



Free Studio New Target and features



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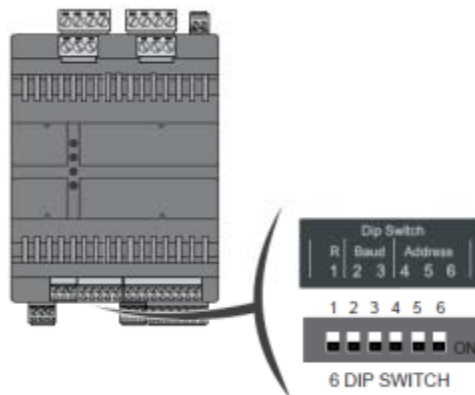


New expansions EVE

EVE6000 and EVE10200

- New expansions on CAN Expansion bus, 4 DIN:
 - EVE6000 – 24Vac/dc - 12 I/O
 - EVE10200 - 24Vac/dc - 28 I/O

- Dip Switch:



| baud | SW2 | SW3 |
|-----------|-----|-----|
| 0=500Kb/s | OFF | OFF |
| 1=250Kb/s | OFF | ON |
| 2=125Kb/s | ON | OFF |
| 3=50Kb/s | ON | ON |

- Up to 8 addresses (Advance/Evolution can actually manage the I/O of 12 x EVE7500)
- Reversed Printing: the same will be applied to Advance in the future
- Temperature range from -20°C to 60°C



New expansions EVE

EVE6000



2 Digital Inputs

- 2 24 Vac/dc High Speed Counter (2 kHz)

DIP Switch

- Terminal resistor
- Baud rate
- Up to 8 addresses

6 Digital Outputs

- 3 SPST 3 A with the same common
- 3 SPST 3 A with the same common



Communication

- 1 CAN Expansion bus

4 Analogue Inputs

Configurable by pair

- 4 NTC
 - or PT1000 (-200°C to 850°C)
 - or PTC
 - or 0-20 mA or 4-20 mA or 0-5 V or 0-10 V
 - or hOhm or daOhm
 - or Digital Input

Sensor power supply

- 5 Vdc ((50 mA)
- 24 Vdc (125 mA)

Power supply

- 24 Vac \pm TBC %
- 20 to 38 Vdc

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New expansions EVE

EVE10200



6 Digital Inputs

- 2 24 Vac/dc High Speed Counter (2 kHz)
- 4 24 Vac/dc

DIP Switch

- Terminal resistor
- Baud rate
- Up to 8 addresses

2 Analogue Outputs

- 2 0-10 V or 4-20 mA or PWM (2 kHz, 24 Vdc)

10 Digital Outputs

- 3 SPST 3 A with the same common
- 3 SPST 3 A with the same common
- 2 SPST 3 A with the same common
- 2 SPST 3 A with the same common

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Communication

- 1 CAN Expansion bus

10 Analogue Inputs

Configurable by pair

- 10 NTC
 - or PT1000 (-200°C to 850°C)
 - or PTC
 - or 0-20 mA or 4-20 mA or 0-5 V or 0-10 V
 - or hOhm or daOhm
 - or Digital Input

Sensor power supply

- 5 Vdc (150 mA)
- 24 Vdc (125 mA)

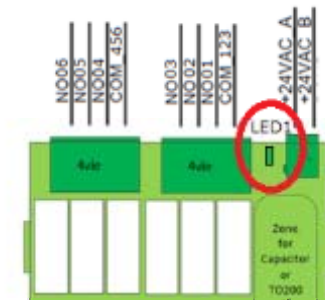
Power supply

- 24 Vac \pm TBC %
- 20 to 38 Vdc

New expansions EVE

EVE6000 and EVE10200

- Can Serial not isolated (like Advance)
 - Power supply not isolated, without internal diode, i.e.:
 - It **can** drive a 0-10V actuator powered by the same power supply
 - It **can't** drive a 0-10V device with diode bridge supply powered by the same power supply
 - External fuse required on “–”
 - Same prescriptions about Can G of the EVE4200
-
- A green led LED1 is added to have helpful info on the field:
 - LED1 is OFF if there is no power or the microcontroller is not working
 - LED1 in ON fixed if EVE is powered and microcontroller runs. Note that at power-on/reset the LED first flashing for a while (blink very fast) and then stay ON
 - LED1 is BLINKING if Advance is powered and Operational (it means that in this state, the transmission of process data via "process data objects" (PDOs) is possible).
 - LED1 can also flashing (blink very fast) when there is a firmware upgrade. In particular when the WKB Device has finished to download the firmware till the end of the upgrade.



New expansions EVE

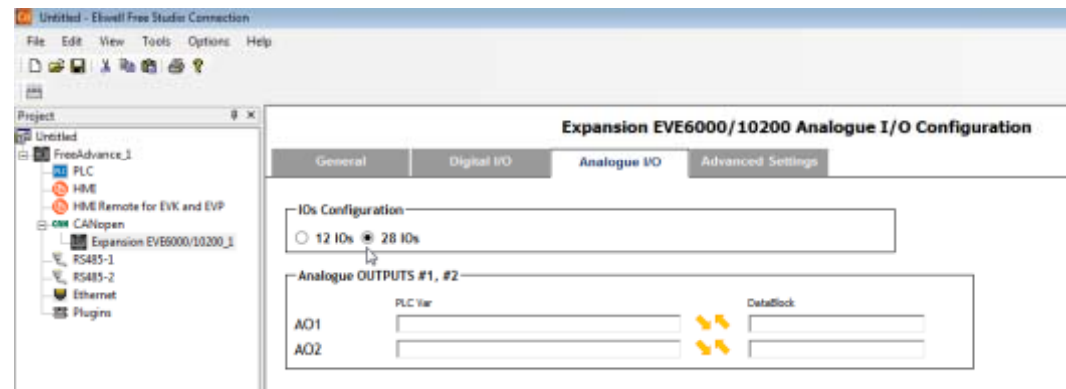
EVE6000 and EVE10200



- Same FW:

| Catalog | | |
|-------------------------|---------|-------------------------|
| Device name | Version | Description |
| Keyboard EVK | 476 | Keyboard EVK |
| FreeEvolution EVP | 489 | FreeEvolution Panel EVP |
| Expansion EVE 7500 | 460 | Expansion EVE 7500 |
| Expansion EVE 4200 | 575 | Expansion EVE 4200 |
| Expansion EVE6000/10... | 640 | Expansion EVE6000/10200 |

- Same use inside Connection:
 - IO can be switched by radio button



New expansions EVE

EVE6000 and EVE10200



- In case of FDI you have to configure the refresh period:

| CAN On Board | | | | | | |
|--------------|----------------|-------|-----|---------|-----|-------|
| Address | Name | Value | Um | Default | Min | Max |
| 15780 | Addr_CAN_OB | 1 | num | 1 | 1 | 127 |
| 17000 | SendPeriodFDI1 | 1000 | ms | 65535 | 0 | 65535 |
| 17001 | SendPeriodFDI2 | 1000 | ms | 65535 | 0 | 65535 |



Expansion EVE6000/10200 Configuration

General Digital I/O Analogue I/O **Advanced Settings**

Add Remove

| # | Label | Index | SubIndex | Type | Value | Timeout |
|---|---------|-------|----------|------|-------|---------|
| 1 | Cfg_AD1 | 3d8e | 0 | UNIT | 2 | 100 |
| 2 | Cfg_AD2 | 3d8f | 0 | UNIT | 2 | 100 |

Variables List

Filter:

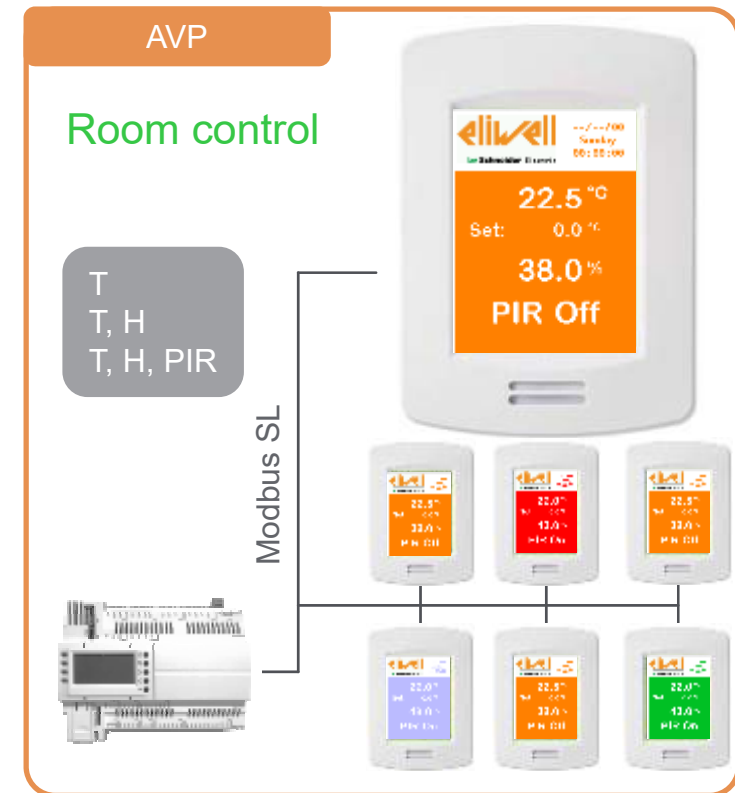
- 3d8e.0 Cfg_AD1 (UNIT)
- 3d8f.0 Cfg_AD2 (UNIT)
- 3d99.0 PWM_frequency_AD1_AD2 (UNIT)
- 3d9a.0 PWM_polarity_AD1_AD2 (UNIT)
- 3d9d.0 Addr_CAN_OB (UNIT)
- 4218.0 SendPeriodC1 (UNIT)
- 4219.0 SendPeriodC2 (UNIT)
- 2150.0 DOL1 (BOOL)
- 2151.0 DOL2 (BOOL)
- 2152.0 DOL3 (BOOL)
- 2153.0 DOL4 (BOOL)
- 2154.0 DOL5 (BOOL)
- 2155.0 DOL6 (BOOL)
- 2156.0 DOL7 (BOOL)

OK Cancel

New colour touch screen displays, wall mounting

AVP1*

- Main characteristics:
 - Integrated in Free Studio software (no other tool needed)
 - Same display can be use as room control (Measure, Set and show)
 - 3,5 " with 320 x 240 pixels
 - 256 colors
 - Wall mounting
 - Inside usage
 - Temperature, humidity and PIR measurement
 - Three Models:
 - Embedded temperature
 - Embedded temperature & humidity
 - Embedded temperature, humidity & presence (PIR) sensors
 - 24Vac/dc isolated power supply
 - RS485 isolated from power supply
 - External terminal resistor required



Free Studio 3.8

AVP1*

- Input:
 - Temperature: 0.1°C Resolution
 - Humidity: 1% Resolution (-32767 if not present)
 - PIR: 1=Presence (-32767 if not present)
- Backlight configuration:

| Backlight Values | | | | | | | |
|------------------|--------------|---------|-----|---------|-----|-----|-------------------|
| Address | Name | Value | Um | Default | Min | Max | Description |
| 8211 | sysBacklight | 2=Timed | num | 2=Timed | 0 | 2 | Display backlight |
| | | 0=Min | | | | | |
| | | 1=On | | | | | |
| | | 2=Timed | | | | | |

| Display | | | | | | | |
|---------|-----------------------|------------|-----|------------|-----|-------|-------------------------|
| Address | Name | Value | Um | Default | Min | Max | Description |
| 8204 | Par_Orientation | 1=Portrait | | 1=Portrait | 0 | 1 | Display orientation |
| 8205 | Par_Language | 1 | num | 1 | 0 | 65535 | System Language |
| 8207 | Par_BackLightTime | 30 | sec | 30 | 0 | 3600 | Backlight time |
| 8250 | Par_BackLightMinValue | 5 | % | 5 | 0 | 100 | Backlight minimum value |

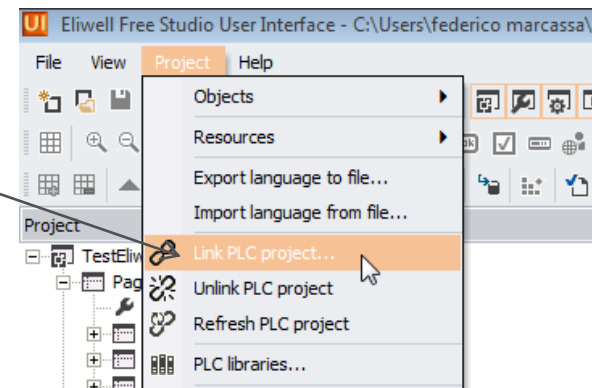
- Connection SW is not required (but it can be used as usual if you are used to)



Free Studio 3.8

AVP1*

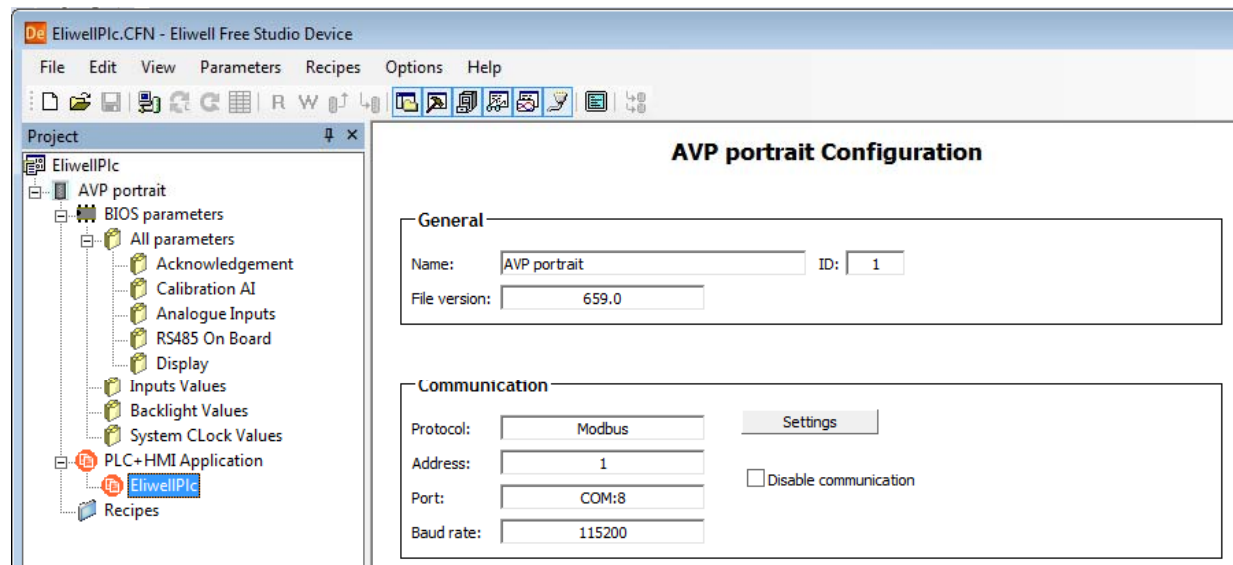
- Physical connection to target through:
 - microUSB, Modbus protocol address 1
 - Modbus RTU, default address 1, 38.4,E,8,1
- Connection is not required (but it can be used as usual if you are used to)
- UI and AP project are linked through:
- Only one file is downloaded on the target:
 - When you download Ap also the linked UI project is downloaded (and viceversa)
 - In order to have Source Ok it is suggested to perform the last download from Ap
 - Max size:
 - Total code space: B8000h (736 KByte)
 - Total data space: 10000h (64 KByte)
 - 4Mb for images and font on external NOR
 - Eeprom 4096 Word
 - Status Variables 5000 Word
 - Retain 0 Word



Free Studio 3.8

AVP1*

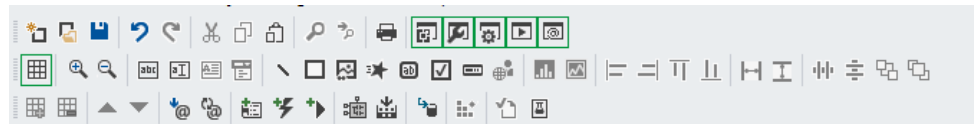
From Device the overall file can be downloaded in one shot:
(only if Application project is present)



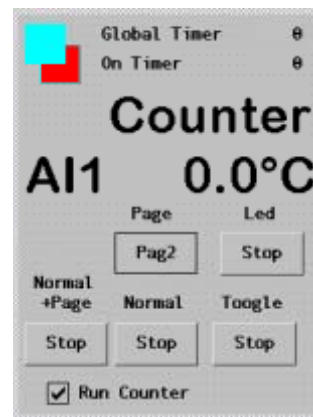
Free Studio 3.8 – User Interface

AVP1*

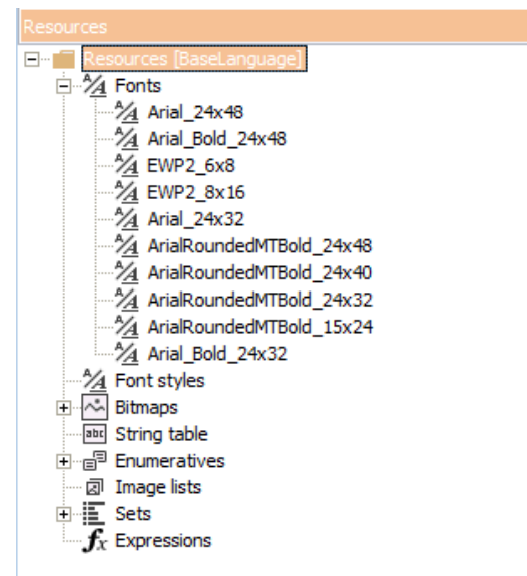
- New Toolbar Icons



- New Object:
 - Check Box
 - Button
 - Type:
 - Normal
 - Toggle
 - Led
 - Press variable



- Current beta version has the usual font 8x16 and 6x8
 - New fonts will be added in the final release (TBD)
 - Fonts can be imported
 - Proportional fonts are supported
 - A font can be linked to a language through the Font styles



Editing Values on the display

AVP1*

- Numbers:



| | | | |
|-----|---|-----|-----|
| 1 | 2 | 3 | Esc |
| 4 | 5 | 6 | ← X |
| 7 | 8 | 9 | ↵ |
| abc | 0 | ABC | ↵ |

| | | | |
|------|-----|------|-----|
| | | | |
| @.?, | ABC | DEF | Esc |
| GHI | JKL | MNO | ← X |
| PQRS | TUV | WXYZ | ↵ |
| 123 | ↵ | abc | |

| | | | |
|------|-----|------|-----|
| | | | |
| @.?, | abc | def | Esc |
| ghi | jkl | mno | ⌫ |
| pqrs | tuv | wxyz | ⬅ |
| 123 | ⌄ | ABC | |

- Enumeratives:

| | | | |
|-----|---|---|---|
| Esc | ↵ | ↵ | ↵ |
| Esc | ↵ | ↵ | ↵ |
| Esc | ↵ | ↵ | ↵ |



Free Studio 3.8 – New Bios Features

Advance 596

- Advance 596.5:
 - Modbus Master TCP/IP
 - Up to 3 slaves (will be extended in the future)
 - Modbus Slave TCP/IP
 - Service enable/disable by parameter, effective at power-on (reset needed). Disabled if Port_ETH_PI = 0xFFFF
 - White list of up to 3 IP-addresses for clients, settable with PLC function sysMbS_AcceptClient() (different from HTTP list at a.ii)
 - HTTP server
 - Service enable/disable
 - with parameter, effective at power-on (reset needed); Disabled if Port_HTTP_PI = 0xFFFF
 - with PLC function sysHTTP_Service(), changeable on-the fly;
 - White list of up to 3 IP-addresses for clients, settable by PLC function sysHTTP_AcceptClient();
 - Introduction of 3 additional users besides administrator settable with PLC function sysHTTP_AuthentGuest(), with lower permissions, possibility to change the starting web page displayed by each, and to filter up to 10 files to their access.
 - BACnet IP
 - Service enable/disable by parameter, effective at power-on (reset needed). Disabled if Port_BACnet_IP = 0xFFFF
 - FTP Server
 - PLC function for administrator and password setting (default administrator/password)
 - Service enable/disable using sysFTP_Service()
 - with parameter, effective at power-on (reset needed);
 - with PLC function, changeable on-the fly;
 - White list of up to 3 IP-addresses for clients, settable with PLC function sysFTP_AcceptClient() (different from lists above)
 - Introduction of 3 additional users besides administrator settable with PLC function sysFTP_AuthentGuest(), with lower permissions, possibility to filter up to 10 files, in read or write, to their access
 - FTP Client
 - Connection to a remote server set in PASSIVE MODE via PLC function sysFTP_ClientCommand().

Launch plan 2017/18...

Freeway Advance 4DIN

- For compact and connected machines

- 4 DIN controller based on Advance with isolated Supply and RS485
- Standard (/C/L/U) and Light (/C) versions
- Positioned between Smart and Advance
- Allow small HVAC machines to be connected, can be used as gateway
- Available also AVD6200/C/L/U with 2SSR instead of 2SPST

- Plugin:

- RJ45 (only /C model)
- RS485
- LON communication

| Connectivity | Light /C | Standard /C/L/U |
|--|----------|-----------------|
| CAN Expansion bus | Yes | Yes |
| RS485-1 Modbus SL or BACnet MS/TP | Yes | Yes |
| RS485-2 Modbus SL or BACnet MS/TP | Yes | Yes |
| RJ45–Webserver, Modbus TCP, BACnet IP, Ethernet, FTP | | Yes |
| USB A (Download prog with USB pen) | | Yes |
| Mini USB B (Programming port) | Yes | Yes |
| Micro SD Card | | Yes |



| | AVD/AVC 3000 (only /C/L/U) | AVD/AVC 6200 |
|----|-------------------------------|--------------|
| DI | 2 | 2 |
| AI | 2 | 8 |
| DO | 3 | 6 |
| AO | | 2 |



Launch plan 2017/18...

Flush mounting Display:

- Derived from AVP1*
- Modbus Master and Slave



Advance light version:

- Advance without Ethernet/microSD/Usb
- Advance with isolated supply and RS485

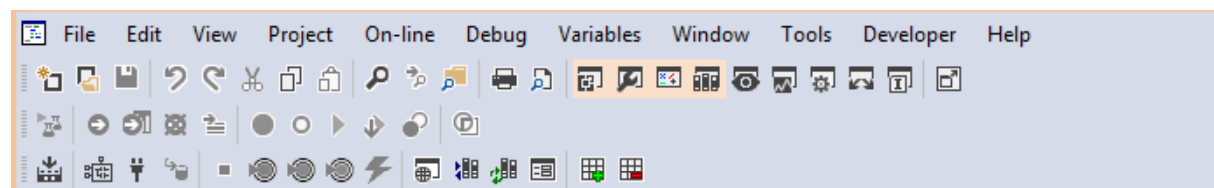
New Free Studio:

- One Tool

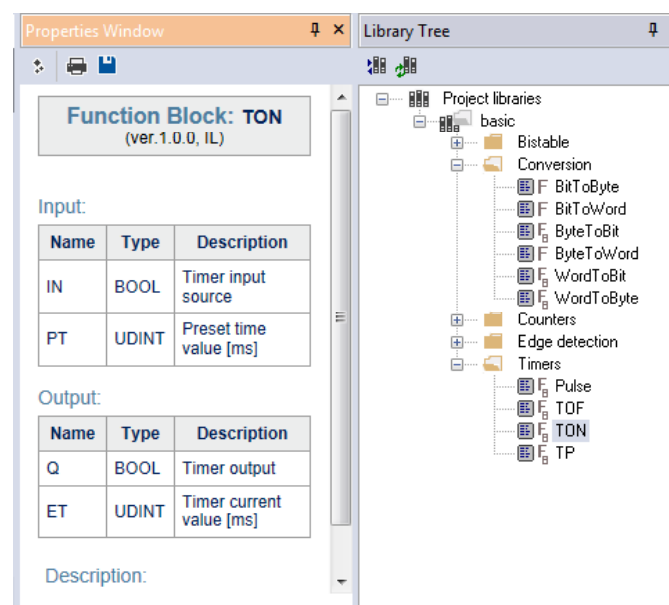


Free Studio 3.7 – Application

- New Graphic Layout:



- New Library Tree and block Description:



Free Studio 3.7 – Application



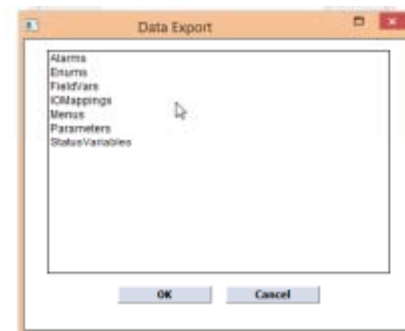
- Variable Declaration:

| Local variables | | | | | | |
|-----------------|---------|------|---------|-------|------------|-----------|
| | Name | Type | Address | Array | Init value | Attribute |
| 1 | bVisPIR | BOOL | Auto | No | | .. |
| 2 | ToffBck | TOF | Auto | No | | .. |
| 3 | bckReq | BOOL | Auto | No | | .. |
| 4 | init | BOOL | Auto | No | | .. |

```

0001 PROGRAM Backlight
0002
0003 VAR
0004     bVisPIR : BOOL;
0005     ToffBck : TOF;
0006     bckReq  : BOOL;
0007     init    : BOOL;
0008 END_VAR
0009
0010
    
```

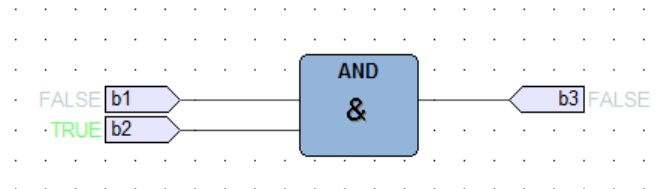
- Data Export Improved:



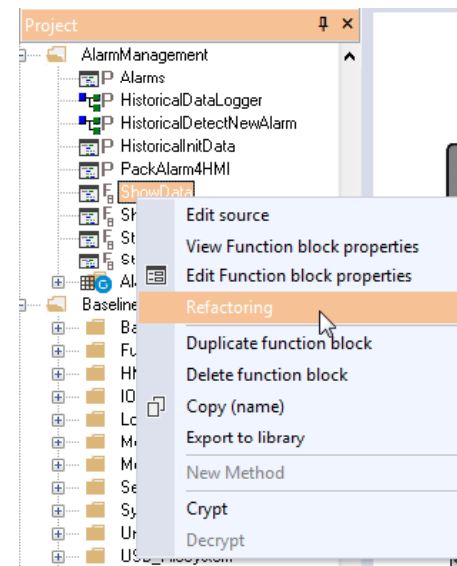
Free Studio 3.7 – Application



- Live debug: New colors for Bool variables



- Refactoring: a function block name and the related instances can be renamed in one shot



Free Studio 3.7 – New Bios Features



- Advance 596.4:
 - Support to “Turbo” upload of remote HMI
 - Upload of generic files via USB pendrive:
 - Up to 255 files
 - Filename format 8,3
 - file1.ext nor:0/
 - file2.ext mmc:0/
 - Added 4 new Modbus holding registers for current IP configuration: 8764-8767 (same as M171PF)
 - Added support for proportional font
 - Fixed string issue when used on web with len>25
 - Fixed reboot due to a wrong http address of type 10.0.0.100\a.cgx\b.cgx
 - Fixed issues during download from Device of big Remote HMI
 - Fixed all minor bugs found during Pre BTL testing
- Evolution 423.24 / 477.24 / 489.17:
 - Support to “Turbo” upload of remote HMI (only 489.17)
 - Fixed string issue when used on web with len>25
 - Fixed reboot due to a wrong http address of type 10.0.0.100\a.cgx\b.cgx
 - Fixed issues during download from Device of big Remote HMI
 - Fixed all minor bugs found during Pre BTL testing
- EVK1000 476.17
 - Support to “Turbo” upload of remote HMI
 - Support bios upload from any base TM17*P (file MSK476.BIN on filesystem base)
- Smart Modbus Master 542.7:
 - Fixed bug serial lock

Questions?



THANK YOU.

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