line.

Therefore a **simple and save protocol** was defined to handle the available functionality in an easy manner:

- ☞ **Efficient and optimized communication:**
*command/answer-protocol,
checksum secured telegrams,
high data transfer rate,
automatic Baud rate detection,
communication at full duplex and half duplex*

Hence, *DOS-Drive* is more or less independent from the individual architecture of the host-system and requires only **minimal recourses**.

Support for Design-In

Usually *DOS-Drive* will be integrated into your own system and application as an OEM-component. That's why the typically delivery package is limited to the basic hardware.

The integrating into the application specific environment happens usually separately and one time. Therefore, **documentation and samples** are offered as an extra optional package, that only has to be purchased once:

- ☞ **DOS-Drive SDK (Software Development Kit):**
*complete device description,
detailed documentation of the serial communication protocol,
test and demo applications PC based*

For testing and for example a **32 Bit Windows application** is provided ⁽¹⁾, that uses the standard COM-port of PCs:

- ☞ **functions analog to DOS command-
interpreter (COMMAND.COM):**
*FORMAT, DIR, COPY, TYPE, DEL, REN
CD, MD, RD and more*

To use *DOS-Drive* devices with RS422/RS485 line transceivers or non PC-compatible Baud rates (e.g. 500,000 Baud) at PC or Notebook the *DOS-Drive SDK* can be ordered optional with a compatible **SIO-Card** ⁽²⁾.

- ☞ **More support on demand:**
*consulting and training after an arrangement,
please ask for custom specific versions*

⁽¹⁾ **System requirements:** Windows 95/98 or Windows NT 4.0

⁽²⁾ **Refer to datasheet of IO-Card**

Specification DOS-Drive

<i>Item</i>	<i>DOS-Drive</i>	<i>DOS-Drive 3 1/2"</i>	<i>DOS-Drive 19"</i>
Case	External box ⁽¹⁾	3 1/2"-Slot	PCB with 19" front ⁽²⁾
Dimensions (W x H x D)	109 x 35 x 164 mm ³	101.5 x 25.5 x 166 mm ³	Front 3HE / 8TE 40 x 128.4 x 160 mm ³
Weight	approx. 430g	approx. 270g	approx. 250 g
Power Supply ⁽⁴⁾	5 V DC Tolerance: -2.5% / +5% (4.875V to 5.25V)		
Via Connector	walkman 3.5mm ⁽³⁾ Option: AC adapter 115/230V	3 1/2" floppy conn.	3 1/2" floppy conn.
Current consumption	approx. 60 mA (no PC Card) approx. 160 mA (with SanDisk ATA Flash Card) max. 1 A (with hard disk)		
Interface lines	asynchronous, serial interface (only Rx/D, Tx/D) eight data bits, one stop bit, no parity		
Connector	D-SUB 9-pin female		
RS232 or RS422/RS485 or ⁽⁴⁾	max. 115,200 Baud ⁽⁵⁾ (115.2k, 57.6k, 38.4k, 19.2k, 9.6k ... Baud) max. 500,000 Baud (500k, 250k, 125k, 100k, 62.5k, ... Baud)		
PC Card slot	one slot for PC Card type III at front		
PC Card types ⁽⁶⁾	ATA Flash Card SanDisk (type II and type III), ATA Compact Flash SanDisk (with adapter) ATA hard disk		
LED indicators	operation: POWER (green LED) access: BUSY (red LED)		
Environment	-40°C to +85°C (operation and storage) humidity max. 90% (non condensed)		
Conformity	CE		

⁽¹⁾ please ask for: protection cover over PC Card Slot

⁽²⁾ please ask for: other mechanical versions or PCB-module without case

⁽³⁾ please ask for: power supply via LEMOSA-connector

⁽⁴⁾ please ask for: TTL-level, other Baud rates

⁽⁵⁾ automatically detection according to the possible dividing factors based on the max. Baud rate

⁽⁶⁾ please ask for: SRAM Memory Cards (only released types with attribute memory)

Shipping Contents DOS-Drive

The *DOS-Drive* is offered in different versions. Hence, for every application a suitable solution can be found.

TecSys offers in the **standard program** many of these **versions**. For some versions there are **options**, that can be configured on extra demand.

In addition, more specific versions can be ask for. We are as flexible as possible to assemble your optimized *DOS-Drive* by using a **component system**.

STANDARD DELIVERY PROGRAM OF DOS-Drive:

DOS-Drive	RS232	(115,200 Baud)	P/N: 020600
DOS-Drive	RS422/485	(500,000 Baud)	P/N: 020601
DOS-Drive 3 ½"	RS232	(115,200 Baud)	P/N: 020602
DOS-Drive 3 ½"	RS422/485	(500,000 Baud)	P/N: 020603
DOS-Drive 19"	RS232	(115,200 Baud)	P/N: 020604
DOS-Drive 19"	RS422/485	(500,000 Baud)	P/N: 020605
DOS-Drive PCB	RS232	(115,200 Baud)	P/N: 020606
DOS-Drive PCB	RS422/485	(500,000 Baud)	P/N: 020607

DELIVERY PROGRAM OF DOS-Drive SDK (Software Development Kit):

DOS-Drive SDK (3 ½" disk with software & documentation)	P/N: 020608
DOS-Drive SDK with SIO-Card RS422/485-500kBd (3 ½" disk with software & documentation plus SIO-Card)	P/N: 020609

ADDITIONAL PRODUCTS:

- **OmniDrive**
Universal PC Card drive for PC printer port (SPP and EPP),
for data interchange with PCs.
- **ATATOOL** (in conjunction with OmniDrive)
Software tool for analysis and recovery of ATA-media
(ATA Flash / ATA Hard Disk).