D-2/16 Mini DAT

A small device for extreme environment applications
Smallest 16 channel DAT recorder of the world for record and playback
of analog signals up to 16 kHz per channel

- Record and reproduce of 16 analog data channels, voice, date, time and digital signals
- Extremely small and rugged design for multiple application areas
- Usable in each position and therefore especially suitable for extreme mobile applications
- Very resistant against shock and vibrations
- Extremely adaptable to various measuring requests due to switch able number of channels and signal bandwidth
- Robust remote control box with bar graph display

- Computer interface for online data visualization, hard disk transfer and analysis
- Telemetry connection to computer interface for online data monitoring during mobile use (opt)
- Event-driven record commands by trigger signals or via remote control
- Automatic title number recording with fast search run in play mode
- Power supply DC 10 ... 30 V, optional battery and mains 220V AC

The D-2/16 DAT Recorder is a small and powerful data logger. The physical size and shock resistance is his major advantage against other data acquisition devices. This becomes apparent, whenever space or critical positioning is the issue. Well-tried examples are cars, trucks, trains, planes and heavy machines. The surveillance's and analysis takes place online.

Over a serial PCM output, optionally also by our telemetry the data will transmit to a computer. Our Windows XP based MLab and MGraph Software control the whole data transfer, hard disk storing, numerical and graphical online visualization, mathematical transformations, trigger monitoring and event-driven tasks. The last-mentioned feature includes the possibility of signal level controlled data record. This has an especially meaning for long term measurements, where continuous recording is impractical. In this case, for example, a periodic signal impulse can start a one-minute record of analog data, current time and title number.

The D-2/16 DAT can convert data from analog to digital and feed them direct to an PC without recording using the "Tape Bypass" function. Just as in recording mode the analog data will filtered and digitized and the DAT recorder works as an PCM encoder for serial or telemetry data transmission.

An additional feature is the digital pulse channel for simultaneous recording of bit streams with clock rates from 0 to 20 kBit/s. This input is very suitable for PCM signals transmitted via telemetry from extern encoders, input pulses from revolution or speed sensors and simple digital signals. With an optional encoder this bit stream can also used for recording 4 or 8 additional low frequency analog channels independent from the selected channel mode.

References:

Aprilia motorcycle Italy	Benetton Formula 1 England	CNES France - MIR space station
Daewoo Corp. Korea	Ferrari Formula 1 Italy	Fiat Italy
Renault Sport France	SAGEM France	Samsung Heavy Industry Korea
Hyundai Korea	Military test departments	Railway Germany
VW Brazil	NASA	and many more .... .

Application MIR space station

Application recording data's in a missile
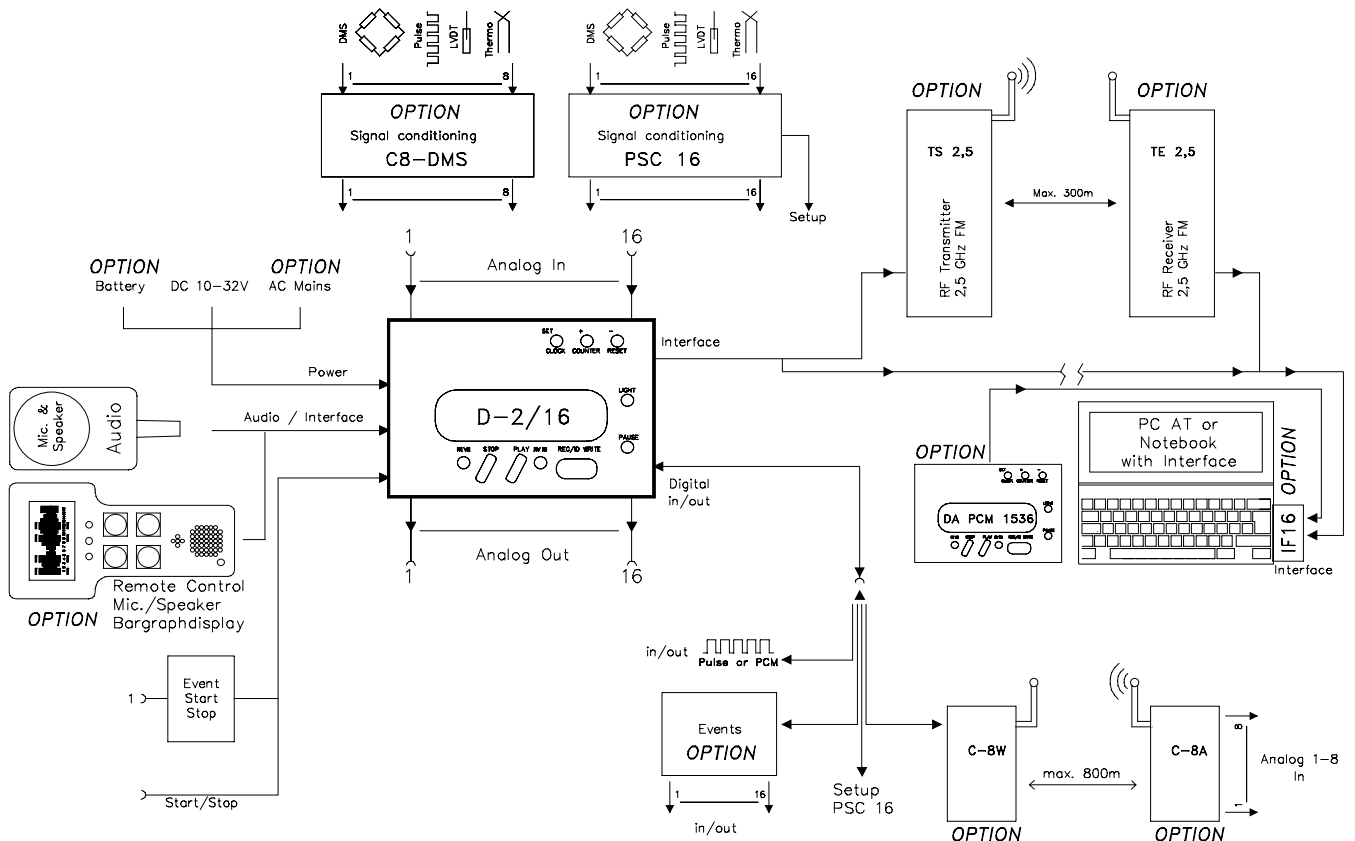

Application Formula 1

Application motorcycle

Technical data:

- 16 analog channels; input and output can connected via adapter cable to BNC connectors
- Measuring range ±5V with overload indication for each channel
- Resolution 12 bit, SNR 72dB
- Simultaneous sampling of all channels
- Max. signal bandwidth 16kHz (2-channel mode, -3dB)
- Total sampling rate 96kHz, distributed to selected number of channels (see table)
- Input impedance 100kΩ
- Input voltage protection up to 40V
- 8-pole low pass Butterworth filter for avoiding Aliasing effects (stop band attenuation 48dB at 2f cutoff)
- Analog output impedance 2Ω, 10mA, ±5V
- Selectable 2 - 4 - 8 - 16 channel mode
- Serial Interface, suitable for direct transmission over long cables or RF transmission
- PC Interface plug-in board for all IBM comp. PCs (Option)
- Digital pulse channel for TTL signals from 0 to 20kBit/s
- Date and time recording (year- month - day - hour - minute - second)
- Tape length counter for absolute time, programming time and remaining record time.
- Automatic or manual setting of title numbers with fast title search for playback
- Remote control unit with voice channel and bar graph display with overload indication (Option)
- Voice channel with external microphone and built-in loudspeaker, signal bandwidth 2800Hz.
- Recording time 3 hours with a DT180 cassette
- Storing capacity approximate, 2.4 Giga Byte with a DT180 cassette, reproduce accuracy ±0,1% at 0Hz

- Phase error between channels at same frequency <1°.
- Error correction by Double Encoded Reed Solomon Code.
- Bit error rate better 10-10
- Recording format Helical Scan R-DAT
- Illuminated display with following indications: date/time - program i.e. test number - tape length counter for absolute time - program time - remaining record time - indications for functions like record - forward - reverse - tape loaded etc.
- Additional indications like battery level - error condensing water
- Functional buttons on tape deck: FORWARD - REVERSE - PLAY - RECORD -STOP - PAUSE - HOLD
- Remote controllable with TTL-level signals for START/REC - STOP or/and event controllable with 1 event for blocks of 1 min.
- Power supply DC 10 ... 32 V, optional battery, mains 220 V or 110V AC (±10%)
- Power dissipation 10W
- Environmental conditions:
  Operating temperature range -5 C° to + 45 °C
  Storage temperature range -20 °C to + 60 °C
  Relative humidity 20 ... 80 % non condensing
  Vibration 5g Mil. Standard 810 C, Curve C
  Shock 10g in all directions
  Size 160 x 90 x 90 mm without shock absorber
  Weight 1.5 kg without shock absorber
- Analog signal bandwidths and scanning rates

Analog bandwidth -3 dB	0-16 kHz	0-8 kHz	0-4 kHz	0-2 kHz
Scanning rate	48 kHz	24 kHz	12 kHz	6 kHz
Channel Mux	2 CH	4 CH	8 CH	16 CH

Technical specifications are subject to change without notice!

Options:

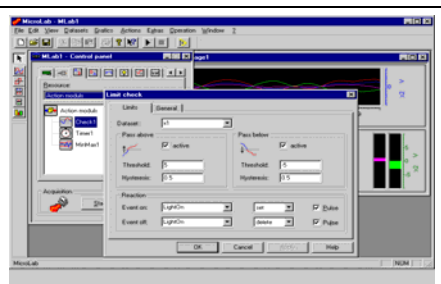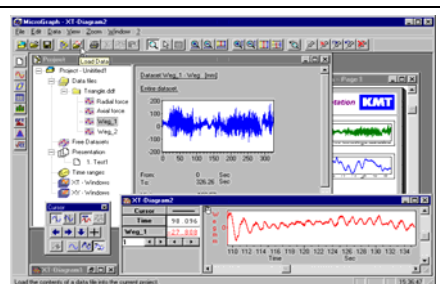|		
 D-2/8 - Mini data recorder 8 channel version from D-2/16. The D-2/8 have the same technical specification as the D-2/16 but only 8 channels	 **IF-16** Digital interface for desktop PC ISA bus interface card and transfer cable for digital data acquisition, on-line visualization, hard disk storage, data analysis and administration. (MLab* software required, MGraph* recommended)	 **ECIA100** Digital interface for notebook PCMCIA interface card and transfer cable for digital data acquisition, on-line visualization, hard disk storage, data analysis and administration. (MLab* software required, MGraph* recommended)
 REMOTE Robust remote control with Bar graph LCD display, build-in microphone and loudspeaker, remote control keys ("Record", "Play" and "Stop"), overload indicator and reset key	 **MLab** 32bit data acquisition and on-line processing software for WinXP. Real-time recor-ding of all 4/8/16 analog channel data on hard disk,on-line visualization (xt-, xy- dia-grams, bar graphs, numerics, switches), ergonomical handling (drag&drop functions, tool bars and tips), user-defined channel properties (linear/non-linear scaling, smoothing), action modules (limit control, timer, data reduction, trigger functions) English*/German* versions , see also software price list for more information, OBE* and other options* (digital interface IF16* or ECIA100* required)	 **MGraph** 32bit data analysis software for WinXP, Data management (evaluation, net-work access, project administration, quick-look, ASCII, RMS, DAT, DIF, dBase data import, report generation), interactive display (xt-, xy-diagrams, bar graphs, time history, table, free zoom, auto-scaling, cursor, bookmarks, legends, channel correlations), presentation (individual layouts, graphical objects, WYSIWYG display), printing, arithmetic's (formula editor, numerical and boolean operations), statistics (min., max., mean, difference, deviation, linear regression), ergonomical handling (drag & drop functions, tool bars and tips), English*/German* versions
 ACCU-BOX Extern accumulator box Voltage output 12V, capacity 7Ah (4h operating time), AC charger, charging adapter cable to cigarette lighter in cars	 **CASE** Transport case for DAT recorder and accessories, robust design, dust and water proof.	 **CABLE** 2-pole Lemosa to BNC adapter cable. Connector cable (length 1m) for D-2/8 and D-2/16 single inputs and outputs