ADVANCED ENERGY LIBRARY FOR PCS 7 IN APL

Block library for power applications

swb

The block library: PCS 7 **A**dvanced **E**nergy **L**ibrary (AEL) in APL

Highlights

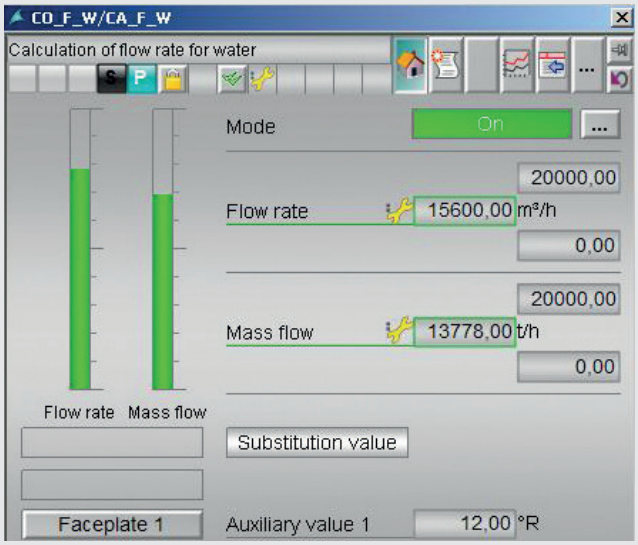
- Power plant compliant block library in APL for PCS 7 Version 8
- Energy specific blocks and numerous special blocks compliant with VGB standards
- For use in power stations, thermal power stations, waste incineration plants and other process plants, such as biomass and district heating
- Complete, standardised engineering saves on costs and reduces the effort of own software development
- Uniform operator guidance throughout the whole process, minimising any operating errors

Block types

- Standard blocks, such as motor and valve blocks, and partial control
- Special blocks, such as for the calculation of enthalpy
- Blocks for connecting up peripheral devices via PROFIBUS, such as drives and measuring devices
- Process blocks, such as for the calculation of flow rates and corrective calculations
- Other blocks available on request

Symbols and pictorial blocks (faceplates)

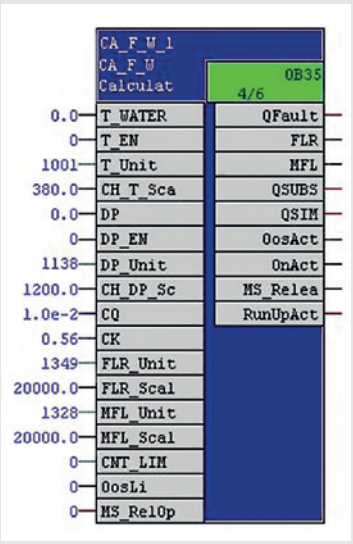
- Visualisation, operation and monitoring in the familiar APL "look and feel"
- Makes handling easier and reduces the risk of operating errors
- Standardised, complete operating philosophy
- Diagnostic capabilities minimise system downtimes
- Consistent, optimised operation and operator guidance



Example: Faceplate belonging to function block CA_F_W: calculates the volume and mass flow of water using the differential pressure method

Block in the CFC plan

- Efficient engineering with online support
- These blocks have been functionally tested and documented
- Standardised, user-friendly programming and commissioning
- Easy to maintain and expand
- High availability, fail-safe programming
- Controls various process components made by different manufacturers



Example: Function block CA_F_W

Standard blocks in APL

KO	Step sequence command block
TagWE	Day changeover
ASL	Analogue value switch
MotESG	Motor ESG
Actuator	Actuator shutter slide ESG
PreSel	Preselection 1 of 2/1 of 3/2 of 3
MV	Electro magnetic valve
BSL	Binary value switch
Mot2	Motor with 2 rotations/directions
ANA_SP	Analogue value storage
TP	Participation
TS	Partial subgroup control
AGU	Unit changeover
RM	Feedback
ANA2V3	Analogue value 2 of 3 selection and monitoring
BIN2V3	Binary value 2 of 3 selection and monitoring
ANA1V2	Analogue value 1 of 2 selection and monitoring

Special blocks in APL Connecting to peripheral devices

AUMARED	Function block for connecting up the AUMATIC AC01.1 actuator controller via a redundant PROFIBUS-DP
LENZE_FU	Function block for connecting up the Lenze frequency converter 8200 Vector to S7-400 via PROFIBUS DP
EMG_DREH	Function block for connecting up the DREHMO drive MATIC C manufactured by Drehmo Industrietechnik GmbH with integrated bus interface PROFIBUS DP to S7-400
WTW_OM	Connecting the MIQ TC 2020 XT online measuring device via PROFIBUS-DP
HL_OM	Connecting the Hach Lange, type SC1000 online measuring device via PROFIBUS-DP

Calculation blocks in APL

ENTPW	Calculates enthalpy of water
ENTPS	Calculates specific enthalpy of steam
CA_T_MGN	Function block for calculating the saturation temperature of steam in relation to pressure based on the Magnus line
CA_F_AIR	Function block for calculating air and blast furnace gas flow using a differential pressure measurement orifice plate
CA_F_GAS	Function block for calculating nominal flow of gases from operating flow rate
CA_F_ST	Function block for calculating steam volume using the differential pressure method
CA_F_W	Function block for calculating the volume and mass flow of water using the differential pressure method

ADVANCED ENERGY LIBRARY BLOCKS:
OPTIMISED HANDLING

Special blocks not yet in APL, but useable in Version 8

DME406RY	Redundant connection for the Camille Bauer DME406 measuring transducer via two PROFIBUS-DP strands
JANITZA	Connecting the UMG96S universal measuring device made by Janitza via PROFIBUS-DP
A2000	Connecting the Gossen Metrawatt A2000 power measuring device via PROFIBUS-DP
DME406	Connecting the Camille Bauer DME406 measuring transducer via PROFIBUS-DP (simple connection behind Y-link)
SIMEAS_P	Connecting SIMEAS P500 power meters via PROFIBUS-DP
DME406_F	Connecting the Camille Bauer DME406 measuring transducer with frequency measurement (single connection behind Y-link)
TSATT	Function block for determination steam status (wet steam or saturated steam) and the temperature differential between input temperature and the temperature reading at the limit between wet and saturated steam
TREND	Function block for determination the trend (rising or falling) of an analogue input variable produced by forming a moving average with an integrated dead band and integrated first-order lag element (PT1 element)
FLOWCON	Block for testing the range of a Flowcon K measurement
REG2S	Closed loop controller
REG2	Closed loop step controller

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Contacts for the Advanced Energy Library

Dirk Unglaube
Process Control and Information Technology
T +49 421 359–5333
M +49 172 150–6890
dirk.unglaube@swb-gruppe.de

Olaf Sempf
Process Control and Information Technology
T +49 421 359–5069
M +49 172 420–4351
olaf.sempf@swb-gruppe.de

FÜR HEUTE.
FÜR MORGEN.
FÜR MICH.

swb Erzeugung GmbH & Co. KG
Theodor-Heuss-Allee 20
28215 Bremen
T 0421 359–3351
F 0421 359–3350
info.erzeugung@swb-gruppe.de

swb

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