# PLC_1 [CPU 1212C AC/DC/Rly]

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| **PLC_1** | | | | | |
| **General\Project information** | | | | | |
| **Name** | PLC_1 | **Author** | admin | **Comment** | |
| **Slot** | 1 | **Rack** | 0 | | |
| **General\Catalog information** | | | | | |
| **Short designation** | CPU 1212C AC/DC/Rly | **Description** | Work memory 75 KB; 120/240VAC power supply with DI8 x 24VDC SINK/SOURCE, DQ6 x relay and AI2 on board; 4 high-speed counters (expandable with digital signal board) and 4 pulse outputs on board; signal board expands on-board I/O; up to 3 communication modules for serial communication; up to 2 signal modules for I/O expansion; 0.04 ms/1000 instructions; PROFINET interface for programming, HMI and PLC to PLC communication | **Article number** | 6ES7 212-1BE40-0XB0 |
| **Firmware version** | V4.1 | | | | |
| **General\Identification & Maintenance** | | | | | |
| **Plant designation** | | **Location identifier** | | **Installation date** | 2019-03-26 16:23:17.062 |
| **Additional information** | | | | | |
| **PROFINET interface [X1]\General** | | | | | |
| **Name** | PROFINET interface_1 | **Author** | admin | **Comment** | |
| **PROFINET interface [X1]\General\Project information** | | | | | |
| **Name** | DI 8/DQ 6_1 | **Comment** | | **Name** | AI 2_1 |
| **Comment** | | **Name** | DQ 4x24VDC_1 | **Comment** | |
| **PROFINET interface [X1]\General\Catalog information** | | | | | |
| **Short designation** | DQ4 signal board (200 kHz) | **Description** | Signal board DQ4 x 24VDC / 200 kHz; plug-in terminal blocks | **Article number** | 6ES7 222-1BD30-0XB0 |
| **Firmware version** | V1.0 | | | | |
| **PROFINET interface [X1]\Ethernet addresses\Interface networked with** | | | | | |
| **Subnet:** | PN/IE_1 | | | | |
| **PROFINET interface [X1]\Ethernet addresses\IP protocol** | | | | | |
| | Set IP address in the project | **IP address:** | 192.168.0.1 | **Subnet mask:** | 255.255.255.0 |
| **Use router** | False | | | | |
| **PROFINET interface [X1]\Ethernet addresses\PROFINET** | | | | | |
| **PROFINET device name is set directly at the device** | False | **Generate PROFINET device name automatically** | True | **PROFINET device name** | plc_1 |
| **Converted name:** | plcxb1d0ed | **Device number:** | 0 | | |
| **PROFINET interface [X1]\Time synchronization** | | | | | |
| **Enable time synchronization via NTP server** | Enable time synchronization via NTP server | | IP addresses | **Server 1** | 0.0.0.0 |
| **Server 2** | 0.0.0.0 | **Server 3** | 0.0.0.0 | **Server 4** | 0.0.0.0 |
| **Update interval** | 10sec | | | | |
| **PROFINET interface [X1]\Digital inputs\Channel0** | | | | | |
| **Channel address** | I0.0 | **Input filters** | 6.4 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel0** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdgeEvent** | 49152 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge0** | Rising edge0 | | |
| **PROFINET interface [X1]\Digital inputs\Channel0** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdgeEvent** | 49280 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Falling edge0** | Falling edge0 | | |
| **PROFINET interface [X1]\Digital inputs\Channel1** | | | | | |
| **Channel address** | I0.1 | **Input filters** | 6.4 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel1** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdgeEvent** | 49153 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge1** | Rising edge1 | | |
| **PROFINET interface [X1]\Digital inputs\Channel1** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdgeEvent** | 49281 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Falling edge1** | Falling edge1 | | |
| **PROFINET interface [X1]\Digital inputs\Channel2** | | | | | |
| **Channel address** | I0.2 | **Input filters** | 1.6 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel2** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdgeEvent** | 49154 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge2** | Rising edge2 | | |
| **PROFINET interface [X1]\Digital inputs\Channel2** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdgeEvent** | 49282 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Falling edge2** | Falling edge2 | | |
| **PROFINET interface [X1]\Digital inputs\Channel3** | | | | | |
| **Channel address** | I0.3 | **Input filters** | 6.4 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel3** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdgeEvent** | 49155 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge3** | Rising edge3 | | |
| **PROFINET interface [X1]\Digital inputs\Channel3** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdgeEvent** | 49283 | **Event name:** | 0 |

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| **Hardware interrupt:** | 0 | **Falling edge3** | Falling edge3 | | |
| **PROFINET interface [X1]\Digital inputs\Channel4** | | | | | |
| **Channel address** | I0.4 | **Input filters** | 6.4 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel4** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdg-eEvent** | 49156 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge4** | Rising edge4 | | |
| **PROFINET interface [X1]\Digital inputs\Channel4** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdg-eEvent** | 49284 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Falling edge4** | Falling edge4 | | |
| **PROFINET interface [X1]\Digital inputs\Channel5** | | | | | |
| **Channel address** | I0.5 | **Input filters** | 6.4 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel5** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdg-eEvent** | 49157 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge5** | Rising edge5 | | |
| **PROFINET interface [X1]\Digital inputs\Channel5** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdg-eEvent** | 49285 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Falling edge5** | Falling edge5 | | |
| **PROFINET interface [X1]\Digital inputs\Channel6** | | | | | |
| **Channel address** | I0.6 | **Input filters** | 6.4 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel6** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdg-eEvent** | 49158 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge6** | Rising edge6 | | |
| **PROFINET interface [X1]\Digital inputs\Channel6** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdg-eEvent** | 49286 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Falling edge6** | Falling edge6 | | |
| **PROFINET interface [X1]\Digital inputs\Channel7** | | | | | |
| **Channel address** | I0.7 | **Input filters** | 6.4 millisec | **Enable pulse catch** | 0 |
| **PROFINET interface [X1]\Digital inputs\Channel7** | | | | | |
| **Enable rising edge detection** | 0 | **RidPrefixRisingEdg-eEvent** | 49159 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Rising edge7** | Rising edge7 | | |
| **PROFINET interface [X1]\Digital inputs\Channel7** | | | | | |
| **Enable falling edge detection** | 0 | **RidPrefixFallingEdg-eEvent** | 49287 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Falling edge7** | Falling edge7 | | |
| **PROFINET interface [X1]\Analog inputs\Noise reduction** | | | | | |
| **Integration time** | 50 Hz (20 ms) | | | | |
| **PROFINET interface [X1]\Analog inputs\Channel0** | | | | | |
| **Channel address** | IW64 | **Measurement type** | Voltage | **Voltage range** | 0..10 V |
| **Smoothing** | Weak (4 cycles) | | | **Enable overflow diagnostics** | 1 |
| **PROFINET interface [X1]\Analog inputs\Channel1** | | | | | |
| **Channel address** | IW66 | **Measurement type** | Voltage | **Voltage range** | 0..10 V |
| **Smoothing** | Weak (4 cycles) | | | **Enable overflow diagnostics** | 1 |
| **PROFINET interface [X1]\Digital outputs** | | | | | |
| **Reaction to CPU STOP** | Use substitute value | **Reaction to CPU STOP** | Use substitute value | | |
| **PROFINET interface [X1]\Digital outputs\Channel0** | | | | | |
| **Channel address** | Q0.0 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | **Channel address** | Q4.0 |
| **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | | | |
| **PROFINET interface [X1]\Digital outputs\Channel1** | | | | | |
| **Channel address** | Q0.1 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | **Channel address** | Q4.1 |
| **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | | | |
| **PROFINET interface [X1]\Digital outputs\Channel2** | | | | | |
| **Channel address** | Q0.2 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | **Channel address** | Q4.2 |
| **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | | | |
| **PROFINET interface [X1]\Digital outputs\Channel3** | | | | | |
| **Channel address** | Q0.3 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | **Channel address** | Q4.3 |
| **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | | | |
| **PROFINET interface [X1]\Digital outputs\Channel4** | | | | | |
| **Channel address** | Q0.4 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | |
| **PROFINET interface [X1]\Digital outputs\Channel5** | | | | | |
| **Channel address** | Q0.5 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | |
| **PROFINET interface [X1]\Operating mode** | | | | | |
| **IO controller** | True | **IO system** | | **Device number** | 0 |
| **IO device** | False | | | | |

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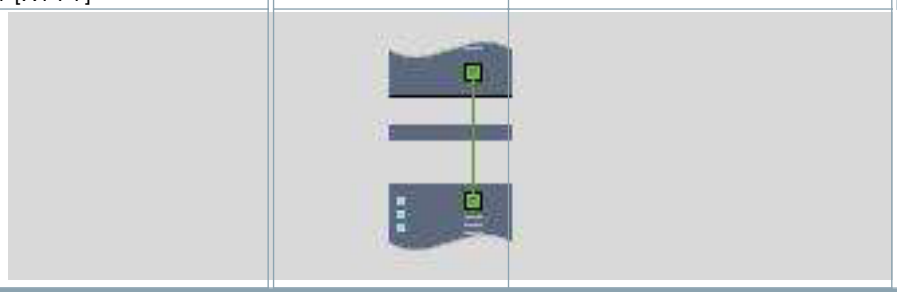
| **PROFINET interface [X1]\I/O addresses\Input addresses** | | | | | |
| **Start address** | 0 | **End address** | 0 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **PROFINET interface [X1]\I/O addresses\Output addresses** | | | | | |
| **Start address** | 0 | **End address** | 0 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **PROFINET interface [X1]\Advanced options\Interface options** | | | | | |
| **Support device replacement without exchangeable medium** | True | **Permit overwriting of device names of all assigned IO devices** | False | **Use IEC V2.2 LLDP mode** | False |
| **Send keepalives for connections** | 30s | | | | |
| **PROFINET interface [X1]\Advanced options\Real time settings\IO communication** | | | | | |
| **Send clock:** | 1.000ms | | | | |
| **PROFINET interface [X1]\Advanced options\Real time settings\Real time options** | | | | | |
| **Calculated bandwidth for cyclic IO data:** | 0.000ms | | | | |
| **PROFINET interface [X1]\Advanced options\Port [X1 P1]\General** | | | | | |
| **Name** | Port_1 | **Author** | admin | **Comment** | |
| **PROFINET interface [X1]\Advanced options\Port [X1 P1]\Port interconnection\Local port:** | | | | | |
| **Local port:** | PLC_1\PROFINET interface_1 [X1]\Port_1 [X1 P1] | **Medium:** | Copper | **Cable name:** | --- |
| |  | | | | |
| **PROFINET interface [X1]\Advanced options\Port [X1 P1]\Port interconnection\Partner port:** | | | | | |
| | Monitoring of partner port is not possible | **Alternative partners** | False | **Partner port:** | CSM 1277_1\SCALANCE interface [X1]\Port_1 [X1 P1] |
| **Medium:** | Copper | **Cable length:** | | | |
| **PROFINET interface [X1]\Advanced options\Port [X1 P1]\Port options\Activate** | | | | | |
| **Activate this port for use** | True | | | | |
| **PROFINET interface [X1]\Advanced options\Port [X1 P1]\Port options\Connection** | | | | | |
| **Transmission rate / duplex:** | Automatic | **Monitor** | False | **Enable autonegotiation** | True |
| **PROFINET interface [X1]\Advanced options\Port [X1 P1]\Port options\Boundaries** | | | | | |
| **End of detection of accessible devices** | False | **End of topology discovery** | False | **End of the sync domain** | False |
| **PROFINET interface [X1]\Advanced options\Port [X1 P1]\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 65 | | | | |
| **PROFINET interface [X1]\Web server access** | | | | | |
| **Enable Web server using this interface** | False | **The Web server must also be activated in the properties of the PLC.** | | | |
| **PROFINET interface [X1]\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 257 | **Hardware identifier** | 64 | | |
| **High speed counters (HSC)\HSC1\General\Enable** | | | | | |
| **Enable this high speed counter** | 0 | | | | |
| **High speed counters (HSC)\HSC1\General\Project information** | | | | | |
| **Name** | HSC_1 | **Comment** | | | |
| **High speed counters (HSC)\HSC1\Function** | | | | | |
| **Type of counting** | Count | **Operating phase** | Single phase | | |
| **Counting direction is specified by** | User program (internal direction control) | **Initial counting direction** | Count up | | |
| **Frequency measuring period** | -/-sec | | | | |
| **High speed counters (HSC)\HSC1\Reset to initial values\Reset values** | | | | | |
| **Initial counter value** | 0 | **Initial reference value** | 0 | | |
| **High speed counters (HSC)\HSC1\Reset to initial values\Reset options** | | | | | |
| **Use external reset input** | 0 | **Reset signal level** | -/- | | |
| **High speed counters (HSC)\HSC1\Event configuration** | | | | | |
| **Generate interrupt for counter value equals reference value event.** | 0 | **RidPrefixCvEqualsPv** | 49152 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Counter value equal to reference value0** | Counter value equal to reference value0 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC1\Event configuration** | | | | | |
| **Generate interrupt for external reset event.** | 0 | **RidPrefixExternalReset** | 49408 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **External reset0** | External reset0 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC1\Event configuration** | | | | | |
| **Generate interrupt for change of direction event.** | 0 | **RidPrefixDirectionChange** | 49280 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Change of direction0** | Change of direction0 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |

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| **High speed counters (HSC)\HSC1\Hardware inputs** | | | | | |
| **Clock generator input** | --- | **HSCInput0_Status** | 1 | **Direction input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC1\Hardware inputs** | | | | | |
| **Direction input** | --- | **HSCInput1_Status** | 1 | **Clock generator input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC1\Hardware inputs** | | | | | |
| **Reset input** | --- | **HSCInput2_Status** | 1 | **Clock generator input** | --- |
| **Direction input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC1\I/O addresses\Input addresses** | | | | | |
| **Start address** | 1000 | **End address** | 1003 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **High speed counters (HSC)\HSC1\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 259 | | | | |
| **High speed counters (HSC)\HSC2\General\Enable** | | | | | |
| **Enable this high speed counter** | 1 | | | | |
| **High speed counters (HSC)\HSC2\General\Project information** | | | | | |
| **Name** | HSC_2 | **Comment** | | | |
| **High speed counters (HSC)\HSC2\Function** | | | | | |
| **Type of counting** | Frequency | **Operating phase** | Single phase | | |
| **Counting direction is specified by** | User program (internal direction control) | **Initial counting direction** | Count up | | |
| **Frequency measuring period** | 1.0sec | | | | |
| **High speed counters (HSC)\HSC2\Reset to initial values\Reset values** | | | | | |
| **Initial counter value** | 0 | **Initial reference value** | 0 | | |
| **High speed counters (HSC)\HSC2\Reset to initial values\Reset options** | | | | | |
| **Use external reset input** | 0 | **Reset signal level** | -/- | | |
| **High speed counters (HSC)\HSC2\Event configuration** | | | | | |
| **Generate interrupt for counter value equals reference value event.** | 0 | **RidPrefixCvEqualsPv** | 49152 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Counter value equal to reference value1** | Counter value equal to reference value1 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC2\Event configuration** | | | | | |
| **Generate interrupt for external reset event.** | 0 | **RidPrefixExternalReset** | 49408 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **External reset1** | External reset1 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC2\Event configuration** | | | | | |
| **Generate interrupt for change of direction event.** | 0 | **RidPrefixDirectionChange** | 49280 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Change of direction1** | Change of direction1 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC2\Hardware inputs** | | | | | |
| **Clock generator input** | %I0.2 | **HSCInput0_Status** | 1 | **Direction input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC2\Hardware inputs** | | | | | |
| **Direction input** | --- | **HSCInput1_Status** | 1 | **Clock generator input** | %I0.2 |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |

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| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC2\Hardware inputs** | | | | | |
| **Reset input** | --- | **HSCInput2_Status** | 1 | **Clock generator input** | %I0.2 |
| **Direction input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC2\I/O addresses\Input addresses** | | | | | |
| **Start address** | 1004 | **End address** | 1007 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **High speed counters (HSC)\HSC2\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 260 | | | | |
| **High speed counters (HSC)\HSC3\General\Enable** | | | | | |
| **Enable this high speed counter** | 0 | | | | |
| **High speed counters (HSC)\HSC3\General\Project information** | | | | | |
| **Name** | HSC_3 | **Comment** | | | |
| **High speed counters (HSC)\HSC3\Function** | | | | | |
| **Type of counting** | Count | **Operating phase** | Single phase | | |
| **Counting direction is specified by** | User program (internal direction control) | **Initial counting direction** | Count up | | |
| **Frequency measuring period** | -/-sec | | | | |
| **High speed counters (HSC)\HSC3\Reset to initial values\Reset values** | | | | | |
| **Initial counter value** | 0 | **Initial reference value** | 0 | | |
| **High speed counters (HSC)\HSC3\Reset to initial values\Reset options** | | | | | |
| **Use external reset input** | 0 | **Reset signal level** | -/- | | |
| **High speed counters (HSC)\HSC3\Event configuration** | | | | | |
| **Generate interrupt for counter value equals reference value event.** | 0 | **RidPrefixCvEqualsPv** | 49152 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Counter value equal to reference value2** | Counter value equal to reference value2 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC3\Event configuration** | | | | | |
| **Generate interrupt for external reset event.** | 0 | **RidPrefixExternalReset** | 49408 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **External reset2** | External reset2 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC3\Event configuration** | | | | | |
| **Generate interrupt for change of direction event.** | 0 | **RidPrefixDirectionChange** | 49280 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Change of direction2** | Change of direction2 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC3\Hardware inputs** | | | | | |
| **Clock generator input** | --- | **HSCInput0_Status** | 1 | **Direction input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC3\Hardware inputs** | | | | | |
| **Direction input** | --- | **HSCInput1_Status** | 1 | **Clock generator input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC3\Hardware inputs** | | | | | |
| **Reset input** | --- | **HSCInput2_Status** | 1 | **Clock generator input** | --- |
| **Direction input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC3\I/O addresses\Input addresses** | | | | | |
| **Start address** | 1008 | **End address** | 1011 | **Organization block** | 0 |
| **Process image** | 0 | | | | |

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| **High speed counters (HSC)\HSC3\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 261 | | | | |
| **High speed counters (HSC)\HSC4\General\Enable** | | | | | |
| **Enable this high speed counter** | 0 | | | | |
| **High speed counters (HSC)\HSC4\General\Project information** | | | | | |
| **Name** | HSC_4 | **Comment** | | | |
| **High speed counters (HSC)\HSC4\Function** | | | | | |
| **Type of counting** | Count | **Operating phase** | Single phase | | |
| **Counting direction is specified by** | User program (internal direction control) | **Initial counting direction** | Count up | | |
| **Frequency measuring period** | -/-sec | | | | |
| **High speed counters (HSC)\HSC4\Reset to initial values\Reset values** | | | | | |
| **Initial counter value** | 0 | **Initial reference value** | 0 | | |
| **High speed counters (HSC)\HSC4\Reset to initial values\Reset options** | | | | | |
| **Use external reset input** | 0 | **Reset signal level** | -/- | | |
| **High speed counters (HSC)\HSC4\Event configuration** | | | | | |
| **Generate interrupt for counter value equals reference value event.** | 0 | **RidPrefixCvEqualsPv** | 49152 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Counter value equal to reference value3** | Counter value equal to reference value3 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC4\Event configuration** | | | | | |
| **Generate interrupt for external reset event.** | 0 | **RidPrefixExternalReset** | 49408 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **External reset3** | External reset3 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC4\Event configuration** | | | | | |
| **Generate interrupt for change of direction event.** | 0 | **RidPrefixDirectionChange** | 49280 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Change of direction3** | Change of direction3 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC4\Hardware inputs** | | | | | |
| **Clock generator input** | --- | **HSCInput0_Status** | 1 | **Direction input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC4\Hardware inputs** | | | | | |
| **Direction input** | --- | **HSCInput1_Status** | 1 | **Clock generator input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC4\Hardware inputs** | | | | | |
| **Reset input** | --- | **HSCInput2_Status** | 1 | **Clock generator input** | --- |
| **Direction input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC4\I/O addresses\Input addresses** | | | | | |
| **Start address** | 1012 | **End address** | 1015 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **High speed counters (HSC)\HSC4\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 262 | | | | |
| **High speed counters (HSC)\HSC5\General\Enable** | | | | | |
| **Enable this high speed counter** | 0 | | | | |
| **High speed counters (HSC)\HSC5\General\Project information** | | | | | |
| **Name** | HSC_5 | **Comment** | | | |
| **High speed counters (HSC)\HSC5\Function** | | | | | |
| **Type of counting** | Count | **Operating phase** | Single phase | | |
| **Counting direction is specified by** | User program (internal direction control) | **Initial counting direction** | Count up | | |
| **Frequency measuring period** | -/-sec | | | | |
| **High speed counters (HSC)\HSC5\Reset to initial values\Reset values** | | | | | |
| **Initial counter value** | 0 | **Initial reference value** | 0 | | |

| | | | | | |
|---|---|---|---|---|---|
| **High speed counters (HSC)\HSC5\Reset to initial values\Reset options** | | | | | |
| **Use external reset input** | 0 | **Reset signal level** | -/- | | |
| **High speed counters (HSC)\HSC5\Event configuration** | | | | | |
| **Generate interrupt for counter value equals reference value event.** | 0 | **RidPrefixCvEqualsPv** | 49152 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Counter value equal to reference value4** | Counter value equal to reference value4 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC5\Event configuration** | | | | | |
| **Generate interrupt for external reset event.** | 0 | **RidPrefixExternalReset** | 49408 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **External reset4** | External reset4 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC5\Event configuration** | | | | | |
| **Generate interrupt for change of direction event.** | 0 | **RidPrefixDirectionChange** | 49280 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Change of direction4** | Change of direction4 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC5\Hardware inputs** | | | | | |
| **Clock generator input** | --- | **HSCInput0_Status** | 1 | **Direction input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC5\Hardware inputs** | | | | | |
| **Direction input** | --- | **HSCInput1_Status** | 1 | **Clock generator input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC5\Hardware inputs** | | | | | |
| **Reset input** | --- | **HSCInput2_Status** | 1 | **Clock generator input** | --- |
| **Direction input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC5\I/O addresses\Input addresses** | | | | | |
| **Start address** | 1016 | **End address** | 1019 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **High speed counters (HSC)\HSC5\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 263 | | | | |
| **High speed counters (HSC)\HSC6\General\Enable** | | | | | |
| **Enable this high speed counter** | 0 | | | | |
| **High speed counters (HSC)\HSC6\General\Project information** | | | | | |
| **Name** | HSC_6 | **Comment** | | | |
| **High speed counters (HSC)\HSC6\Function** | | | | | |
| **Type of counting** | Count | **Operating phase** | Single phase | | |
| **Counting direction is specified by** | User program (internal direction control) | **Initial counting direction** | Count up | | |
| **Frequency measuring period** | -/-sec | | | | |
| **High speed counters (HSC)\HSC6\Reset to initial values\Reset values** | | | | | |
| **Initial counter value** | 0 | **Initial reference value** | 0 | | |
| **High speed counters (HSC)\HSC6\Reset to initial values\Reset options** | | | | | |
| **Use external reset input** | 0 | **Reset signal level** | -/- | | |
| **High speed counters (HSC)\HSC6\Event configuration** | | | | | |
| **Generate interrupt for counter value equals reference value event.** | 0 | **RidPrefixCvEqualsPv** | 49152 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Counter value equal to reference value5** | Counter value equal to reference value5 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC6\Event configuration** | | | | | |
| **Generate interrupt for external reset event.** | 0 | **RidPrefixExternalReset** | 49408 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **External reset5** | External reset5 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |

| | | | | | |
|---|---|---|---|---|---|
| **High speed counters (HSC)\HSC6\Event configuration** | | | | | |
| **Generate interrupt for change of direction event.** | 0 | **RidPrefixDirectionChange** | 49280 | **Event name:** | 0 |
| **Hardware interrupt:** | 0 | **Change of direction5** | Change of direction5 | **ValueNull** | 0 |
| **ValueNull** | 0 | **EventPriority** | 6 | | |
| **High speed counters (HSC)\HSC6\Hardware inputs** | | | | | |
| **Clock generator input** | --- | **HSCInput0_Status** | 1 | **Direction input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC6\Hardware inputs** | | | | | |
| **Direction input** | --- | **HSCInput1_Status** | 1 | **Clock generator input** | --- |
| **Reset input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC6\Hardware inputs** | | | | | |
| **Reset input** | --- | **HSCInput2_Status** | 1 | **Clock generator input** | --- |
| **Direction input** | --- | **Adapter name the user control should use for the address string** | HscChannel.AddressString | **Adapter name the user control should use for the SpeedAndSourceDisplay** | HscChannel.SpeedAndSourceDisplay |
| **Adapter name the user control should use for the Output Source** | HscChannel.OutputSource | | | | |
| **High speed counters (HSC)\HSC6\I/O addresses\Input addresses** | | | | | |
| **Start address** | 1020 | **End address** | 1023 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **High speed counters (HSC)\HSC6\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 264 | | | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\General\Enable** | | | | | |
| **Enable this pulse generator** | 1 | | | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\General\Project information** | | | | | |
| **Name** | Pulse_1 | **Comment** | | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\Parameter assignment\Pulse options** | | | | | |
| **Signal type** | PWM | **Time base:** | Milliseconds | **Pulse duration format** | S7 analog format |
| **Cycle time** | 40ms | **Initial pulse duration** | 14000S7 analog format | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\Hardware outputs** | | | | | |
| **Enable direction output** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\Hardware outputs** | | | | | |
| **Pulse output** | %Q4.0 | **PulseOutput1_Status** | 1 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\Hardware outputs** | | | | | |
| **PulseOutput2_Status** | 1 | **Pulse output** | %Q4.0 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\I/O addresses\Output addresses** | | | | | |
| **Start address** | 1000 | **End address** | 1001 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO1/PWM1\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 265 | | | | |
| **Pulse generators (PTO/PWM)\PTO2/PWM2\General\Enable** | | | | | |
| **Enable this pulse generator** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO2/PWM2\General\Project information** | | | | | |
| **Name** | Pulse_2 | **Comment** | | | |
| **Pulse generators (PTO/PWM)\PTO2/PWM2\Parameter assignment\Pulse options** | | | | | |
| **Signal type** | PWM | **Time base:** | Milliseconds | **Pulse duration format** | Hundredths |
| **Cycle time** | 100ms | **Initial pulse duration** | 50Hundredths | | |
| **Pulse generators (PTO/PWM)\PTO2/PWM2\Hardware outputs** | | | | | |
| **Enable direction output** | 0 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Pulse generators (PTO/PWM)\PTO2/PWM2\Hardware outputs** | | | | | |
| **Pulse output** | %Q4.2 | **PulseOutput1_Status** | 1 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO2/PWM2\Hardware outputs** | | | | | |
| **PulseOutput2_Status** | 1 | **Pulse output** | %Q4.2 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO2/PWM2\I/O addresses\Output addresses** | | | | | |
| **Start address** | 1002 | **End address** | 1003 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO2/PWM2\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 266 | | | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\General\Enable** | | | | | |
| **Enable this pulse generator** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\General\Project information** | | | | | |
| **Name** | Pulse_3 | **Comment** | | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\Parameter assignment\Pulse options** | | | | | |
| **Signal type** | PWM | **Time base:** | Milliseconds | **Pulse duration format** | Hundredths |
| **Cycle time** | 100ms | **Initial pulse duration** | 50Hundredths | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\Hardware outputs** | | | | | |
| **Enable direction output** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\Hardware outputs** | | | | | |
| **Pulse output** | %Q4.0 | **PulseOutput1_Status** | 1 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\Hardware outputs** | | | | | |
| **PulseOutput2_Status** | 1 | **Pulse output** | %Q4.0 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\I/O addresses\Output addresses** | | | | | |
| **Start address** | 1004 | **End address** | 1005 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO3/PWM3\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 267 | | | | |
| **Pulse generators (PTO/PWM)\PTO4/PWM4\General\Enable** | | | | | |
| **Enable this pulse generator** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO4/PWM4\General\Project information** | | | | | |
| **Name** | Pulse_4 | **Comment** | | | |
| **Pulse generators (PTO/PWM)\PTO4/PWM4\Parameter assignment\Pulse options** | | | | | |
| **Signal type** | PWM | **Time base:** | Milliseconds | **Pulse duration format** | Hundredths |
| **Cycle time** | 100ms | **Initial pulse duration** | 50Hundredths | | |
| **Pulse generators (PTO/PWM)\PTO4/PWM4\Hardware outputs** | | | | | |
| **Enable direction output** | 0 | | | | |
| **Pulse generators (PTO/PWM)\PTO4/PWM4\Hardware outputs** | | | | | |
| **Pulse output** | %Q4.2 | **PulseOutput1_Status** | 1 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO4/PWM4\Hardware outputs** | | | | | |
| **PulseOutput2_Status** | 1 | **Pulse output** | %Q4.2 | **Adapter name the user control should use for the address string** | PulseChannel.AddressString |
| **Adapter name the user control should use for the SpeedAndSourceDisplay** | PulseChannel.SpeedAndSourceDisplay | **Adapter name the user control should use for the Output Source** | PulseChannel.OutputSource | | |
| **Pulse generators (PTO/PWM)\PTO4/PWM4\I/O addresses\Output addresses** | | | | | |
| **Start address** | 1006 | **End address** | 1007 | **Organization block** | 0 |
| **Process image** | 0 | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Pulse generators (PTO/PWM)\PTO4/PWM4\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 268 | | | | |
| **Startup** | | | | | |
| **Startup after POWER ON** | Warm restart - mode before POWER OFF | **Comparison preset to actual configuration** | Startup CPU even if mismatch | **Configuration time for central and distributed I/O** | 60000ms |
| **OBs should be interruptible** | 1 | | | | |
| **Cycle** | | | | | |
| **Cycle monitoring time** | 150ms | | | **Enable minimum cycle time for cyclic OBs** | 0 |
| **Minimum cycle time** | 1ms | | | | |
| **Communication load** | | | | | |
| **Cycle load due to communication** | 20% | | | | |
| **System and clock memory\System memory bits** | | | | | |
| **Enable the use of system memory byte** | 0 | **Address of system memory byte (MBx)** | 1 | **First cycle** | |
| **Diagnostic status changed** | | **Always 1 (high)** | | **Always 0 (low)** | |
| **System and clock memory\Clock memory bits** | | | | | |
| **Enable the use of clock memory byte** | 0 | **Address of clock memory byte (MBx)** | 0 | **10 Hz clock** | |
| **5 Hz clock** | | **2.5 Hz clock** | | **2 Hz clock** | |
| **1.25 Hz clock** | | **1 Hz clock** | | **0.625 Hz clock** | |
| **0.5 Hz clock** | | | | | |
| **Web server\General** | | | | | |
| **Activate Web server on all modules of this device** | False | **Permit access only with HTTPS** | True | | |
| **Web server\Automatic update** | | | | | |
| **Enable automatic update** | True | **Update interval** | 0s | | |

| **Web server\User interface languages** | |
|---|---|
| **Assign project language** | **User interface languages** |
| English (United States) | German |
| English (United States) | English |
| English (United States) | French |
| English (United States) | Spanish |
| English (United States) | Italian |
| English (United States) | Chinese (simplified) |

| **Web server\User management** | |
|---|---|
| **User name** | **User rights** |
| Everybody | |

| **Web server\User defined web pages** | | | | | |
|---|---|---|---|---|---|
| **Application name** | **HTML source path** | **Default HTML page** | **Files with dynamic content** | **Web DB number** | **Fragment DB number** |
| | | index.htm | .htm;.html | 333 | 334 |

| **Web server\Overview of interfaces** | | |
|---|---|---|
| **Device** | **Interface** | **Enabled web server access** |
| PLC_1 | PROFINET interface_1 | False |

| **User interface languages** | |
|---|---|
| **Assign project language** | **User interface languages** |
| English (United States) | German |
| English (United States) | English |
| English (United States) | French |
| English (United States) | Spanish |
| English (United States) | Italian |
| English (United States) | Chinese (simplified) |

| | | | | | |
|---|---|---|---|---|---|
| **Time of day\Local time** | | | | | |
| **Time zone** | (UTC +01:00) Berlin, Bern, Brussels, Rome, Stockholm, Vienna | | | | |
| **Time of day\Daylight saving time** | | | | | |
| **Activate daylight saving time** | 1 | **Difference between standard and daylight saving time** | 60mins | | |
| **Time of day\Daylight saving time\Start of daylight saving time** | | | | | |
| **Starting week of the month:** | Last | | Sunday | **of** | March |
| **at** | 01:00 a.m. | | | | |
| **Time of day\Daylight saving time\Start of standard time** | | | | | |
| | Last | | Sunday | **of** | October |
| **at** | 02:00 a.m. | | | | |
| **Protection** | | | | | |
| **Level of protection** | No protection | | | | |
| **Protection\Connection mechanisms** | | | | | |
| **Permit access with PUT/GET communication from remote partner (PLC, HMI, OPC, ...)** | False | | | | |
| **Configuration control\Configuration control for central configuration** | | | | | |
| **Allow to reconfigure the device via the user program** | 0 | | | | |
| **Anchor (AddressesOverviewMenu)** | | | | | |
| **Inputs** | True | **Outputs** | True | **Address gaps** | False |
| **Slot** | True | | | | |

**Anchor (AddressesOverviewMenu)\Overview of addresses**

| Type | Addr. from | Addr. to | Module | PIP | DP | PN | Rack | Slot |
|---|---|---|---|---|---|---|---|---|
| I | 0 | 0 | DI 8/DQ 6_1 | None | - | - | 0 | 1 1 |
| I | 64 | 67 | AI 2_1 | None | - | - | 0 | 1 2 |
| I | 1000 | 1003 | HSC_1 | None | - | - | 0 | 1 16 |
| I | 1004 | 1007 | HSC_2 | None | - | - | 0 | 1 17 |
| I | 1008 | 1011 | HSC_3 | None | - | - | 0 | 1 18 |
| I | 1012 | 1015 | HSC_4 | None | - | - | 0 | 1 19 |
| I | 1016 | 1019 | HSC_5 | None | - | - | 0 | 1 20 |
| I | 1020 | 1023 | HSC_6 | None | - | - | 0 | 1 21 |
| O | 0 | 0 | DI 8/DQ 6_1 | None | - | - | 0 | 1 1 |
| O | 1000 | 1001 | Pulse_1 | None | - | - | 0 | 1 32 |
| O | 1002 | 1003 | Pulse_2 | None | - | - | 0 | 1 33 |
| O | 1004 | 1005 | Pulse_3 | None | - | - | 0 | 1 34 |
| O | 1006 | 1007 | Pulse_4 | None | - | - | 0 | 1 35 |
| O | 4 | 4 | DQ 4x24VDC_1 | None | - | - | 0 | 1 3 |
| O | 96 | 99 | AQ 2x14BIT_1 | None | - | - | 0 | 2 |

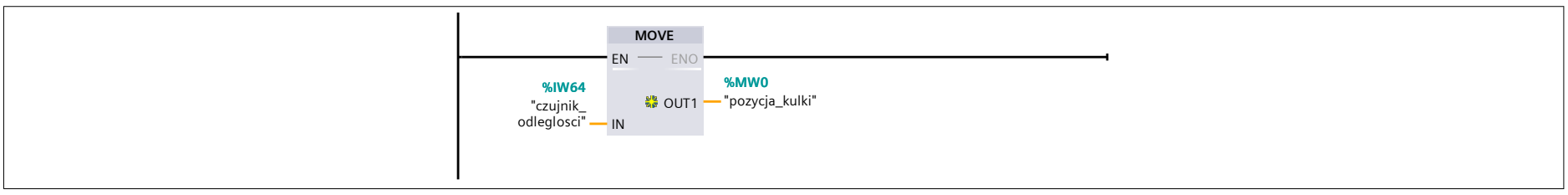
# PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

## Main [OB1]

| Main Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | Main | **Number** | 1 | **Type** | OB | **Language** | LAD |
| **Numbering** | automatic | | | | | | |
| **Information** | | | | | | | |
| **Title** | "Main Program Sweep (Cycle)" | **Author** | | **Comment** | | **Family** | |
| **Version** | 0.1 | **User-defined ID** | | | | | |

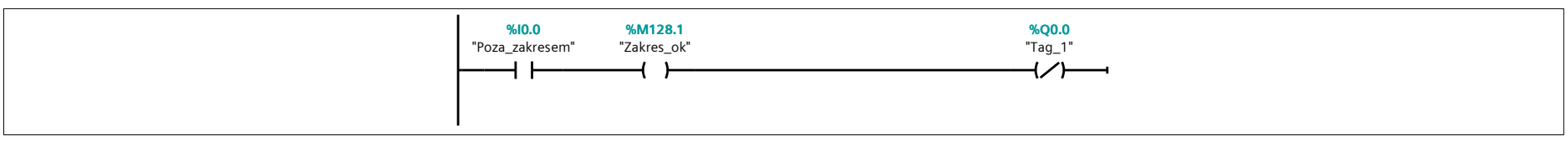
| Name | Data type | Default value | Comment |
|---|---|---|---|
| ▼ Input | | | |
| Initial_Call | Bool | | Initial call of this OB |
| Remanence | Bool | | =True, if remanent data are available |
| Temp | | | |
| Constant | | | |

### Network 1:



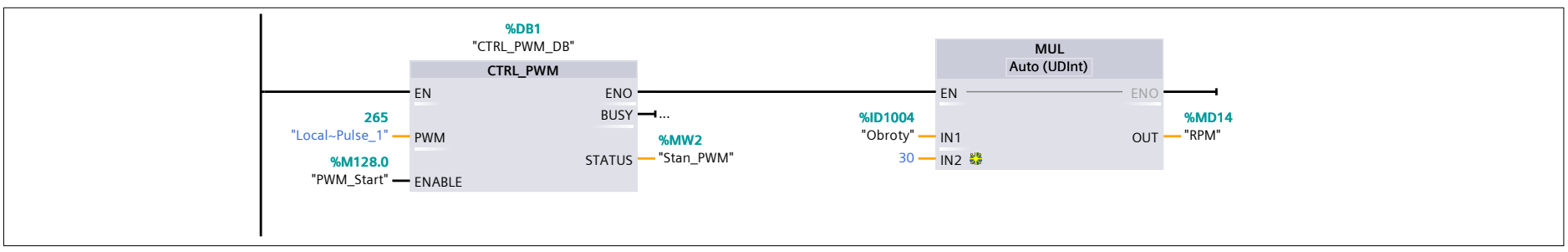

| Symbol | Address | Type | Comment |
|---|---|---|---|
| "czujnik_odleglosci" | %IW64 | Word | |
| "pozycja_kulki" | %MW0 | Word | |

### Network 2:




| Symbol | Address | Type | Comment |
|---|---|---|---|
| "Poza_zakresem" | %I0.0 | Bool | |
| "Tag_1" | %Q0.0 | Bool | |
| "Zakres_ok" | %M128.1 | Bool | |

### Network 3:




| Symbol | Address | Type | Comment |
|---|---|---|---|
| "Local~Pulse_1" | 265 | HW_PWM | |
| "Obroty" | %ID1004 | DWord | |
| "PWM_Start" | %M128.0 | Bool | |
| "RPM" | %MD14 | DWord | |
| "Stan_PWM" | %MW2 | Word | |

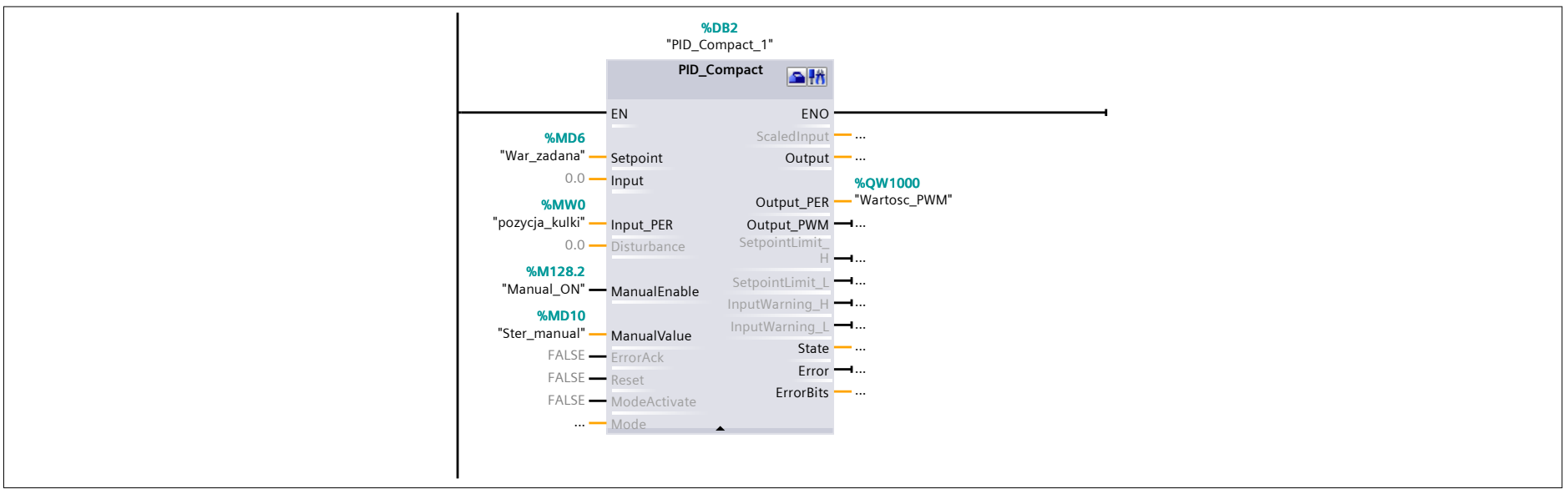
# PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks

## Cyclic interrupt [OB30]

| Cyclic interrupt Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | Cyclic interrupt | **Number** | 30 | **Type** | OB | **Language** | LAD |
| **Numbering** | automatic | | | | | | |
| **Information** | | | | | | | |
| **Title** | | **Author** | | **Comment** | | **Family** | |
| **Version** | 0.1 | **User-defined ID** | | | | | |

| Name | Data type | Default value | Comment |
|---|---|---|---|
| ▼ Input | | | |
| Initial_Call | Bool | | Initial call of this OB |
| Event_Count | Int | | Events discarded |
| Temp | | | |
| Constant | | | |

**Network 1:**




| Symbol | Address | Type | Comment |
|---|---|---|---|
| "Manual_ON" | %M128.2 | Bool | |
| "pozycja_kulki" | %MW0 | Word | |
| "Ster_manual" | %MD10 | Real | |
| "War_zadana" | %MD6 | Real | |
| "Wartosc_PWM" | %QW1000 | Word | |

# PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks / System blocks / Program resources

## CTRL_PWM_DB [DB1]

| CTRL_PWM_DB Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | CTRL_PWM_DB | **Number** | 1 | **Type** | DB | **Language** | DB |
| **Numbering** | automatic | | | | | | |
| **Information** | | | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | | **Family** | PULSE |
| **Version** | 1.0 | **User-defined ID** | CTRL_PWM | | | | |

| Name | Data type | Start value | Retain | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|---|
| ▼ Input | | | | | | | |
| PWM | HW_PWM | W#16#0 | False | True | True | False | |
| ENABLE | Bool | False | False | True | True | False | |
| ▼ Output | | | | | | | |
| BUSY | Bool | False | False | True | True | False | |
| STATUS | Word | W#16#0000 | False | True | True | False | |
| InOut | | | | | | | |
| Static | | | | | | | |

# PLC_1 [CPU 1212C AC/DC/Rly] / Program blocks / System blocks / Program resources

## PID_Compact [FB1130]

| PID_Compact Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_Compact | **Number** | 1130 | **Type** | FB | **Language** | SCL |
| **Numbering** | automatic | | | | | | |
| **Information** | | | | | | | |
| **Title** | Compact PID_Controller with self-tuning | **Author** | SIMATIC | **Comment** | | **Family** | COMPPID |
| **Version** | 2.2 | **User-defined ID** | PID_Cmpt | | | | |

| Name | Data type | Default value | Retain | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|---|
| ▼ Input | | | | | | | |
| Setpoint | Real | 0.0 | Non-retain | True | True | False | controller setpoint input |
| Input | Real | 0.0 | Non-retain | True | True | False | actual value of process as RE-AL |
| Input_PER | Int | 0 | Non-retain | True | True | False | actual value of process from periphery |
| Disturbance | Real | 0.0 | Non-retain | True | True | False | disturbance intrusion |
| ManualEnable | Bool | FALSE | Non-retain | True | True | False | activate manual input to overwrite output |
| ManualValue | Real | 0.0 | Non-retain | True | True | False | input for manual value |
| ErrorAck | Bool | FALSE | Non-retain | True | True | False | reset error message |
| Reset | Bool | FALSE | Non-retain | True | True | False | reset the controller |
| ModeActivate | Bool | FALSE | Non-retain | True | True | False | enable mode |
| ▼ Output | | | | | | | |
| ScaledInput | Real | 0.0 | Non-retain | True | True | False | scaled peripheral input value from process |
| Output | Real | 0.0 | Non-retain | True | True | False | output value in REAL format |
| Output_PER | Int | 0 | Non-retain | True | True | False | output value in peripheral format |
| Output_PWM | Bool | FALSE | Non-retain | True | True | False | pulse width modulated output value |
| SetpointLimit_H | Bool | FALSE | Non-retain | True | True | False | setpoint is limited at highest level |
| SetpointLimit_L | Bool | FALSE | Non-retain | True | True | False | setpoint is limited at lowest level |
| InputWarning_H | Bool | FALSE | Non-retain | True | True | False | input value exceeded high warning level |
| InputWarning_L | Bool | FALSE | Non-retain | True | True | False | input value exceeded low warning level |
| State | Int | 0 | Non-retain | True | True | False | status of controller (0=INACTIVE,1=SUT,2=TIR,3=AUTOMATIC,4=HAND) |
| Error | Bool | FALSE | Non-retain | True | True | False | error flag |
| ErrorBits | DWord | DW#16#00000000 | Retain | True | True | False | error message |
| ▼ InOut | | | | | | | |
| Mode | Int | 4 | Retain | True | True | False | mode selection |
| ▼ Static | | | | | | | |
| InternalDiagnostic | DWord | 0 | Non-retain | False | False | False | internal diagnostic and version handling |
| InternalVersion | DWord | DW#16#02020001 | Non-retain | True | True | False | version of controller |
| InternalRTVersion | DWord | 0 | Non-retain | False | False | False | version of runtime |
| IntegralResetMode | Int | 1 | Non-retain | True | True | True | 0 smooth, 1 clear, 2 keep, 3 overwrite initial output |
| OverwriteInitialOutputValue | Real | 0.0 | Non-retain | True | True | False | initialisation output value for override control |
| RunModeByStartup | Bool | TRUE | Non-retain | True | True | True | go to last active state before reset or power cycle |
| LoadBackUp | Bool | FALSE | Non-retain | True | True | False | restore last parameter set |
| SetSubstituteOutput | Bool | TRUE | Non-retain | True | True | True | set output to last valid output value in Replacement Output state |
| PhysicalUnit | Int | 0 | Non-retain | True | True | True | unit of input and setpoint |
| PhysicalQuantity | Int | 0 | Non-retain | True | True | True | physical entity of input and setpoint |
| ActivateRecoverMode | Bool | TRUE | Non-retain | True | True | True | FALSE - go to inactive by error, TRUE - activate error treatment |
| Warning | DWord | DW#16#00000000 | Retain | True | True | False | warning message |
| WarningInternal | DWord | DW#16#00000000 | Retain | True | True | False | warning message |
| Progress | Real | 0.0 | Non-retain | True | True | False | current progress in percent |
| CurrentSetpoint | Real | 0.0 | Non-retain | True | True | False | current active setpoint value |
| CancelTuningLevel | Real | 10.0 | Non-retain | True | True | True | cancel level for setpoint change during tuning |
| SubstituteOutput | Real | 0.0 | Non-retain | True | True | True | substitute output value in case of error |
| ▼ Config | PID_Compact-Config | | Non-retain | True | True | False | configuration data set |
| InputPerOn | Bool | TRUE | Non-retain | True | True | True | activate peripheral input |
| InvertControl | Bool | FALSE | Non-retain | True | True | True | invert control direction |
| InputUpperLimit | Real | 120.0 | Non-retain | True | True | True | input (Process Value) upper limit |

| Name | Data type | Default value | Retain | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|---|
| InputLowerLimit | Real | 0.0 | Non-retain | True | True | True | input (Process Value) lower limit |
| InputUpperWarning | Real | 3.402822e+38 | Non-retain | True | True | True | input (Process Value) upper level warning |
| InputLowerWarning | Real | -3.402822e+38 | Non-retain | True | True | True | input (Process Value) lower level warning |
| OutputUpperLimit | Real | 100.0 | Non-retain | True | True | True | output value upper limit |
| OutputLowerLimit | Real | 0.0 | Non-retain | True | True | True | output value lower limit |
| SetpointUpperLimit | Real | 3.402822e+38 | Non-retain | True | True | True | setpoint upper limit value |
| SetpointLowerLimit | Real | -3.402822e+38 | Non-retain | True | True | True | setpoint lower limit value |
| MinimumOnTime | Real | 0.0 | Non-retain | True | True | True | PWM minimum on time |
| MinimumOffTime | Real | 0.0 | Non-retain | True | True | True | PWM minimum off time |
| ▼ InputScaling | PID_Scaling | | Non-retain | True | True | False | input scaling |
| UpperPointIn | Real | 27648.0 | Non-retain | True | True | True | high value (input range of scaling) |
| LowerPointIn | Real | 0.0 | Non-retain | True | True | True | low value (input range of scaling) |
| UpperPointOut | Real | 100.0 | Non-retain | True | True | True | high value (output range of scaling) |
| LowerPointOut | Real | 0.0 | Non-retain | True | True | True | low value (output range of scaling) |
| ▼ CycleTime | PID_CycleTime | | Non-retain | True | True | False | data set for cycle time estimation |
| StartEstimation | Bool | TRUE | Non-retain | True | True | False | start automatic estimation of call cycle time |
| EnEstimation | Bool | TRUE | Non-retain | True | True | True | enable estimation of call cycle time |
| EnMonitoring | Bool | TRUE | Non-retain | True | True | True | enable monitoring of call cycle time |
| Value | Real | 0.1 | Non-retain | True | True | True | call cycle time |
| ▼ CtrlParamsBackUp | PID_Compact-ControlParams | | Non-retain | True | True | False | saved parameter set |
| Gain | Real | 1.0 | Non-retain | True | True | True | proportional gain |
| Ti | Real | 20.0 | Non-retain | True | True | True | reset time |
| Td | Real | 0.0 | Non-retain | True | True | True | derivative time |
| TdFiltRatio | Real | 0.2 | Non-retain | True | True | True | filter coefficient for derivative part |
| PWeighting | Real | 1.0 | Non-retain | True | True | True | weigthing of proportional part in direct, feedback path |
| DWeighting | Real | 1.0 | Non-retain | True | True | True | weigthing of derivative part in direct, feedback path |
| Cycle | Real | 1.0 | Non-retain | True | True | True | PID Controller cycle time |
| ▼ PIDSelfTune | PID_Compact-SelfTune | | Non-retain | True | True | False | data set for self tuning |
| ▼ SUT | PID_Compact_SUT | | Non-retain | True | True | False | data set for start up tuning |
| CalculateParams | Bool | FALSE | Non-retain | True | True | False | recalculate control parameters with parameters of start-up tuning |
| TuneRule | Int | 0 | Non-retain | True | True | True | tuning rule for SUT (0-CHR PID,1-CHR PI) |
| State | Int | 0 | Non-retain | True | True | False | current phase of start up tuning |
| ▼ TIR | PID_Compact_TIR | | Non-retain | True | True | False | data set for tuning in run |
| RunIn | Bool | FALSE | Non-retain | True | True | False | activate run in setpoint without controling |
| CalculateParams | Bool | FALSE | Non-retain | True | True | False | recalculate control parameters with parameters of tuning in run |
| TuneRule | Int | 0 | Non-retain | True | True | True | tuning rule for TIR (0-2-A PID auto,fast,slow;3-ZN PID;4-ZN PI;5-ZN P) |
| State | Int | 0 | Non-retain | True | True | False | current phase of tuning in run |
| ▼ PIDCtrl | PID_Compact-Control | | Non-retain | True | True | False | data for controling part |
| IntegralSum | Real | 0.0 | Non-retain | True | True | False | signal of integral part |
| ▼ Retain | PID_CompactRetain | | Retain | True | True | False | retain data |
| ▼ CtrlParams | PID_Compact-ControlParams | | Retain | True | True | False | actual parameter set |
| Gain | Real | 1.0 | Retain | True | True | True | proportional gain |
| Ti | Real | 20.0 | Retain | True | True | True | reset time |
| Td | Real | 0.0 | Retain | True | True | True | derivative time |
| TdFiltRatio | Real | 0.2 | Retain | True | True | True | filter coefficient for derivative part |
| PWeighting | Real | 1.0 | Retain | True | True | True | weigthing of proportional part in direct, feedback path |
| DWeighting | Real | 1.0 | Retain | True | True | True | weigthing of derivative part in direct, feedback path |
| Cycle | Real | 1.0 | Retain | True | True | True | PID Controller cycle time |

# PLC_1 [CPU 1212C AC/DC/Rly] / Technology objects

## PID_Compact_1 [DB2]

| PID_Compact_1 Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_Compact_1 | **Number** | 2 | **Type** | DB | **Language** | DB |
| **Numbering** | automatic | | | | | | |
| **Information** | | | | | | | |
| **Title** | | **Author** | SIMATIC | **Comment** | | **Family** | COMPPID |
| **Version** | 2.2 | **User-defined ID** | PID_Cmpt | | | | |

| Name | Data type | Start value | Retain | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|---|
| ▼ Input | | | | | | | |
| Setpoint | Real | 0.0 | False | True | True | False | controller setpoint input |
| Input | Real | 0.0 | False | True | True | False | actual value of process as REAL |
| Input_PER | Int | 0 | False | True | True | False | actual value of process from periphery |
| Disturbance | Real | 0.0 | False | True | True | False | disturbance intrusion |
| ManualEnable | Bool | FALSE | False | True | True | False | activate manual input to overwrite output |
| ManualValue | Real | 0.0 | False | True | True | False | input for manual value |
| ErrorAck | Bool | FALSE | False | True | True | False | reset error message |
| Reset | Bool | FALSE | False | True | True | False | reset the controller |
| ModeActivate | Bool | FALSE | False | True | True | False | enable mode |
| ▼ Output | | | | | | | |
| ScaledInput | Real | 0.0 | False | True | True | False | scaled peripheral input value from process |
| Output | Real | 0.0 | False | True | True | False | output value in REAL format |
| Output_PER | Int | 0 | False | True | True | False | output value in peripheral format |
| Output_PWM | Bool | FALSE | False | True | True | False | pulse width modulated output value |
| SetpointLimit_H | Bool | FALSE | False | True | True | False | setpoint is limited at highest level |
| SetpointLimit_L | Bool | FALSE | False | True | True | False | setpoint is limited at lowest level |
| InputWarning_H | Bool | FALSE | False | True | True | False | input value exceeded high warning level |
| InputWarning_L | Bool | FALSE | False | True | True | False | input value exceeded low warning level |
| State | Int | 0 | False | True | True | False | status of controller (0=INACTIVE, 1=SUT,2=TIR,3=AUTOMATIC,4=HAND) |
| Error | Bool | FALSE | False | True | True | False | error flag |
| ErrorBits | DWord | DW#16#00000000 | True | True | True | False | error message |
| ▼ InOut | | | | | | | |
| Mode | Int | 3 | True | True | True | False | mode selection |
| ▼ Static | | | | | | | |
| InternalDiagnostic | DWord | 0 | False | False | False | False | internal diagnostic and version handling |
| InternalVersion | DWord | DW#16#02020001 | False | True | True | False | version of controller |
| InternalRTVersion | DWord | 0 | False | False | False | False | version of runtime |
| IntegralResetMode | Int | 1 | False | True | True | True | 0 smooth, 1 clear, 2 keep, 3 overwrite initial output |
| OverwriteInitialOutputValue | Real | 0.0 | False | True | True | False | initialisation output value for override control |
| RunModeByStartup | Bool | TRUE | False | True | True | True | go to last active state before reset or power cycle |
| LoadBackUp | Bool | FALSE | False | True | True | False | restore last parameter set |
| SetSubstituteOutput | Bool | TRUE | False | True | True | True | set output to last valid output value in Replacement Output state |
| PhysicalUnit | Int | 0 | False | True | True | True | unit of input and setpoint |
| PhysicalQuantity | Int | 0 | False | True | True | True | physical entity of input and setpoint |
| ActivateRecoverMode | Bool | TRUE | False | True | True | True | FALSE - go to inactive by error, TRUE - activate error treatment |
| Warning | DWord | DW#16#00000000 | True | True | True | False | warning message |
| WarningInternal | DWord | DW#16#00000000 | True | True | True | False | warning message |
| Progress | Real | 0.0 | False | True | True | False | current progress in percent |
| CurrentSetpoint | Real | 0.0 | False | True | True | False | current active setpoint value |
| CancelTuningLevel | Real | 10.0 | False | True | True | True | cancel level for setpoint change during tuning |
| SubstituteOutput | Real | 40.0 | False | True | True | True | substitute output value in case of error |
| ▼ Config | PID_Compact-Config | | False | True | True | False | configuration data set |
| InputPerOn | Bool | TRUE | False | True | True | True | activate peripheral input |
| InvertControl | Bool | FALSE | False | True | True | True | invert control direction |
| InputUpperLimit | Real | 100.0 | False | True | True | True | input (Process Value) upper limit |
| InputLowerLimit | Real | 0.0 | False | True | True | True | input (Process Value) lower limit |
| InputUpperWarning | Real | 3.402822e+38 | False | True | True | True | input (Process Value) upper level warning |
| InputLowerWarning | Real | -3.402822e+38 | False | True | True | True | input (Process Value) lower level warning |
| OutputUpperLimit | Real | 70.0 | False | True | True | True | output value upper limit |
| OutputLowerLimit | Real | 40.0 | False | True | True | True | output value lower limit |
| SetpointUpperLimit | Real | 3.402822e+38 | False | True | True | True | setpoint upper limit value |
| SetpointLowerLimit | Real | -3.402822e+38 | False | True | True | True | setpoint lower limit value |
| MinimumOnTime | Real | 0.0 | False | True | True | True | PWM minimum on time |
| MinimumOffTime | Real | 0.0 | False | True | True | True | PWM minimum off time |

| Name | Data type | Start value | Retain | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|---|
| InputScaling | PID_Scaling | | False | True | True | False | input scaling |
| UpperPointIn | Real | 27611.0 | False | True | True | True | high value (input range of scaling) |
| LowerPointIn | Real | 0.0 | False | True | True | True | low value (input range of scaling) |
| UpperPointOut | Real | 100.0 | False | True | True | True | high value (output range of scaling) |
| LowerPointOut | Real | 0.0 | False | True | True | True | low value (output range of scaling) |
| CycleTime | PID_CycleTime | | False | True | True | False | data set for cycle time estimation |
| StartEstimation | Bool | TRUE | False | True | True | False | start automatic estimation of call cycle time |
| EnEstimation | Bool | TRUE | False | True | True | True | enable estimation of call cycle time |
| EnMonitoring | Bool | TRUE | False | True | True | True | enable monitoring of call cycle time |
| Value | Real | 0.1 | False | True | True | True | call cycle time |
| CtrlParamsBackUp | PID_Compact-ControlParams | | False | True | True | False | saved parameter set |
| Gain | Real | 1.0 | False | True | True | True | proportional gain |
| Ti | Real | 20.0 | False | True | True | True | reset time |
| Td | Real | 0.0 | False | True | True | True | derivative time |
| TdFiltRatio | Real | 0.2 | False | True | True | True | filter coefficient for derivative part |
| PWeighting | Real | 1.0 | False | True | True | True | weigthing of proportional part in direct, feedback path |
| DWeighting | Real | 1.0 | False | True | True | True | weigthing of derivative part in direct, feedback path |
| Cycle | Real | 1.0 | False | True | True | True | PID Controller cycle time |
| PIDSelfTune | PID_Compact-SelfTune | | False | True | True | False | data set for self tuning |
| SUT | PID_Compact_SUT | | False | True | True | False | data set for start up tuning |
| CalculateParams | Bool | FALSE | False | True | True | False | recalculate control parameters with parameters of startup tuning |
| TuneRule | Int | 0 | False | True | True | True | tuning rule for SUT (0-CHR PID,1-CHR PI) |
| State | Int | 0 | False | True | True | False | current phase of start up tuning |
| TIR | PID_Compact_TIR | | False | True | True | False | data set for tuning in run |
| RunIn | Bool | FALSE | False | True | True | False | activate run in setpoint without controling |
| CalculateParams | Bool | FALSE | False | True | True | False | recalculate control parameters with parameters of tuning in run |
| TuneRule | Int | 0 | False | True | True | True | tuning rule for TIR (0-2-A PID auto,fast,slow;3-ZN PID;4-ZN PI;5-ZN P) |
| State | Int | 0 | False | True | True | False | current phase of tuning in run |
| PIDCtrl | PID_Compact-Control | | False | True | True | False | data for controling part |
| IntegralSum | Real | 0.0 | False | True | True | False | signal of integral part |
| Retain | PID_CompactRetain | | True | True | True | False | retain data |
| CtrlParams | PID_Compact-ControlParams | | True | True | True | False | actual parameter set |
| Gain | Real | 2.910965E-1 | True | True | True | True | proportional gain |
| Ti | Real | 2.812781 | True | True | True | True | reset time |
| Td | Real | 7.136555E-1 | True | True | True | True | derivative time |
| TdFiltRatio | Real | 0.1 | True | True | True | True | filter coefficient for derivative part |
| PWeighting | Real | 2.529754E-1 | True | True | True | True | weigthing of proportional part in direct, feedback path |
| DWeighting | Real | 0.0 | True | True | True | True | weigthing of derivative part in direct, feedback path |
| Cycle | Real | 9.999911E-2 | True | True | True | True | PID Controller cycle time |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC tags / Default tag table [46]

## PLC tags

| PLC tags | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Name | Data type | Address | Retain | Visible in HMI | Accessible from HMI | Comment |
| | czujnik_odleglosci | Word | %IW64 | False | True | True | |
| | pozycja_kulki | Word | %MW0 | False | True | True | |
| | PWM_Start | Bool | %M128.0 | False | True | True | |
| | Zakres_ok | Bool | %M128.1 | False | True | True | |
| | Poza_zakresem | Bool | %I0.0 | False | True | True | |
| | Stan_PWM | Word | %MW2 | False | True | True | |
| | Zadany_PWM | Word | %MW4 | False | True | True | |
| | Wartosc_PWM | Word | %QW1000 | False | True | True | |
| | Manual_ON | Bool | %M128.2 | False | True | True | |
| | War_zadana | Real | %MD6 | False | True | True | |
| | Ster_manual | Real | %MD10 | False | True | True | |
| | Obroty | DWord | %ID1004 | False | True | True | |
| | RPM | DWord | %MD14 | False | True | True | |
| | blad_poz | Real | %MD20 | False | True | True | |
| | Tag_1 | Bool | %Q0.0 | False | True | True | |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC tags / Default tag table [46]

## User constants

| User constants | | | | |
|---|---|---|---|---|
| | Name | Data type | Value | Comment |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_CompactConfig

| PID_CompactConfig Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_CompactConfig | **Number** | 1134 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | configuration data set | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| InputPerOn | Bool | TRUE | True | True | True | activate peripheral input |
| InvertControl | Bool | FALSE | True | True | True | invert control direction |
| InputUpperLimit | Real | 120.0 | True | True | True | input (Process Value) upper limit |
| InputLowerLimit | Real | 0.0 | True | True | True | input (Process Value) lower limit |
| InputUpperWarning | Real | 3.402822e+38 | True | True | True | input (Process Value) upper level warning |
| InputLowerWarning | Real | -3.402822e+38 | True | True | True | input (Process Value) lower level warning |
| OutputUpperLimit | Real | 100.0 | True | True | True | output value upper limit |
| OutputLowerLimit | Real | 0.0 | True | True | True | output value lower limit |
| SetpointUpperLimit | Real | 3.402822e+38 | True | True | True | setpoint upper limit value |
| SetpointLowerLimit | Real | -3.402822e+38 | True | True | True | setpoint lower limit value |
| MinimumOnTime | Real | 0.0 | True | True | True | PWM minimum on time |
| MinimumOffTime | Real | 0.0 | True | True | True | PWM minimum off time |
| ▼ InputScaling | PID_Scaling | | True | True | False | input scaling |
| UpperPointIn | Real | 27648.0 | True | True | True | high value (input range of scaling) |
| LowerPointIn | Real | 0.0 | True | True | True | low value (input range of scaling) |
| UpperPointOut | Real | 100.0 | True | True | True | high value (output range of scaling) |
| LowerPointOut | Real | 0.0 | True | True | True | low value (output range of scaling) |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_Scaling

| PID_Scaling Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_Scaling | **Number** | 1135 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | data for scaling | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| UpperPointIn | Real | 27648.0 | True | True | True | high value (input range of scaling) |
| LowerPointIn | Real | 0.0 | True | True | True | low value (input range of scaling) |
| UpperPointOut | Real | 100.0 | True | True | True | high value (output range of scaling) |
| LowerPointOut | Real | 0.0 | True | True | True | low value (output range of scaling) |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_CycleTime

| PID_CycleTime Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_CycleTime | **Number** | 1137 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | data set for cycle time estimation | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| StartEstimation | Bool | TRUE | True | True | False | start automatic estimation of call cycle time |
| EnEstimation | Bool | TRUE | True | True | True | enable estimation of call cycle time |
| EnMonitoring | Bool | TRUE | True | True | True | enable monitoring of call cycle time |
| Value | Real | 0.1 | True | True | True | call cycle time |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_CompactControlParams

| PID_CompactControlParams Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_CompactControlPar-ams | **Number** | 1138 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | controling parameter set | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| Gain | Real | 1.0 | True | True | True | proportional gain |
| Ti | Real | 20.0 | True | True | True | reset time |
| Td | Real | 0.0 | True | True | True | derivative time |
| TdFiltRatio | Real | 0.2 | True | True | True | filter coefficient for derivative part |
| PWeighting | Real | 1.0 | True | True | True | weigthing of proportional part in direct, feedback path |
| DWeighting | Real | 1.0 | True | True | True | weigthing of derivative part in direct, feedback path |
| Cycle | Real | 1.0 | True | True | True | PID Controller cycle time |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_CompactSelfTune

| PID_CompactSelfTune Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_CompactSelfTune | **Number** | 1139 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | data set for self tuning | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| ▼ SUT | PID_Compact_SUT | | True | True | False | data set for start up tuning |
| CalculateParams | Bool | FALSE | True | True | False | recalculate control parameters with parameters of startup tuning |
| TuneRule | Int | 0 | True | True | True | tuning rule for SUT (0-CHR PID,1-CHR PI) |
| State | Int | 0 | True | True | False | current phase of start up tuning |
| ▼ TIR | PID_Compact_TIR | | True | True | False | data set for tuning in run |
| RunIn | Bool | FALSE | True | True | False | activate run in setpoint without controling |
| CalculateParams | Bool | FALSE | True | True | False | recalculate control parameters with parameters of tuning in run |
| TuneRule | Int | 0 | True | True | True | tuning rule for TIR (0-2-A PID auto,fast,slow;3-ZN PID;4-ZN PI;5-ZN P) |
| State | Int | 0 | True | True | False | current phase of tuning in run |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_GradientEstimation

| PID_GradientEstimation Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_GradientEstimation | **Number** | 1508 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | structure for gradient estimation | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_GradientParams

| PID_GradientParams Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_GradientParams | **Number** | 1511 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | dataset of parameters for gradient estimation | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_StandardDeviation

| PID_StandardDeviation Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_StandardDeviation | **Number** | 1509 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | data for estimation of de-viance | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_Compact_SUT

| PID_Compact_SUT Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_Compact_SUT | **Number** | 1142 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | data set for start up tuning | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| CalculateParams | Bool | FALSE | True | True | False | recalculate control parameters with parameters of startup tuning |
| TuneRule | Int | 0 | True | True | True | tuning rule for SUT (0-CHR PID,1-CHR PI) |
| State | Int | 0 | True | True | False | current phase of start up tuning |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_Compact_TIR

| PID_Compact_TIR Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_Compact_TIR | **Number** | 1143 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | data set for tuning in run | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| RunIn | Bool | FALSE | True | True | False | activate run in setpoint without controling |
| CalculateParams | Bool | FALSE | True | True | False | recalculate control parameters with parameters of tuning in run |
| TuneRule | Int | 0 | True | True | True | tuning rule for TIR (0-2-A PID auto,fast,slow;3-ZN PID;4-ZN PI;5-ZN P) |
| State | Int | 0 | True | True | False | current phase of tuning in run |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_CompactControl

| PID_CompactControl Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_CompactControl | **Number** | 1144 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | data for controling part | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| IntegralSum | Real | 0.0 | True | True | False | signal of integral part |

# PLC_1 [CPU 1212C AC/DC/Rly] / PLC data types

## PID_CompactRetain

| PID_CompactRetain Properties | | | | | | | |
|---|---|---|---|---|---|---|---|
| **General** | | | | | | | |
| **Name** | PID_CompactRetain | **Number** | 1145 | **Type** | UDT | **Language** | |
| **Numbering** | | | | | | | |
| **Information** | | | | | | | |
| **Title** | retain data | **Author** | | **Comment** | | **Family** | |
| **Version** | | **User-defined ID** | | | | | |

| Name | Data type | Default value | Accessible from HMI | Visible in HMI | Setpoint | Comment |
|---|---|---|---|---|---|---|
| ▼ CtrlParams | PID_CompactControl-Params | | True | True | False | actual parameter set |
| Gain | Real | 1.0 | True | True | True | proportional gain |
| Ti | Real | 20.0 | True | True | True | reset time |
| Td | Real | 0.0 | True | True | True | derivative time |
| TdFiltRatio | Real | 0.2 | True | True | True | filter coefficient for derivative part |
| PWeighting | Real | 1.0 | True | True | True | weigthing of proportional part in direct, feedback path |
| DWeighting | Real | 1.0 | True | True | True | weigthing of derivative part in direct, feedback path |
| Cycle | Real | 1.0 | True | True | True | PID Controller cycle time |

# PLC_1 [CPU 1212C AC/DC/Rly] / Watch and force tables

## Force table

| Name | Address | Display format | Force value | Comment |
|---|---|---|---|---|

# PLC_1 [CPU 1212C AC/DC/Rly] / Traces

## Measurements

This folder is empty.

# PLC_1 [CPU 1212C AC/DC/Rly]

## Text lists

This folder is empty.

# PLC_1 [CPU 1212C AC/DC/Rly] / Local modules

## DQ 4x24VDC_1

| DQ 4x24VDC_1 | | | | | |
|---|---|---|---|---|---|
| **General\Project information** | | | | | |
| **Name** | DQ 4x24VDC_1 | **Comment** | | | |
| **General\Catalog information** | | | | | |
| **Short designation** | DQ4 signal board (200 kHz) | **Description** | Signal board DQ4 x 24VDC / 200 kHz; plug-in terminal blocks | **Article number** | 6ES7 222-1BD30-0XB0 |
| **Firmware version** | V1.0 | | | | |
| **Digital outputs** | | | | | |
| **Reaction to CPU STOP** | Use substitute value | | | | |
| **Digital outputs\Channel0** | | | | | |
| **Channel address** | Q4.0 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | |
| **Digital outputs\Channel1** | | | | | |
| **Channel address** | Q4.1 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | |
| **Digital outputs\Channel2** | | | | | |
| **Channel address** | Q4.2 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | |
| **Digital outputs\Channel3** | | | | | |
| **Channel address** | Q4.3 | **Substitute a value of 1 on a change from RUN to STOP.** | 0 | | |
| **I/O addresses\Output addresses** | | | | | |
| **Start address** | 4 | **End address** | 4 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 269 | | | | |

# PLC_1 [CPU 1212C AC/DC/Rly] / Local modules

## AQ 2x14BIT_1

| AQ 2x14BIT_1 | | | | | |
|---|---|---|---|---|---|
| **General\Project information** | | | | | |
| **Name** | AQ 2x14BIT_1 | **Author** | admin | **Comment** | |
| **Slot** | 2 | | | | |
| **General\Catalog information** | | | | | |
| **Short designation** | SM 1232 AQ2 | **Description** | Analog output module AQ2 x 14 bits; plug-in terminal blocks; output: +/-10V and 0 to 20 mA; selectable diagnostics; selectable substitute value for output | **Article number** | 6ES7 232-4HB32-0XB0 |
| **Firmware version** | V2.0 | | | | |
| **AQ 2\Project information** | | | | | |
| **Name** | AQ 2x14BIT_1 | **Comment** | | | |
| **AQ 2\Module diagnostics** | | | | | |
| **Enable power supply diagnostics** | 1 | **Additional diagnostics may be selected for each input/ output.** | | | |
| **AQ 2\Analog outputs** | | | | | |
| **Reaction to CPU STOP** | Use substitute value | | | | |
| **AQ 2\Analog outputs\Channel0** | | | | | |
| **Channel address** | QW96 | **Analog output type** | Voltage | **Voltage range** | +/- 10 V |
| **Substitute value for channel on a change from RUN to STOP** | 0.000V | | | **Enable short circuit diagnostics** | 1 |
| **Enable overflow diagnostics** | 1 | **Enable underflow diagnostics** | 1 | | |
| **AQ 2\Analog outputs\Channel1** | | | | | |
| **Channel address** | QW98 | **Analog output type** | Voltage | **Voltage range** | +/- 10 V |
| **Substitute value for channel on a change from RUN to STOP** | 0.000V | | | **Enable short circuit diagnostics** | 1 |
| **Enable overflow diagnostics** | 1 | **Enable underflow diagnostics** | 1 | | |
| **AQ 2\I/O addresses\Output addresses** | | | | | |
| **Start address** | 96 | **End address** | 99 | **Organization block** | 0 |
| **Process image** | 0 | | | | |
| **AQ 2\Hardware identifier\Hardware identifier** | | | | | |
| **Hardware identifier** | 270 | | | | |