Version **4.01.19.00** :

Most important features of version 4.01.19.00 compared to version 4.01.17.01 :

- ADbasic version 4.01.19 :
  - bugfix at : "Compiler Options" -> "System" -> "ADwin-GOLD"
- ADlog   V1.0.21 :   diverse improvements ; reworked Online-help

Most important features of version 4.01.17.01 compared to version 4.01.15.00 :

- ADbasic version 4.01.17 :
  - display of line and column number in the "Status Bar"
  - new ADbasic systemvariable PROCESSDELAY (identical with GLOBALDELAY)
  - bugfixes at #defines, #endif and optimization level 2
  - bugfix at : SIN, COS, EXP, LOG, LN, SQRT, TAN, ARCSIN, ARCCOS, ARCTAN
  - bugfix at : variable ^ constant ^ constant
  - bugfix :   Mark Controlblock did not work under Win XP
- ADbasic include files :
  - ADwpext.inc : support of the new thermocouple- module TC-8 ISO
- ADbasic library files :
  - Sting.Li9 / .LiA : bugfix at STRMID, STRLEFT, STRRIGHT, FLOTOSTR
- ADwin driver (ADwin32.DLL) :
  - the max. data transmission rate at GetData was increased from 4.8 to 6 MByte (from ENET firmware 2.66 on)
  - bugfix : write permissions are no longer needed in the root- directory on the fixed disk (C:\ )
  - bugfix : now also dots (= periods) are allowed in the path of the ADwin?.BTL
- Developer software :
  - ADwinActiveX   V 3.0.0.1 :
    - improved error handling now supports also Multi-Threading
    - bugfix at Set_Language()
  - Labview driver :
    - improved error handling now supports also Labviews Multi-Threading
    - the DLL-calls were made independent from the user-interface; therefore the user-interface is operable even during long-lasting DLL-calls (e.g. if ADwin-system is not accessible)
    - calling convention of the VI's is no longer "as caller" but "standard" , therefore possibly higher speed
    - from now on the current driver does only support Labview versions >= 6.0
    - bugfix : at GetData_String
  - Matlab driver :
    - new : Get_Last_Error_Text, String_Length, Get/SetData_String, Get_DeviceNo, Show_Errors
    - Online-help : 'help ADwin' can now be called in the 'Command Window'
  - Testpoint driver : Realtime Object 1.4.1 :
    - new action : Read Fifo Int32 : necessary for integer numbers greater than 16777215 (= 24-bit)
    - Read Parameter All and Read Parameter Block are now returning signed values
- ADconfig V3.0 :
  - completely new designed and clearly arranged user interface
  - scanning of ADwin-systems (Scan_AEI) is now integrated into ADconfig
  - context- sensitive Online- help
- ADEthFlash V3.2 as well as ADtools V5.1 :   adaptions for future processors
- ADlog   V1.0.19 :   diverse improvements
- JAVA   V1.1 :   bugfixes

Most important features of version 4.01.15.00 compared to version 4.01.13.00 :

- ADbasic version 4.01.15 :
  - new samples :   RS232_send_string.BAS, RS232_receive_string.BAS
- ADwin operating system :
  - ADwin10.BTL :   bugfix at ADBasic instruction START_PROCESS()
  - ADwin9.BTM :   issue with Link- Bootloader fixed
- Developer Software :

- Delphi driver :   bugfix : wrong return values at function ADBoot() (at processors T2, T4, T5, T8)
                                         as well as function Processor_Type() (at T5 and T9)
- Matlab driver :   bugfix: function 'Get_Globaldelay' : value was taken from processnumber+1
- C - driver :   sample programs revised
- Testpoint driver : systemobject 1.3.8 :
                                new option „Load Standardprocesses" (i.e. loading of ADwins9.btl is possible)
- ADwinActiveX   V 2.0.0.11 :
  - **New :** sample programs for VB.NET and C#.Net
  - Intouch sample programs adapted to Intouch 9.0
- **New :** GUI_development.pdf :   advice for developers on the drivers and samples of the different
                                        development environments
- ADwinTCPIPserver V1.6.3 :
  - Bugfix : big data throughput caused a timeout at 'SetData'
  - now several PCs can access an ADwin-system via the ADwinTCPIPserver
  - Help- file completely revised
- ADEthFlash V3.0 :   Online info about EEprom Support now also for ADwin Ethernet interface 2
- ADtools   V5.0 :   at all ADtools :   buxfix at the DeviceNo (only if last used DeviceNo does not exist any more)
  - TPoti: the Focus-color and the NonFocus-color is now selectable
  - ADtools.exe : the recent used path is remembered on saving and opening *.def files
- ADlog   V1.0.11 :   datalogging software for ADwin systems
  - ADbasic measurement processes reworked
  - higher performance of the graphic display
  - X-axis can be shown in a date / time formatted manner
  - diverse bugfixes and improvements
  - Help- file now also in English

- **Linux** :   completely reworked : ADbasic- compiler V4.01.11 and driver V3.0.446 (now also ENET support)

Most important features of version 4.01.13.00 compared to version 4.01.10.02 :

- ADbasic version 4.01.13 :
  - bugfix : at `SHIFT_LEFT, SHIFT_RIGHT, ABS, SIN, COS, EXP, LOG, LN, SQRT, TAN`
    if one of these functions uses itself as a function parameter
  - bugfix : accuracy of calculations at division by a constant
  - bugfix : printing in „landscape"- orientation
  - bugfix : at optimization level 2 on calculation with constant expressions
  - new Compiler Option :   Remember Device No.
- ADbasic Include files :
  - ADwpdio.inc : new subroutine : `RTC_GET()`
  - ADwpAD.inc : bugfix : `BURST_CREAD ()`
  - ADwpext.inc : bugfixes : `RS_RESET(), WRITE_FIFO(), GET_LINE_STATUS()`
  - ADwGCAN.inc : new file for CAN-expansion at ADwin-GOLD
  - PRO-STORAGE_SP.inc : bugfix : `MEDIA_RD_…`
- ADwin driver bugfixes :
  - occasional problem with SetData function on ENET – fixed only together with firmware >= 2.53 and 2.64
    respectively
  - occasional problem with GetFifo function (ENET)
- Developer Software :   Testpoint driver :
  - Realtime Object 1.3.8 : bugfix : Read Parameter returned only unsigned values.
  - A/D Object 1.3.5 :   bugfix : at Sample A/D Action (all 16-bit values < 32768 were miscalculated)
- ADEthFlash V2.9 :   EEprom Support now also for ADwin Ethernet interface 2
- ADtools   V4.9 :   diverse buxfixes at TGraph, TDigit, TPoti, TPar_Fpar
  - TGraph :   new : now up to 16 analog channels and 32 digital channels
  - TGraph :   new : importing of data from a textfile
  - TGraph :   new : timer can be disabled by pressing the SHIFT- key during startup
  - TGraph :   new : values can be edited by double-clicking in the Textwindow
  - TProcess :   new : ADbasic Debug Errors are displayed
  - TProcess :   new : PM, DM, DX and Codesize are displayed
  - TProcess :   new : Globaldelay can be set also in frequency units (Hz, kHz, MHz)

- • TPar_Fpar : new : comments can be imported from ADbasic #defines.
- ADlog V1.0 : datalogging software for ADwin systems. **(on the CD-Rom for the first time)**

- **JAVA** V1.0 : JAVA- interface for ADwin-systems with Ethernet interface **(on the CD-Rom for the first time)**

Most important features of version 4.01.10.02 compared to version 4.01.01.21 :

- ADbasic version 4.01.10 :
    - bugfix : if the same Fifo is used several times within an expression
    - diverse bugfixes at optimization level 2 (e. g. at : `Digin()`)
    - bugfix : at integer expression VARIABLE * CONST / CONST or VARIABLE / CONST * CONST
    - now more than 128 characters are allowed for file-/pathname
    - bugfix : occasional problem with libraries
    - bugfix : on task-switch among several low prioritized processes
    - improved checking of the function parameters at : `Fifo_Full()`, `Fifo_Empty()`, `Fifo_Clear()`
    - improved checking of the file, which is passed to the `IMPORT` instruction
- ADwin operating system (ADwin9.BTL, ADwinS9.BTL , ADwin10.BTL) :
    - bugfixes at the communication process and at the process-scheduling of low priority processes
- Developer Software :
    - Matlab driver : new function Data_Length()
    - C - driver : sample programs revised
    - ADwinActiveX V 2.0.0.10 : bugfix at function "Boot": If property Exception_Enable is used, then no exception was initiated.
- Pro-Storage V1.8 : bugfixes ; now also FLOAT can be stored/loaded

Most important features of version 4.01.01.21 compared to version 4.01.0106 :

- ADbasic library files : new : FFT library now also for T10 (FFT.Lia)
- ADbasic include files :
    - ADwpdio.inc : new : instructions for the COMP16 module ; bugfix on Pro-Storage (RTC)
    - ADwpext.inc : corrected : `SET_RS()`
    - ADwpda.inc : new instructions for memory option (for example Pro-Aout-4/16-M2)
- ADwin driver bugfixes and optimizations :
    - occasional problem with SetData function on ENET
    - occasional problem with access from several PCs to one ADwin-system (ENET)
    - better usage of the transmission bandwith on simultaneous access from one PC to several ADwin-systems with the same TCP/IP port.
    - ENET optimizations at SetFifo function , especially active with Win9X/ME PCs
- ADwin operating system (ADwin9.BTL, ADwinS9.BTL , ADwin10.BTL) :
    - Bugfix : on starting a second process
- Developer Software :
    - VisualBasic driver : return value of the function Get_Globaldelay
    - Testpoint driver :   A/D Objekt now also for GOLD and L16
    - Labview driver :   Acquire.vi now also for GOLD and L16
    - InTouch driver :   sample programs are on the CD for the first time
    - Matlab driver :   some functions returned a duplicate result
- GoldCalib   V1.0   this is the calibration program for ADwin-Gold-ENET/USB
- Pro-Storage V1.6 :   now also module addresses > 99
- ADEthFlash V2.2 :   supports now also firmware 2.52

Most important features of version 4.01.0106 compared to version 4.00.0600 :

- ADbasic version 4.01.01 :
    - Mark Controlblock now also for `SELECTCASE`
    - new functions : `CAST_FLOATTOLONG()`, `CAST_LONGTOFLOAT()`
    - bugfixes :
        - at optimization level 2

- constant –2147483648 was not accepted
- problem with Fifo (Float) as LValue
- Open All Includes did not work in certain cases
- Debugmode did not work in LowInit section
- problem on handling with strings
- on `ADC` instruction if the first function parameter is not a constant
- error on nested libraries with T10 if array is in external memory (DX)

- ADbasic include files :
  - ADwinpro.inc : new function : `CPU_DIGIN()`
  - ADwpdio.inc : new: Pro-Storage : PCMCIA- memory and real-time clock
- Developer Software :
  - Testpoint driver :   support of the T10 processor
  - Labview driver :   paths adapted for Labview 7 and sample programs
  - C - driver : reworked
- ADEthFlash V2.1 :   support of ADwin Ethernet interface 2

Most important features of version 4.00.0600 compared to version 4.00.0500 :

- ADbasic version 4.00.06 :
  - bugfix : old incompatible libraries are now rejected
  - FFT– library newly generated with ADbasic 4
- ADconfig V2.7 :
  - bugfix (problem, if all Device_No have been deleted)
- ADPro Version 4.1 :
  - support of the new Pro-AIN 8/14, Pro-AIN-32/14, Pro-AIn-8/16 Rev C, Pro-AIn-32/16 Rev C

Most important features of version 4.00.0500 compared to version 3.20.1200 :

- ADbasic version 4.00.05 :
  - T10 Processor (80 MHz) is now supported (*1)
  - Projectmanagement : A projectfile can be created, which is able to open several ADbasic files (*1)
  - new optimisations for T10 : up to 10 % less program memory (PM) needed, compared with the T9
  - support also of the ADwin-Gold-ENET and ADwin-Gold-USB (both Rev. B1 or greater)
  - for ADwin-Gold : multiplexer settling time changed from 1,5 to 2,5 µs for the**ADC12** instruction. Programs with the ADC12 instruction now need more CPU- time and eventually have to be reworked.
  - Load Standardprocesses : If "No" => approx. 11 kByte bigger free program memory (PM)
  - Default Settings for Directory (BTL, INC, LIB) now also for several Users under NT, W2K, XP
  - commandline functionality
  - improved user interface :
    - all 80 PARs/FPARs in Parameter window
    - simultaneous control over all 10 processes in the "Processes Window" (*1)
    - new button: "Enable cyclic update"
    - new button: "Parameter Scan" (*1)
    - system (Gold, Pro, Light-16, ..) is now selectable. (= replacement for: "16 bit resolution")
    - shortcuts für Boot, Compile, Start, Stop, Parameter Scan, (Un-)Comment Block, In-/Outdent
    - permanent display of the options :
      - Process X delay   (= former called : (Global-) Delay)
      - Initial Processdelay   (= former called : (Global-) Delay)
      - Device No. , Eventsource , Priority , Process number , Optimize Level
  - new instructions :
    - Sleep()
    - AT DM_LOCAL, AT DRAM_EXTERN can optionally be specified on BYREF parameters of libraries (for the reason of code optimisation
    - #IF PROZESSOR = T10 THEN
  - bugfixes :
    - #DEFINE now also allowed on strings
    - at powerfunction (^) , at optimisation level 2, at IMPORT instruction
  - revised editions of ADbasic Manual and Tutorial

- revised edition of context- sensitive ADbasic Online Help

- ADbasic include files :
    - Adapted for processor T10 :   ADwpAD.inc, ADwpDA.inc, ADwpDIO.inc,
                            ADwinPro.inc, ADwpEXT.inc
    - ADwpAD.inc : new for Pro-AIN-F-X/14 (Rev B2) : `BURST_CSTART()`,`BURST_CREAD()`,`SYNC_MODE()`
                      new instructions for sequence control : `SEQ_…()`
                      support of new Pro- AIN 8/14 , Pro- AIN 32/14
    - ADwGcnt.inc : new for ADwin-Gold-ENET/-USB (Rev. B1 or greater) with CO1 Option :
                          `CNT_GETSTATUS()` , `CNT_RESETSTATUS()` , `CNT_SE_DIFF()`
- ADbasic Library files : new : ADwpEXT_lib.Li9, ADwpEXT_lib.LiA
- ADwin driver bugfixes :
    - occasional problem (errorcode 2000) with SetFifo function on ENET
    - occasional problem with path-/filename with function ADwin_Debug_Mode_On
- ADwin operating system (ADwin9.BTL, ADwinS9.BTL) :
    - ADwinS9.BTL : approx. 11 kByte bigger free program memory (PM)
- Developer Software :
    - Labview driver :   improvements on Stopdac, Startdac, Acquire, Process_Status
    - Delphi Treiber :   improvements on Get_last_error_text
- ADtools V4.6 : TProcess : Processor T10 is now supported ; bugfixes at TPoti and TPar_FPar ;
                                             improvements at TGraph
- ADEthFlash V2.0 :   Processor T10 is now supported
- ADPro Version 4.0 :   Processor T10 is now supported
- ADtest V1.7 : (settings are now stored in the registry in location „HKEY_CURRENT_USER")
- ADwinTCPIPserver V1.2 : on errors, now errorcodes are displayed
- ADbootload V3.4 :   bugfix

Most important features of this version compared to version 3.20.0804 :

- ADbasic version 3.20.12 :
    - Bugfixes on libraries and `Sleep` instruction in optimization level 2
    - Bugfix on sin-, cos- and powerfunction (^) at processes with low priority
- ADwin driver :
    - improved USB driver
- ADwin operating system (ADwin9.BTL) :
    - Bugfix on Booting the ADwin-Pro system (undefined behaviour)
- Developer Software :
    - Matlab driver : (license key for this is required).
- ADtest V1.6 : (settings are now stored in the registry in location „HKEY_CURRENT_USER")
- ADwinTCPIPserver V1.1 : (for the first time on the ADwin-CD)

Most important features of this version compared to version 3.20.0703 :

- ADbasic version 3.20.08 :
    - Bugfixes on libraries and on calculations with signed constants
    - The default setting for "16 Bit resolution" is now "Yes"
- ADbasic include files improved :   ADwL16.inc , ADwgcnt.inc , ADwpad.inc
                              ADwpDIO.inc   (new: instructions for Pro-CO4 , Pro-DIO-32 (Rev B))
- ADbasic example "Bas_Dmo7.bas" improved
- FFT– library available for the first time in : C:\ADwin\ADbasic3\lib
- ADwin driver improvements :
    - On using the functions GetData_Float / GetFifo_Float / GetFPar_All , possibly existing invalid bit
      patterns (e.g. because of not initialized data) are now set to Q-NAN
- Developer Software :
    - improvements in Labview and C – driver

- **ADwinActiveX V 2.0** available for the first time in : C:\ADwin\Developer\ActiveX
  Therefore for the first time a driver for the developer environment :
  - **Visual Studio .NET**: C#, VC++ 7, VB.NET
  As well as for the developer environments :
  - Visual C++ 6, Visual Basic 6 , Borland Delphi , Borland C-Builder , Agilent VEE, etc.
- ADPro Version 2.9 : The revision identifier is now displayed for all (i.e. also old) modules
- Windows Installer Engine version 2.0 :
  - The new engine version will be installed automatically, if necessary.
  - Problem on deinstalling older versions (Error 1316) is now fixed
  - Service pack 6 is now required for WinNT (SP6 is available on CD in directory : NT4_SP6a).

Most important features of this version compared to version 3.20.0109 :

- ADbasic version 3.20.07 :
  - Bugfixes on strings, libraries, ADC12, optimization level 2, power function (^)
  - Escape sequences for strings
  - Constants are now combined/calculated at compile-time, no longer at runtime. This is valid for all optimization-levels. Advantage : programs are executed faster. But **ATTENTION** : waiting times (e. g. for multiplexer settling time) , which have been implemented by program code containing calculations with constants, are now shorter. They have to be reworked respectively.
- ADbasic include files :   ADwpEXT.inc (new instruction because CAN-LS : `GET_LINE_STATUS`
                                            ADwL16.inc   (for ADwin-L16-DIO1 and ADwin-L16-CO1)
- ADwin driver bugfixes :
  - improved errorhandling for diverse functions
  - improved USB driver (errorhandling)
- ADwin operating system (ADwin9.BTL) :
  - decrease in the influence of the process- timing, which could be caused by :
    - `BEGIN_CRITICAL_SECTION` (often used in : ADwin-Pro)
    - or division in a process with low priority
- Developer Software :
  - improvements in Visual Basic, Labview and C - driver
- ADPro Version 2.7 : new : identification/calibration of new module Pro-AIN-F-4/14, Pro-AIN-F-8/14
- L16Calib   V1.0   this is the calibration program for ADwin-Light16
- ADconfig V2.2 : (configuring of several Devices is more user friendly now)
- ADtools V4.4 :
  - new : TString (for displaying and editing of ADbasic- strings)
  - TPar_FPar : new : individual labelling of each Par / FPar-line
  - Bugfixes
- ADfind_dll V 1.0   searches for all ADwin- DLL and BTL files, which are stored on the PC

Most important features of this version compared to version 3.20.0101 :

- ADwin driver feature :
  - higher data transfer rates with GetData_Long, ..._Float, ..._String, ..._Double on ENET, if firmware of the ADwin ENET interface >= 2.5 and if <= 1750 data are transferred from the ADwin- system
- ADwin driver bugfixes :
  - occasional problem (windows- protection fault) with GetData function on networks, which have a lot of traffic
  - occasional problem (wrong errorcode) with SetFifo function on ENET
- ADPro version 2.6 : new : identification of new counter module Pro-CO4
- ADbasic include files :   ADwpAD.inc (because of new Pro-AIN-8/16-RB , Pro-AIN-32/16-RB ,
                                                        Pro-AIN-F-4/14, Pro-AIN-F-8/14)
                                            ADwpDIO.inc   (new: instructions for Pro-CO4 (and SSI))
- Developer Software :
  - Testpoint driver version 1.3.6 with the following new actions :
    - Get_Last_Error
    - Read Parameter All, Read Parameter Block
  - Labview driver version 2.0 with the following new functions:

- - errorhandling conformable with Labview (error wiring via Error In, Error Out : based on Get_Last_Error, Get_Last_Error_Text)
  - Get_Par_Block, Get_FPar_Block
  - GetData_String, SetData_String, String_Length
  - Process_Status, Data_Length, Set_Globaldelay, Get_Globaldelay, Set_Language
- ADEthFlash V1.5   (new : EEprom support)
- ScanAEI V1.2   (new : If DIL-switch 1 is present, the version number is displayed with an appended ".1")
- ADtools : bugfixes on Tgraph and TProcess
- ADconfig V2.1 :   easier user guidance for the configuration of Ethernet

Most important features of this version compared to version 3.00.3011 :

- Window XP support (new USB driver)
- ADbasic version 3.20.01 : new :
  - Libraries   (see : ADbasic3.20-lib_eng.pdf)
  - String functions (see : ADbasic manual : ADbasic3_eng.pdf)
  - „Syntax Color"   (highlighting of ADbasic keywords, comments, etc.)
  - Autoindent
  - multiple "Undo" and "Redo"
  - "Open All Includes" (opens all files, which are included by the `#INCLUDE` command)
  - "Tabsize" now adjustable (Default Tabsize = 2 , therefore it may be necessary to check the format of those ADbasic programs, which are usingTABs)
  - On right mouseclick :
    - (Un-)Comment Block   (changing multiple codelines to comments and vice versa)
    - Indent/Outdent
    - Mark Controlblock   (on right mouseclick on a line, which contains `IF` , `ELSE` or `ENDIF`, the whole textblock of the `IF – ELSE – ENDIF` structure will be highlighted ; the same is also valid for :   `DO .. UNTIL,` `FOR .. NEXT`)
  - Info window   (shows several compiler- error messages and warnings)
  - diverse bugfixes (e.g. at `SELECTCASE`)
- ADPro version 2.4 : new : calibration function now has adjustable gain; binary input possible; ability to switch between UNI/BIP voltage ranges;   identification of new module AIN32/16RB
- ADtest V1.4 : last used Device No. is now saved
- ADconfig V2.0 :   diverse improvements, timeout now adjustable with resolution of 100 ms
- ADwin driver :
  - better error handling
  - bugfix at Set_Fifo (error occurred only with Ethernet, if Float Data were converted to Long DATA(s))
  - bugfix at process-scheduling of low priority processes
- Developer Software :   Visual Basic , Delphi and C – driver with the following new functions :
  - Get_Last_Error, Get_Last_Error_Text
  - Get_Par_All, Get_FPar_All
  - GetData_String, SetData_String, String_Length
  - Process_Status, Data_Length, Set_Globaldelay, Get_Globaldelay, Set_Language
  - etc.
- ADtools V4.1 (new : TFifo and TBin)
- ScanAEI V1.0   (scans all ADwin-Ethernet interfaces, which are located in the same TCP/IP- subnet as the PC)
- Linux : latest driver and (for the first time) XADbasic_beta (= ADbasic-GUI)

Most important features of this version compared to version 3.00.2735 :

- ADPro version 2.2 : new : calibration function for Rev. B modules
- ADtest V1.3 : now also GOLD and Light-16 is supported ; Info window shows all installed ADwin software packages

- ADconfig version 1.7 : now available : 4-digit Linkaddress
- ADbasic : diverse bugfixes on : DAC- instruction, libraries, external event, integer division
- diverse updates and bugfixes on : ethernet, profibus, ADserver.exe, standard processes,   Bootloader (Link), process-timing of low priority processes, communication problem on very big blocktransfer of data under WinNT and Win2000 fixed, problem on starting and stopping of processes under Testpoint fixed
- developer software :
  - Labview driver adapted for Labview 6.0
- for the first time on CD : ADbasic development system and drivers for Linux

Most important features of version 3.00.2735 compared with version 3.00.2733 :

- ADEthFlash V1.2 (for programming the bootloader and updating the firmware of ADwin-systems with Ethernet interface)
- ADTools V 3.6
- Significant improvement of the transfer rate of ADwin-light-16

Most important features of version 3.00.2733 compared with version 3.00.2332 :

- support of ADwin-systems with Ethernet interface
- under Win2000 also ADPCMCIA and PCI is now supported.
- under Win2000 the ISA-LINK cards are managed now in the "Device Manager".
- new ADbasic instruction : **SELECTCASE**
- "16 Bit resolution" is now the default setting in the ADbasic Compiler Options
- improvements in the accuracy of calculations with the power- function (^)
- improvements of the functionality and the (transfer rate) performance of USB