| Totally Integrated      |
|-------------------------|
| <b>Automation Porta</b> |

#### **HIDDEN NEURON [FB2]**

| HIDDEN NEURON Properties |               |                 |   |         |    |          |     |  |  |  |
|--------------------------|---------------|-----------------|---|---------|----|----------|-----|--|--|--|
| General                  |               |                 |   |         |    |          |     |  |  |  |
| Name                     | HIDDEN NEURON | Number          | 2 | Туре    | FB | Language | SCL |  |  |  |
| Numbering                | Automatic     |                 |   |         |    |          |     |  |  |  |
| Information              |               |                 |   |         |    |          |     |  |  |  |
| Title                    |               | Author          |   | Comment |    | Family   |     |  |  |  |
| Version                  | 0.1           | User-defined ID |   |         |    |          |     |  |  |  |

| Name            | Data type | Default value | Retain     | Accessible<br>from<br>HMI/OPC<br>UA/Web<br>API | able | HMI engi-<br>neering | Setpoint | Supervi-<br>sion | Comment |
|-----------------|-----------|---------------|------------|--|------|----------------------|----------|------------------|---------|
| <b>▼</b> In put |           |               |            |  |      |                      |          |                  |         |
| X_1             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| X_2             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| X_3             | Real      | 0.0           | Non-retain | True   |      | True                 | False    |                  |         |
| X_4             | Real      | 0.0           | Non-retain | True   |      | True                 | False    |                  |         |
| X_5             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| X_6             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| X_7             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| X_8             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| X_9             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| ▼ Output        |           |               |            |  |      |                      |          |                  |         |
| Υ               | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| InOut           |           |               |            |  |      |                      |          |                  |         |
| <b>▼</b> Static |           |               |            |  |      |                      |          |                  |         |
| W_1             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| W_2             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| W_3             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| <br>W_4         | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| <br>W_5         | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| W_6             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| W_7             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| W_8             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| W_9             | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| BIAS            | Real      | 0.0           | Non-retain | True   | True | True                 | False    |                  |         |
| Temp            |           |               |            |  |      |                      |          |                  |         |
| Constant        |           |               |            |  |      |                      |          |                  |         |

```
0001
0002 // Weighted sum plus a bias
0003 #Y := #W_1 * #X_1 +
        #W_2 * #X_2 +
0004
         #W_3 * #X_3 +
0005
         #W_4 * #X_4 +
0006
0007
         #W_5 * #X_5 +
         #W_6 * #X_6 +
8000
         #W_7 * #X_7 +
0009
         #W_8 * #X_8 +
0010
         #W_9 * #X_9 +
0011
0012
         #BIAS;
0013
0014 // ReLU
0015 IF #Y < 0.0 THEN
0016 #Y := 0.0;
0017 END_IF;
```

| Symbol | Address | Туре | Comment |
|--------|---------|------|---------|
| #BIAS  |         | Real |         |
| #W_1   |         | Real |         |
| #W_2   |         | Real |         |
| #W_3   |         | Real |         |
| #W_4   |         | Real |         |
| #W_5   |         | Real |         |
| #W_6   |         | Real |         |
| #W_7   |         | Real |         |
| #W_8   |         | Real |         |
| #W_9   |         | Real |         |
| #X_1   |         | Real |         |
| #X_2   |         | Real |         |
| #X_3   |         | Real |         |
| #X_4   |         | Real |         |
| #X_5   |         | Real |         |
| #X_6   |         | Real |         |
| #X_7   |         | Real |         |
| #X_8   |         | Real |         |
|        |         |      |         |

| Totally Integrated<br>Automation Portal |         |                     |         |  |
|---|---------|---------------------|---------|--|
| Symbol<br>#X_9                          | Address | <b>Type</b><br>Real | Comment |  |
| #Y                                      |         | Real                |         |  |
|   |         |                     |         |  |
|   |         |                     |         |  |
|   |         |                     |         |  |
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|   |         |                     |         |  |
|   |         |                     |         |  |
|   |         |                     |         |  |

|--|

#### NEURAL\_NETWORK\_INITIALIZATION [FC6]

| NELIDA   | NETWO  | OK INUTIALIZATION Durant  |   |  |  |   |   |  |  |          |     |
|--|--|---|---|--|--|---|---|--|--|----------|-----|
| Genera   |  | RK_INITIALIZATION Properti  | es                                      |  |  |   |   |  |  |          |     |
| Name   |  | NEURAL_NETWORK_INITIALI-  | Nun                                     | nber   | 6  |   | Туре  | FC                                       |  | Language | SCL |
|  |  | ZATION  |   |  |  |   |   |  |  |          |     |
| Number<br>Information  |  | Automatic   |   |  |  |   |   |  |  |          |     |
| Title  | ation  |   | Aut                                     | hor  |  |   | Comment   |  |  | Family   |     |
| Versior  | ı  | 0.1   | Use                                     | r-defined ID   |  |   |   |  |  |          |     |
| Name   |  |   |   | Data type  |  | Default value   |   |  | Comment  |          |     |
| Inpu   | ut   |   |   |  |  | 20144101410   |   |  |  |          |     |
| Out  | put  |   |   |  |  |   |   |  |  |          |     |
| InO  |  |   |   |  |  |   |   |  |  |          |     |
| Ten  | •  |   |   |  |  |   |   |  |  |          |     |
| ▼ Retu   | stant<br>urn   |   |   |  |  |   |   | +  |  |          |     |
|  |  | TWORK_INITIALIZATION  |   | Void   |  |   |   | +  |  |          |     |
|  |  |   |   | 1010   |  |   |   |  |  |          |     |
| 0004<br>0005<br>0006<br>0007<br>0008<br>0009<br>0010<br>0011<br>0012<br>0013<br>0014<br>0015<br>0016<br>0017<br>0018<br>0019<br>0020<br>0021 | Neurona *) "HIDDEN | 1 (Capa Oculta):  NEURON_DB_1".W_1: NEURON_DB_1".W_2: NEURON_DB_1".W_3: NEURON_DB_1".W_5: NEURON_DB_1".W_5: NEURON_DB_1".W_6: NEURON_DB_1".W_7: NEURON_DB_1".W_9: NEURON_DB_1".W_9: NEURON_DB_1".BIAS  2 (Capa Oculta): NEURON_DB_2".W_1: NEURON_DB_2".W_1: NEURON_DB_2".W_2: NEURON_DB_2".W_3: | = " = " = " = " = " = " = " = " = " = " | NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI "NEURAL_NI "NEURAL_NI "NEURAL_NI NEURAL_NI NEURAL_NI | ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK | WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE | S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT ES_NORMALIZAT ES_NORMALIZAT | IC I | DN".W_2_1; DN".W_3_1; DN".W_3_1; DN".W_4_1; DN".W_5_1; DN".W_6_1; DN".W_7_1; DN".W_8_1; DN".W_9_1; EON".B_1; |          |     |
| 0024<br>0025<br>0026<br>0027<br>0028<br>0029<br>0030<br>0031<br>0032<br>0033<br>0034<br>0035<br>0036   | "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN (* Neurona   | NEURON_DB_2".W_4 : NEURON_DB_2".W_5 : NEURON_DB_2".W_6 : NEURON_DB_2".W_7 : NEURON_DB_2".W_8 : NEURON_DB_2".W_9 : NEURON_DB_2".BIAS   | = "<br>= "<br>= "<br>= "<br>:=          | NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI "NEURAL_NI   | ETWORK_<br>ETWORK_<br>ETWORK_<br>ETWORK_<br>ETWORK_<br>NETWORK         | WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE                             | S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT  | IC<br>IC<br>IC<br>IC<br>IC<br>IC         | ON".W_4_2; ON".W_5_2; ON".W_6_2; ON".W_7_2; ON".W_8_2; ON".W_9_2; ON".B_2;                                   |          |     |
| 0038<br>0039<br>0040<br>0041<br>0042<br>0043<br>0044<br>0045<br>0046<br>0047<br>0048<br>0049   | "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN "HIDDEN  | NEURON_DB_3".W_1 : NEURON_DB_3".W_2 : NEURON_DB_3".W_3 : NEURON_DB_3".W_5 : NEURON_DB_3".W_5 : NEURON_DB_3".W_6 : NEURON_DB_3".W_7 : NEURON_DB_3".W_8 : NEURON_DB_3".W_9 : NEURON_DB_3".BIAS  | = "" = "" = "" = "" = "" = ""           | NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI  | ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_        | WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE                             | S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT                             | I C                                      | DN".W_2_3; DN".W_3_3; DN".W_4_3; DN".W_5_3; DN".W_6_3; DN".W_7_3; DN".W_8_3; DN".W_9_3;                      |          |     |
| 0051<br>0052<br>0053<br>0054<br>0055<br>0056<br>0057<br>0058<br>0059<br>0060   | *) "HIDDEN   | A (Capa Oculta):  NEURON_DB_4".W_1: NEURON_DB_4".W_2: NEURON_DB_4".W_3: NEURON_DB_4".W_4: NEURON_DB_4".W_5: NEURON_DB_4".W_6: NEURON_DB_4".W_7: NEURON_DB_4".W_8: NEURON_DB_4".W_8: NEURON_DB_4".W_9: NEURON_DB_4".BIAS   | = "" = "" = "" = "" = "" = ""           | NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI NEURAL_NI  | ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_ ETWORK_        | WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE WEIGHTS_BIASE                             | S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT S_NORMALIZAT                             | 'IC' 'IC' 'IC' 'IC'                      | DN".W_2_4; DN".W_3_4; DN".W_4_4; DN".W_5_4; DN".W_6_4; DN".W_7_4; DN".W_8_4; DN".W_9_4;                      |          |     |

Totally Integrated Automation Portal

```
0065 Neurona 5 (Capa Oculta):
0066 *)
0067 "HIDDEN NEURON DB 5".W 1 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 1 5;
0068 "HIDDEN NEURON DB 5".W 2 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 2 5;
0069 "HIDDEN NEURON DB 5".W 3 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 3 5;
0070 "HIDDEN NEURON DB 5".W 4 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 4 5;
0071 "HIDDEN NEURON DB 5".W 5 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 5 5;
0072 "HIDDEN NEURON DB 5".W 6 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 6 5;
0073 "HIDDEN NEURON DB 5".W 7 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 7 5;
0074 "HIDDEN NEURON DB 5".W 8 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 8 5;
0075 "HIDDEN NEURON_DB_5".W_9 := "NEURAL_NETWORK_WEIGHTS_BIASES_NORMALIZATION".W_9_5;
0076 "HIDDEN NEURON_DB_5".BIAS := "NEURAL_NETWORK_WEIGHTS_BIASES_NORMALIZATION".B_5;
0077
0078
0079
0080 (*
0081 Neurona 6 (Capa Oculta):
0082 *)
0083 "HIDDEN NEURON DB 6".W 1 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 1 6;
0084 "HIDDEN NEURON DB 6".W 2 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 2 6;
0085 "HIDDEN NEURON DB 6".W 3 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 3 6;
0086 "HIDDEN NEURON DB 6".W 4 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 4 6;
0087 "HIDDEN NEURON DB 6".W 5 := "NEURAL_NETWORK_WEIGHTS BIASES_NORMALIZATION".W 5 6;
0088 "HIDDEN NEURON DB 6".W 6 := "NEURAL_NETWORK_WEIGHTS_BIASES_NORMALIZATION".W_6_6;
0089 "HIDDEN NEURON DB 6".W 7 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 7 6;
0090 "HIDDEN NEURON DB 6".W 8 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 8 6;
0091 "HIDDEN NEURON DB 6".W 9 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 9 6;
0092 "HIDDEN NEURON DB 6".BIAS := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".B 6;
0093
0094
0095
0096 (*
0097 Neurona de salida
0098 *)
0099 "OUTPUT NEURON DB".W 1 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 1 0;
0100 "OUTPUT NEURON DB".W 2 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 2 O;
0101 "OUTPUT NEURON DB".W 3 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 3 O;
0102 "OUTPUT NEURON DB".W 4 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 4 O;
0103 "OUTPUT NEURON DB".W 5 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 5 O;
0104 "OUTPUT NEURON DB".W 6 := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".W 6 O;
0105 "OUTPUT NEURON DB".BIAS := "NEURAL NETWORK WEIGHTS BIASES NORMALIZATION".B O;
```

| Symbol                   | Address | Туре | Comment |  |
|--------------------------|---------|------|---------|--|
| "HIDDEN NEURON_DB_1".BI/ | AS      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  |         | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _2      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _3      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _4      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _5      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _6      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _7      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _8      | Real |         |  |
| "HIDDEN NEURON_DB_1".W_  | _9      | Real |         |  |
| "HIDDEN NEURON_DB_2".BIA | AS      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _1      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _2      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _3      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _4      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _5      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _6      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _7      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _8      | Real |         |  |
| "HIDDEN NEURON_DB_2".W_  | _9      | Real |         |  |
| "HIDDEN NEURON_DB_3".BIA | AS      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _1      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _2      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _3      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _4      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _5      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _6      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _7      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  | _8      | Real |         |  |
| "HIDDEN NEURON_DB_3".W_  |         | Real |         |  |
| "HIDDEN NEURON_DB_4".BIA | AS      | Real |         |  |
| "HIDDEN NEURON_DB_4".W_  | _1      | Real |         |  |
| "HIDDEN NEURON_DB_4".W_  | _2      | Real |         |  |
| "HIDDEN NEURON_DB_4".W_  |         | Real |         |  |
| "HIDDEN NEURON_DB_4".W_  | _4      | Real |         |  |
| "HIDDEN NEURON_DB_4".W   |         | Real |         |  |
| "HIDDEN NEURON_DB_4".W   |         | Real |         |  |
| "HIDDEN NEURON_DB_4".W   |         | Real |         |  |
| "HIDDEN NEURON_DB_4".W   |         | Real |         |  |
| "HIDDEN NEURON_DB_4".W   |         | Real |         |  |
| "HIDDEN NEURON_DB_5".BIA |         | Real |         |  |
| "HIDDEN NEURON_DB_5".W_  |         | Real |         |  |
| "HIDDEN NEURON_DB_5".W   |         | Real |         |  |
| "HIDDEN NEURON_DB_5".W   |         | Real |         |  |

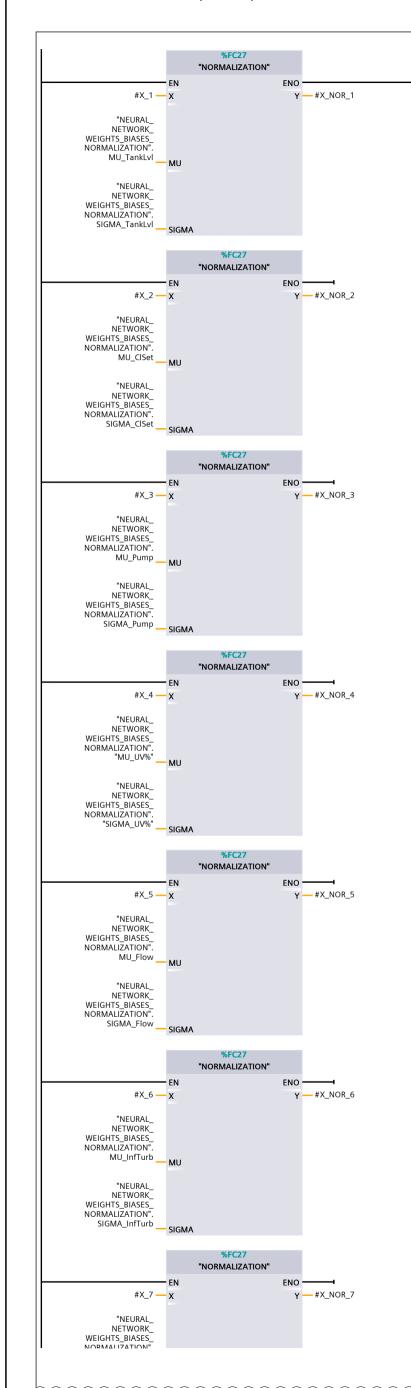
| DOGN HUMBON, D.S. 799  | ymbol                       | Address Type | Comment |  |
|--|-----------------------------|--------------|---------|--|
|  | HIDDEN NEURON_DB_5".W_4     |              |         |  |
| March   Marc   |                             |              |         |  |
| DOWN HEADER OF STATE   |                             |              |         |  |
| DECEMBER  |                             |              |         |  |
| BOOK NEEDING JOB 65 WAY   Bed  |                             |              |         |  |
| DECEMBER   DECEMBER   DECEMBER   |                             |              |         |  |
| DECENTION   DECE   |                             |              |         |  |
| DEATH NUMBER   DEATH NUMBER  | IDDEN NEURON_DB_6".W_2      | Real         |         |  |
| DODN NEIGHOUR, DEC 9" M.5   Real   | IDDEN NEURON_DB_6".W_3      |              |         |  |
| DEATH   DEAT   |                             |              |         |  |
| Indich Nation   Sept   Sept  |                             |              |         |  |
| DECENT NETWORK   DECENT  |                             |              |         |  |
| BOSH NEMOCROST   B.  |                             |              |         |  |
| EIROL NETWORK WEGGES BA  |                             |              |         |  |
| \$ , 000AL AZTONY A. 1  Beal   |                             |              |         |  |
| FLAND_INTERVORE_VOIGNITS_BA  |                             | Redi         |         |  |
| FLINAL NETWORK WEIGHTS BIA-   Real   | EURAL_NETWORK_WEIGHTS_BIA-  | Real         |         |  |
| S. NOGRALIZATION 2. 3 C.  S. NOGRALIZATION 3. 4 C.  S. NOGRALIZATION 4. 4 C.  S. NOGRALIZATION 5. 4 C.  S. NOGRALIZATION 5. 5 C.  S. NOGRALIZATION 5. 6 C.  S. NOGRALIZATION 5. 6 C.  S. NOGRALIZATION 7. 1 C.  S. NOGRALIZATION 7. 2 C.  S. NOGRALIZATION 7. 3 C.  S. NOGRALIZATION 7   |                             |              |         |  |
| EURINA, INTURORIC, WEIGHTS, BIA- Real  EURINA, INTURORIC, WEIGHTS, BIA- Real  EURINA, INTURORIC, WEIGHTS, BIA- Real  S, ROBANALZATION, B.S.  BIRMA, BERTON, B.S.  BIRMA, BERTON, B.S.  S, ROBANALZATION, B.S.  BIRMA, BERTON, WEIGHTS, BIA- S, ROBANALZATION, W.S.  S, ROBANALZATION, W.S.  S, ROBANALZATION, W.S.  BIRMA, BERTON, W   |                             | Real         |         |  |
| \$   |                             | Pool         |         |  |
| EURAL, NEW YORK, WEIGHTS, BIA S, PORMALIZATION W, 1 S, PORMALIZATION W, 2 S, PORMALIZATION W, 3 S, PORMALIZATION W, 4 S, PORMALIZATION W, 5 S, PORMALIZATION W, 4 S, PORMALIZATION W, 5 S, PORMALIZATION W, 5 S, PORMALIZATION W, 5 S, PORMALIZATI   |                             | Real         |         |  |
| \$\$ ,000ALZATION \$ 5  Real \$\$ ,000ALZATION \$ 6  Real \$\$ ,000ALZATION \$ 7  Real \$\$ ,000ALZATION \$ |                             | Real         |         |  |
| S. NORMALIZATION 9, 6  ILBURA, INTERROR (WIGHT) BLA S. NORMALIZATION 9, 10  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 12  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 12  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 13  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 13  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 15  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 21  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 21  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 22  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 23  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 24  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 24  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10, 25  EURAL, PRIVAGE (WIGHT) BLA S. NORMALIZATION 10   | S_NORMALIZATION".B_5        |              |         |  |
| Read PUTWORK WEIGHTS BIA PARTWORK WEIGHTS BIA PARTW   |                             | Real         |         |  |
| S. DORMALZATION P. Q.  |                             |              |         |  |
| EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 1   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 2   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 4   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 4   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 5   S. NORMALZATOW, W. 1, 5   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 5   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 5   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 1, 5   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 1   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 1   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 1   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 2   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 2   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 3   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 3   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 4   S. NORMALZATOW, W. 2, 6   EURAL, NEWYORK, WEIGHTS, BAP-   S. NORMALZATOW, W. 2, 6   S. NORMALZATOW, W. 3, 6   S. NORMALZATOW, W. 4, 6   S. NORMALZATOW, W. 4, 6   S. NORMALZATOW, W.   |                             | Real         |         |  |
| S. NOBMALZATION: W_1_2   |                             | Real         |         |  |
| S. NOBMALZATION W.   1.2   | ES_NORMALIZATION".W_1_1     | 1.021        |         |  |
| Real  |                             | Real         |         |  |
| S_DOMMALZATION   W_1_4   |                             |              |         |  |
| Real SUMMALIZATION W. 1. 4. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 1. 5. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 1. 5. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 1. 5. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 3. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 4 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 4 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 4 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 5. 1 EURAL, RETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 2. 6 EURAL, NETWORK, WEIGHTS, BIA-S, NORMALIZATION W. 3. 6 EUR   |                             | Real         |         |  |
| S_NORMALIZATION"W_1_6  |                             | Peal         |         |  |
| Real   |                             | IVEGI        |         |  |
| EURAL_NETWORK_WEIGHTS_BIA-SE_NORMALIZATION*W_1_0   Real  |                             | Real         |         |  |
| SEADEMALIZATION*W_1_0  | ES_NORMALIZATION".W_1_5     |              |         |  |
| Real   |                             | Real         |         |  |
| S. NORMALIZATION   W_1_O   |                             | DI           |         |  |
| Real   |                             | кеаг         |         |  |
| S. NORMALIZATION W. 2_1  |                             | Real         |         |  |
| S. NORMALIZATION: W. 2.2   | ES_NORMALIZATION".W_2_1     | 1.5-         |         |  |
| Real   S.   NORMALIZATION W.   2.3   S.   S.   NORMALIZATION W.   2.4   S.   NORMALIZATION W.   2.4   S.   NORMALIZATION W.   2.4   S.   NORMALIZATION W.   2.5   S.   NORMALIZATION W.   2.6   S.   NORMALIZATION W.   2.0   S.   NORMALIZATION W.   2.0   S.   NORMALIZATION W.   2.0   S.   NORMALIZATION W.   2.0   S.   NORMALIZATION W.   3.1   S.   NORMALIZATION W.   3.1   S.   NORMALIZATION W.   3.2   S.   NORMALIZATION W.   3.2   S.   NORMALIZATION W.   3.3   S.   NORMALIZATION W.   3.4   S.   NORMALIZATION W.   3.5   S.   NORMALIZATION W.   3.4   S.   NORMALIZATION W.   3.4   S.   NORMALIZATION W.   3.4   S.   NORMALIZATION W.   3.5   S.   NORMALIZATION W.  |                             | Real         |         |  |
| S. NORMALIZATION ' W. 2.3  |                             |              |         |  |
| Real   S.   NORMALIZATION' W. 2   A   S.   S.   S.   S.   S.   S.   S.   |                             | Real         |         |  |
| S. NORMALIZATION'. W. 2. 4   |                             | Real         |         |  |
| EURAL, NETWORK, WEIGHTS, BIA-S, NORMALZATION', W_2_6   |                             | Redi         |         |  |
| Real   S   |                             | Real         |         |  |
| S_NORMALIZATION* W_ 2_6  |                             |              |         |  |
|  |                             | Real         |         |  |
| S_NORMALIZATION*_W_2_O   |                             | Deal         |         |  |
| Real   S   |                             | Real         |         |  |
| S_NORMALIZATION".W_3_1   Real  |                             | Real         |         |  |
| SENDRMALIZATION".W. 3_2     SEURAL_NETWORK_WEIGHTS_BIA-    SENDRMALIZATION".W. 3_3     SEURAL_NETWORK_WEIGHTS_BIA-    SENDRMALIZATION".W. 3_4     SEURAL_NETWORK_WEIGHTS_BIA-    SENDRMALIZATION".W. 3_5     SEURAL_NETWORK_WEIGHTS_BIA-    SENDRMALIZATION".W. 3_5     SEURAL_NETWORK_WEIGHTS_BIA-    SENDRMALIZATION".W. 3_6     SEURAL_NETWORK_WEIGHTS_BIA-    SENDRMALIZATION".W. 3_6     SEURAL_NETWORK_WEIGHTS_BIA-    SENDRMALIZATION".W. 4_1     SEURAL_NETWORK_WEIGHTS_BIA-    SEURAL_NETWORK_WEIGHTS   |                             |              |         |  |
| Real   |                             | Real         |         |  |
| S. NORMALIZATION'.W. 33   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 34   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 34   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 36   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 36   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 30   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 41   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 42   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 42   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 44   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 46   EURAL_NETWORK_WEIGHTS_BIA-    S. NORMALIZATION'.W. 56   EURAL_NET  |                             |              |         |  |
| Real  |                             | Real         |         |  |
| SENORMALIZATION" W. 3_4  |                             | Real         |         |  |
| SENORMALIZATION".W_3_5     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_3_6     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_3_0     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_1     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_2     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_2     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_3     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_4     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_4     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_5     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_4_6     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION".W_5_1     EURAL_NETWORK_WEIGHTS_BIA-    SENORMALIZATION WEIGHTS_BIA-    SENORMA   |                             | Redi         |         |  |
| Real S_NORMALIZATION".W_3_6 Real S_NORMALIZATION".W_3_6 Real S_NORMALIZATION".W_3_0 Real S_NORMALIZATION".W_3_0 Real S_NORMALIZATION".W_3_0 Real S_NORMALIZATION".W_4_1 Real S_NORMALIZATION".W_4_1 Real S_NORMALIZATION".W_4_2 Real S_NORMALIZATION".W_4_2 Real S_NORMALIZATION".W_4_3 Real S_NORMALIZATION".W_4_3 Real S_NORMALIZATION".W_4_4 Real S_NORMALIZATION".W_4_4 Real S_NORMALIZATION".W_4_4 Real S_NORMALIZATION".W_4_4 Real S_NORMALIZATION".W_4_6 Real S_NORMALIZATION".W_5_1 Real   |                             | Real         |         |  |
| ES_NORMALIZATION".W_3_6  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_3_0  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_1  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_1  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_2  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_3  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_4  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_5  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_5  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION.W_5_1  IEURAL_NETWORK_W   | ES_NORMALIZATION".W_3_5     |              |         |  |
| Real S_NORMALIZATION".W_3_O REURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_1 REURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_2 REAL REAL REAL REAL REAL REAL REAL REAL  |                             | Real         |         |  |
| ES_NORMALIZATION".W_3_O  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_1  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_2  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_3  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_4  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_5  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_5  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION.W_5_1   |                             | Poal         |         |  |
| Real   |                             | Real         |         |  |
| ES_NORMALIZATION".W_4_1 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_2 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_3 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_4 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_5 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_5 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION.W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION.W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION.W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION.W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION.W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION.W_5_1  |                             | Real         |         |  |
| S_NORMALIZATION".W_4_2  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_3  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_4  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_5  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_6  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_6  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- S_NORMALIZATION".W_5_1   | S_NORMALIZATION".W_4_1      |              |         |  |
| Real  SEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_4_3  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_4_4  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_4_5  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_4_0  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA- SENORMALIZATION WEIGHTS_BIA- SENORMALIZATION WEIGHTS_SENORMALIZATION WEIGHTS_SENORMALIZ   |                             | Real         |         |  |
| SS_NORMALIZATION".W_4_3  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_4  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_5  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_6  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_6  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- SS_NORMALIZATION".W_5_1  |                             |              |         |  |
| Real  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_4  Real  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_5  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- EURAL_   |                             | Real         |         |  |
| EURAL_NETWORK_WEIGHTS_BIA- EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_5  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_6  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_0  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  EURAL_NETWORK_WEIGHTS_BIA- EURAL_NETWORK_WEIGHTS_EURAL_NETWORK_WEIGHTS_EURAL_NETWORK_WEIGHTS_EURAL_NETWORK_WEIGHTS_EURAL_NETWORK_WEIGHTS_EURAL_NETWORK_WEIGHTS_EURAL_NETWORK_WEIGHTS_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_NETWORK_EURAL_N   |                             | Real         |         |  |
| Real Real Real Real Real Real Real Real  |                             | Redi         |         |  |
| Real  ES_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_O  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_O  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA- Real  ES_NORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA-   | IEURAL_NETWORK_WEIGHTS_BIA- | Real         |         |  |
| ES_NORMALIZATION".W_4_6  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_4_O  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA- IEURAL_NETWORK_WEIGHTS_BIA- Real  | ES_NORMALIZATION".W_4_5     |              |         |  |
| Real  ES_NORMALIZATION".W_4_O  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  Real  |                             | Real         |         |  |
| ES_NORMALIZATION".W_4_O  IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1  IEURAL_NETWORK_WEIGHTS_BIA- Real   |                             |              |         |  |
| IEURAL_NETWORK_WEIGHTS_BIA- ES_NORMALIZATION".W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- Real   |                             | Real         |         |  |
| ES_NORMALIZATION".W_5_1 IEURAL_NETWORK_WEIGHTS_BIA- Real   |                             | Dool         |         |  |
| IEURAL_NETWORK_WEIGHTS_BIA- Real   |                             | Real         |         |  |
|  |                             | Real         |         |  |
|  |                             |              |         |  |

| ymbol  |   |              |         |
|--|---|--------------|---------|
|  | Address                                 | Туре         | Comment |
| NEURAL_NETWORK_WEIGHTS_BIA-                          | , | Real         |         |
| ES_NORMALIZATION".W_5_3 NEURAL_NETWORK_WEIGHTS_BIA-  |   | Real         |         |
| ES_NORMALIZATION".W_5_4                              |   | Real         |         |
| NEURAL_NETWORK_WEIGHTS_BIA-                          |   | Real         |         |
| ES_NORMALIZATION".W_5_5 IEURAL_NETWORK_WEIGHTS_BIA-  |   | Real         |         |
| S_NORMALIZATION".W_5_6                               |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_5_O EURAL_NETWORK_WEIGHTS_BIA-    |   | Real         |         |
| S_NORMALIZATION".W_6_1                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_6_2 EURAL_NETWORK_WEIGHTS_BIA-    |   | Real         |         |
| S_NORMALIZATION".W_6_3                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_6_4 |   | Real         |         |
| S_NORMALIZATION .W_O_4  EURAL_NETWORK_WEIGHTS_BIA-   |   | Real         |         |
| S_NORMALIZATION".W_6_5                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_6_6 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_6_O                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_7_1 |   | Real         |         |
| S_NORMALIZATION .W_/_1 EURAL_NETWORK_WEIGHTS_BIA-    |   | Real         |         |
| S_NORMALIZATION".W_7_2                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_7_3 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_7_4                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_7_5 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_7_6                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_8_1 |   | Real         |         |
| S_NORMALIZATION .W_6_1  EURAL_NETWORK_WEIGHTS_BIA-   |   | Real         |         |
| S_NORMALIZATION".W_8_2                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_8_3 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_8_4                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_8_5 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_8_6                               |   |              |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_9_1 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_9_2                               |   | D1           |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_9_3 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_9_4                               |   | Paul         |         |
| EURAL_NETWORK_WEIGHTS_BIA-<br>S_NORMALIZATION".W_9_5 |   | Real         |         |
| EURAL_NETWORK_WEIGHTS_BIA-                           |   | Real         |         |
| S_NORMALIZATION".W_9_6                               |   | Real         |         |
| UTPUT NEURON_DB".BIAS UTPUT NEURON_DB".W_1           |   | Real         |         |
| UTPUT NEURON_DB".W_2                                 |   | Real         |         |
| UTPUT NEURON_DB".W_3                                 |   | Real         |         |
| UTPUT NEURON_DB".W_4 UTPUT NEURON_DB".W_5            |   | Real<br>Real |         |
|  |   | iteai        |         |

| General<br>Name                  | NEURAL NETWORK | Number       | 12 |               | Туре    | FC   | Language | LAD |
|----------------------------------|----------------|--------------|----|---------------|---------|--|----------|-----|
| Numbering<br>nformation<br>Fitle | Automatic      | Author       |    |               | Comment | SARRERAK:                                    | Family   |     |
| /ersion                          | 0.1            | User-defined | ID |               |         | [ 'consigna', 'bomba', '<br>'caudal', 'ntu'] | uv',     |     |
| Vame                             | 0.1            | Data type    |    | Default value |         | Comment                                      |          |     |
| ▼ In put                         |                | 2 a.ayp.     |    |               |         |  |          |     |
| X_1                              |                | Real         |    |               |         |  |          |     |
| X_2<br>X_3                       |                | Real<br>Real |    |               |         |  |          |     |
| X_4                              |                | Real         |    |               |         |  |          |     |
| X_5                              |                | Real<br>Real |    |               |         |  |          |     |
| X_6<br>X_7                       |                | Real         |    |               |         |  |          |     |
| X_8                              |                | Real         |    |               |         |  |          |     |
| X_9<br><b>▼</b> Output           |                | Real         |    |               |         |  |          |     |
| Y                                |                | Real         |    |               |         |  |          |     |
| InOut                            |                |              |    |               |         |  |          |     |
| <b>▼</b> Temp                    |                |              |    |               |         |  |          |     |
| Y_1<br>Y_2                       |                | Real<br>Real |    |               |         |  |          |     |
| Y_3                              |                | Real         |    |               |         |  |          |     |
| Y_4                              |                | Real         |    |               |         |  |          |     |
| Y_5<br>Y_6                       |                | Real<br>Real |    |               |         |  |          |     |
| X_NOR_1                          |                | Real         |    |               |         |  |          |     |
| X_NOR_2                          |                | Real         |    |               |         |  |          |     |
| X_NOR_3<br>X_NOR_4               |                | Real<br>Real |    |               |         |  |          |     |
| X_NOR_5                          | 5              | Real         |    |               |         |  |          |     |
| X_NOR_6                          |                | Real<br>Real |    |               |         |  |          |     |
| X_NOR_7<br>X_NOR_8               |                | Real         |    |               |         |  |          |     |
| X_NOR_9                          |                | Real         |    |               |         |  |          |     |
| Constant  ✓ Return               |                |              |    |               |         |  |          |     |
|                                  | NETWORK        | Void         |    |               |         |  |          |     |
|                                  |                |              |    |               |         |  |          |     |

Totally Integrated Automation Portal

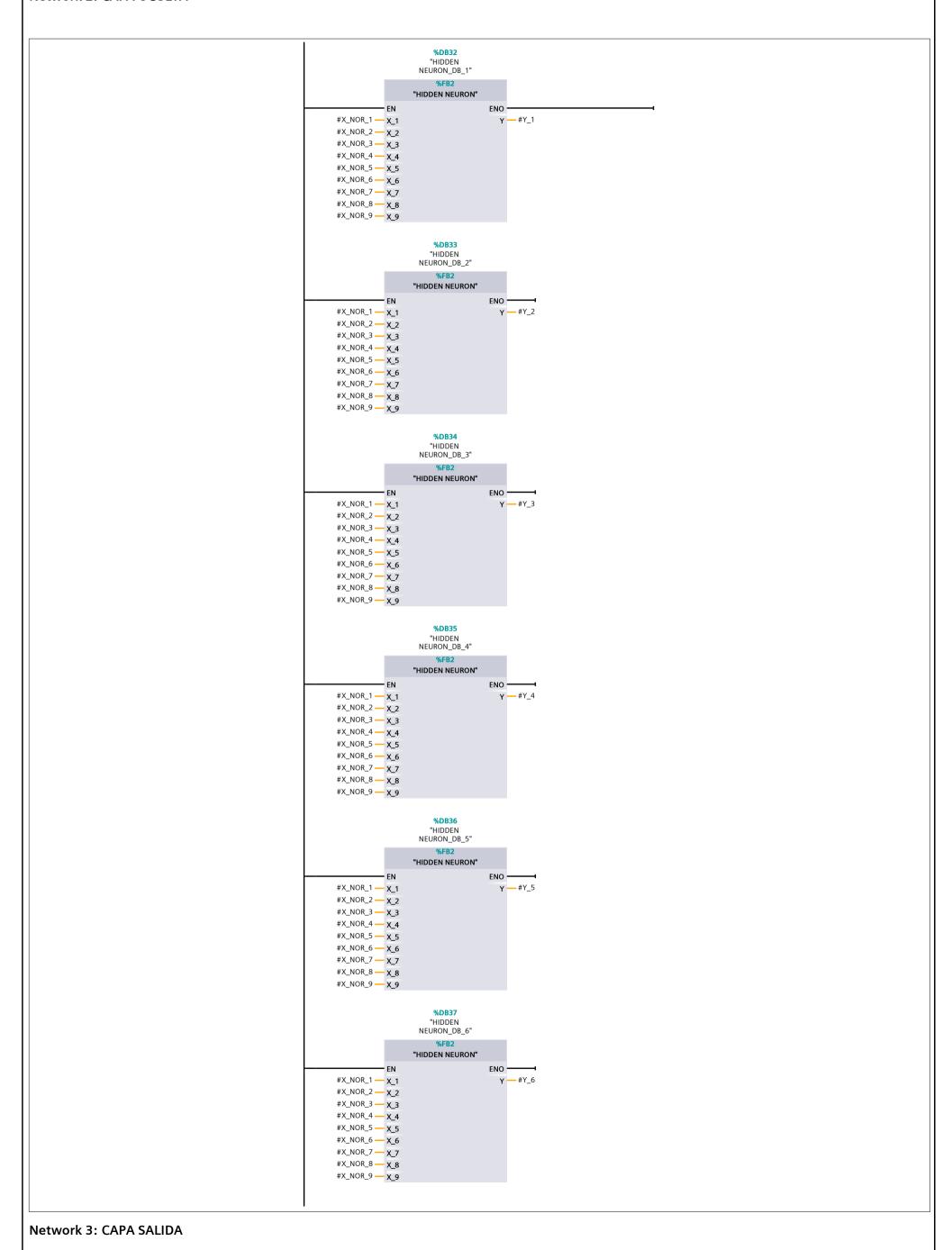
#### Network 1: NORMALIZACION (1.1 / 2.1)



| Totally Integrated<br>Automation Portal                                      |                             |  |
|--|-----------------------------|--|
| Network 1: NORMALIZACI   |                             |  |
| MU_EffTurb_  |                             |  |
| "NEURAL_<br>NETWORK_<br>WEIGHTS_BIASES_<br>NORMALIZATION".<br>SIGMA_EffTurbS |                             |  |
| SIGMA_EffTurb — S  | IGMA %FC27                  |  |
| #X_8 — x   | "NORMALIZATION"  N ENO ———  |  |
| "NEURAL_<br>NETWORK_<br>WEIGHTS_BIASES_<br>NORMALIZATION".                   |                             |  |
| мо_рн м  | ıu                          |  |
| "NEURAL_<br>NETWORK_<br>WEIGHTS_BIASES_<br>NORMALIZATION".                   |                             |  |
| NORMALIZATION". SIGMA_pH s   | IGMA  %FC27 "NORMALIZATION" |  |
| #X_9 — x   | N ENO ———                   |  |
| "NEURAL_<br>NETWORK_<br>WEIGHTS_BIASES_<br>NORMALIZATION".                   |                             |  |
| MU_CoagPPMN  |                             |  |
| NETWORK_<br>WEIGHTS_BIASES_<br>NORMALIZATION".<br>SIGMA_CoagPPMS             | IGMA                        |  |
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#### **Network 2: CAPA OCULTA**



| Totally Integrated<br>Automation Portal |   |  |
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|   | **MDB38 "OUTPUT NEURON_DB"  *********************************** |  |
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# HIDDEN NEURON\_DB\_1 [DB32]

| HIDDEN NEURO | HIDDEN NEURON_DB_1 Properties |                 |    |         |    |          |    |  |  |
|--------------|-------------------------------|-----------------|----|---------|----|----------|----|--|--|
| General      |                               |                 |    |         |    |          |    |  |  |
| Name         | HIDDEN NEURON_DB_1            | Number          | 32 | Туре    | DB | Language | DB |  |  |
| Numbering    | Automatic                     |                 |    |         |    |          |    |  |  |
| Information  |                               |                 |    |         |    |          |    |  |  |
| Title        |                               | Author          |    | Comment |    | Family   |    |  |  |
| Version      | 0.1                           | User-defined ID |    |         |    |          |    |  |  |

| Name            | Data type | Start value | Retain | from | able | Visible in<br>HMI engi-<br>neering | Setpoint | Supervi-<br>sion | Comment |
|-----------------|-----------|-------------|--------|------|------|------------------------------------|----------|------------------|---------|
| <b>▼</b> In put |           |             |        |      |      |                                    |          |                  |         |
| X_1             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_2             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_3             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_4             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_5             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_6             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_7             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_8             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| X_9             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| Output          |           |             |        |      |      |                                    |          |                  |         |
| Υ               | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| InOut           |           |             |        |      |      |                                    |          |                  |         |
| <b>▼</b> Static |           |             |        |      |      |                                    |          |                  |         |
| W_1             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_2             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_3             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_4             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_5             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_6             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_7             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_8             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| W_9             | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |
| BIAS            | Real      | 0.0         | False  | True | True | True                               | False    |                  |         |

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# HIDDEN NEURON\_DB\_2 [DB33]

| HIDDEN NEURO | HIDDEN NEURON_DB_2 Properties |                        |    |         |    |          |    |  |  |
|--------------|-------------------------------|------------------------|----|---------|----|----------|----|--|--|
| General      |                               |                        |    |         |    |          |    |  |  |
| Name         | HIDDEN NEURON_DB_2            | Number                 | 33 | Туре    | DB | Language | DB |  |  |
| Numbering    | Automatic                     |                        |    |         |    |          |    |  |  |
| Information  |                               |                        |    |         |    |          |    |  |  |
| Title        |                               | Author                 |    | Comment |    | Family   |    |  |  |
| Version      | 0.1                           | <b>User-defined ID</b> |    |         |    |          |    |  |  |

| Name            | Data type | Start value | Retain | Accessible<br>from<br>HMI/OPC<br>UA/Web<br>API | able | Visible in<br>HMI engi-<br>neering | Setpoint | Supervi-<br>sion | Comment |
|-----------------|-----------|-------------|--------|--|------|------------------------------------|----------|------------------|---------|
| <b>▼</b> In put |           |             |        |  |      |                                    |          |                  |         |
| X_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| Output          |           |             |        |  |      |                                    |          |                  |         |
| Υ               | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| InOut           |           |             |        |  |      |                                    |          |                  |         |
| <b>▼</b> Static |           |             |        |  |      |                                    |          |                  |         |
| W_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| BIAS            | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |

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# HIDDEN NEURON\_DB\_3 [DB34]

| HIDDEN NEURON_DB_3 Properties |                    |                 |    |         |    |          |    |  |
|-------------------------------|--------------------|-----------------|----|---------|----|----------|----|--|
| General                       |                    |                 |    |         |    |          |    |  |
| Name                          | HIDDEN NEURON_DB_3 | Number          | 34 | Туре    | DB | Language | DB |  |
| Numbering                     | Automatic          |                 |    |         |    |          |    |  |
| Information                   |                    |                 |    |         |    |          |    |  |
| Title                         |                    | Author          |    | Comment |    | Family   |    |  |
| Version                       | 0.1                | User-defined ID |    |         |    |          |    |  |

| Name            | Data type | Start value | Retain | Accessible<br>from<br>HMI/OPC<br>UA/Web<br>API | able | Visible in<br>HMI engi-<br>neering | Setpoint | Supervi-<br>sion | Comment |
|-----------------|-----------|-------------|--------|--|------|------------------------------------|----------|------------------|---------|
| <b>▼</b> In put |           |             |        |  |      |                                    |          |                  |         |
| X_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| Output          |           |             |        |  |      |                                    |          |                  |         |
| Υ               | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| InOut           |           |             |        |  |      |                                    |          |                  |         |
| <b>▼</b> Static |           |             |        |  |      |                                    |          |                  |         |
| W_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| BIAS            | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |

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# HIDDEN NEURON\_DB\_4 [DB35]

| HIDDEN NEURON_DB_4 Properties |                    |                 |    |         |    |          |    |  |  |
|-------------------------------|--------------------|-----------------|----|---------|----|----------|----|--|--|
| General                       |                    |                 |    |         |    |          |    |  |  |
| Name                          | HIDDEN NEURON_DB_4 | Number          | 35 | Туре    | DB | Language | DB |  |  |
| Numbering                     | Automatic          |                 |    |         |    |          |    |  |  |
| Information                   |                    |                 |    |         |    |          |    |  |  |
| Title                         |                    | Author          |    | Comment |    | Family   |    |  |  |
| Version                       | 0.1                | User-defined ID |    |         |    |          |    |  |  |

| Name            | Data type | Start value | Retain | Accessible<br>from<br>HMI/OPC<br>UA/Web<br>API | able | Visible in<br>HMI engi-<br>neering | Setpoint | Supervi-<br>sion | Comment |
|-----------------|-----------|-------------|--------|--|------|------------------------------------|----------|------------------|---------|
| <b>▼</b> In put |           |             |        |  |      |                                    |          |                  |         |
| X_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| Output          |           |             |        |  |      |                                    |          |                  |         |
| Υ               | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| InOut           |           |             |        |  |      |                                    |          |                  |         |
| <b>▼</b> Static |           |             |        |  |      |                                    |          |                  |         |
| W_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| BIAS            | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |

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# HIDDEN NEURON\_DB\_5 [DB36]

| HIDDEN NEURON_DB_5 Properties |                    |                 |    |         |    |          |    |  |  |
|-------------------------------|--------------------|-----------------|----|---------|----|----------|----|--|--|
| General                       |                    |                 |    |         |    |          |    |  |  |
| Name                          | HIDDEN NEURON_DB_5 | Number          | 36 | Туре    | DB | Language | DB |  |  |
| Numbering                     | Automatic          |                 |    |         |    |          |    |  |  |
| Information                   |                    |                 |    |         |    |          |    |  |  |
| Title                         |                    | Author          |    | Comment |    | Family   |    |  |  |
| Version                       | 0.1                | User-defined ID |    |         |    |          |    |  |  |

| Name            | Data type | Start value | Retain | Accessible<br>from<br>HMI/OPC<br>UA/Web<br>API | able | Visible in<br>HMI engi-<br>neering | Setpoint | Supervi-<br>sion | Comment |
|-----------------|-----------|-------------|--------|--|------|------------------------------------|----------|------------------|---------|
| <b>▼</b> In put |           |             |        |  |      |                                    |          |                  |         |
| X_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| ▼ Output        |           |             |        |  |      |                                    |          |                  |         |
| Υ               | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| InOut           |           |             |        |  |      |                                    |          |                  |         |
| <b>▼</b> Static |           |             |        |  |      |                                    |          |                  |         |
| W_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| BIAS            | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |

| Totally Integrated<br>Automation Portal |
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# HIDDEN NEURON\_DB\_6 [DB37]

| HIDDEN NEURON_DB_6 Properties |                    |                        |    |         |    |          |    |  |  |
|-------------------------------|--------------------|------------------------|----|---------|----|----------|----|--|--|
| General                       |                    |                        |    |         |    |          |    |  |  |
| Name                          | HIDDEN NEURON_DB_6 | Number                 | 37 | Туре    | DB | Language | DB |  |  |
| Numbering                     | Automatic          |                        |    |         |    |          |    |  |  |
| Information                   |                    |                        |    |         |    |          |    |  |  |
| Title                         |                    | Author                 |    | Comment |    | Family   |    |  |  |
| Version                       | 0.1                | <b>User-defined ID</b> |    |         |    |          |    |  |  |

| Name            | Data type | Start value | Retain | Accessible<br>from<br>HMI/OPC<br>UA/Web<br>API | able | Visible in<br>HMI engi-<br>neering | Setpoint | Supervi-<br>sion | Comment |
|-----------------|-----------|-------------|--------|--|------|------------------------------------|----------|------------------|---------|
| <b>▼</b> In put |           |             |        |  |      |                                    |          |                  |         |
| X_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| X_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| Output          |           |             |        |  |      |                                    |          |                  |         |
| Υ               | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| InOut           |           |             |        |  |      |                                    |          |                  |         |
| <b>▼</b> Static |           |             |        |  |      |                                    |          |                  |         |
| W_1             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_2             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_3             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_4             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_5             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_6             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_7             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_8             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| W_9             | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |
| BIAS            | Real      | 0.0         | False  | True   | True | True                               | False    |                  |         |

| Totally Integr<br>Automation F     |               |                 |             |         |                               |                |         |  |  |
|------------------------------------|---------------|-----------------|-------------|---------|-------------------------------|----------------|---------|--|--|
| NEURAL NETWORK OUTPUT NEURON [FB3] |               |                 |             |         |                               |                |         |  |  |
| <b>OUTPUT NEURO</b>                | N Properties  |                 |             |         |                               |                |         |  |  |
| General                            |               |                 |             |         |                               |                |         |  |  |
| Name                               | OUTPUT NEURON | Number          | 3           | Туре    | FB                            | Language       | SCL     |  |  |
| Numbering                          | Automatic     |                 |             |         |                               |                |         |  |  |
| Information                        |               |                 |             |         |                               |                |         |  |  |
| Title                              |               | Author          |             | Comment |                               | Family         |         |  |  |
| Version                            | 0.1           | User-defined ID |             |         |                               |                |         |  |  |
| Name                               | Data typ      | e Default va    | alue Retain | Ac      | ccessible Writ-Visible in Set | point Supervi- | Comment |  |  |

| Name            | Data type | Default value | Retain     | Accessible<br>from<br>HMI/OPC<br>UA/Web<br>API | able | Visible in<br>HMI engi-<br>neering |       | Supervi-<br>sion | Comment |
|-----------------|-----------|---------------|------------|--|------|------------------------------------|-------|------------------|---------|
| <b>▼</b> In put |           |               |            |  |      |                                    |       |                  |         |
| X_1             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| X_2             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| X_3             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| X_4             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| X_5             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| X_6             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| ▼ Output        |           |               |            |  |      |                                    |       |                  |         |
| Υ               | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| InOut           |           |               |            |  |      |                                    |       |                  |         |
| <b>▼</b> Static |           |               |            |  |      |                                    |       |                  |         |
| W_1             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| <br>W_2         | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| <br>W_3         | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| W_4             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| W_5             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| W_6             | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| BIAS            | Real      | 0.0           | Non-retain | True   | True | True                               | False |                  |         |
| Temp            |           |               |            |  |      |                                    |       |                  |         |
| Constant        |           |               |            |  |      |                                    |       |                  |         |

0001

0002 // Konbinaketa lineala 0003 #Y := #W\_1 \* #X\_1 + #W\_2 \* #X\_2 + #W\_3 \* #X\_3 + #W\_4 \* #X\_4 + #W\_5 \* #X\_5+ #W\_6 \* #X\_6 + #BIAS;

| Symbol | Address | Type | Comment |
|--------|---------|------|---------|
| #BIAS  |         | Real |         |
| #W_1   |         | Real |         |
| #W_2   |         | Real |         |
| #W_3   |         | Real |         |
| #W_4   |         | Real |         |
| #W_5   |         | Real |         |
| #W_6   |         | Real |         |
| #X_1   |         | Real |         |
| #X_2   |         | Real |         |
| #X_3   |         | Real |         |
| #X_4   |         | Real |         |
| #X_5   |         | Real |         |
| #X_6   |         | Real |         |
| #Y     |         | Real |         |
|        |         |      |         |

| Totally Integra<br>Automation P |  |        |    |         |    |          |    |  |  |  |
|---------------------------------|--|--------|----|---------|----|----------|----|--|--|--|
|                                 | NEURAL NETWORK OUTPUT NEURON_DB [DB38] |        |    |         |    |          |    |  |  |  |
| <b>OUTPUT NEURON</b>            | N_DB Properties                        |        |    |         |    |          |    |  |  |  |
| General                         |  |        |    |         |    |          |    |  |  |  |
| Name                            | OUTPUT NEURON_DB                       | Number | 38 | Туре    | DB | Language | DB |  |  |  |
| Numbering                       | Automatic                              |        |    |         |    |          |    |  |  |  |
| Information                     |  |        |    |         |    |          |    |  |  |  |
| Title                           |  | Author |    | Comment |    | Family   |    |  |  |  |

| TITLE           | Aut       | 101             |        | Comment |      |                                    |       | i aiiiiy         |         |  |
|-----------------|-----------|-----------------|--------|---------|------|------------------------------------|-------|------------------|---------|--|
| Version 0.1     | Use       | User-defined ID |        |         |      |                                    |       |                  |         |  |
| Name            | Data type | Start value     | Retain | from    | able | Visible in<br>HMI engi-<br>neering |       | Supervi-<br>sion | Comment |  |
| <b>▼</b> In put |           |                 |        |         |      |                                    |       |                  |         |  |
| X_1             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| X_2             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| X_3             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| X_4             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| X_5             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| X_6             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| <b>▼</b> Output |           |                 |        |         |      |                                    |       |                  |         |  |
| Υ               | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| InOut           |           |                 |        |         |      |                                    |       |                  |         |  |
| <b>▼</b> Static |           |                 |        |         |      |                                    |       |                  |         |  |
| W_1             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| W_2             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| W_3             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| W_4             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| W_5             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| W_6             | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |
| BIAS            | Real      | 0.0             | False  | True    | True | True                               | False |                  |         |  |

| Totally Integr<br>Automation F | rated<br>Portal |         |         |                 |    |               |         |         |          |     |
|--------------------------------|-----------------|---------|---------|-----------------|----|---------------|---------|---------|----------|-----|
|                                |                 |         |         |                 |    |               |         |         |          | 1   |
| NEURAL N                       |                 |         |         |                 |    |               |         |         |          |     |
| NORMALIZATIO                   |                 |         |         |                 |    |               |         |         |          |     |
| General<br>Name                | NORMALIZ        |         |         | Number          | 27 |               | Туре    | FC      | Languago | SCL |
| Numbering<br>Information       | Automatic       |         |         | vumber          | 27 |               | Туре    | FC      | Language | SCL |
| Title                          |                 |         |         | Author          |    |               | Comment |         | Family   |     |
| Version                        | 0.1             |         |         | Jser-defined ID | -  | Default value |         | Commont |          |     |
| Name  ✓ In put                 |                 |         |         | Data type       |    | Default value |         | Comment |          |     |
| X                              |                 |         |         | Real<br>Real    |    |               |         |         |          |     |
| MU<br>SIGMA                    |                 |         |         | Real            |    |               |         |         |          |     |
| ▼ Output                       |                 |         |         |                 |    |               |         |         |          |     |
| Y                              |                 |         |         | Real            |    |               |         |         |          |     |
| Temp                           |                 |         |         |                 |    |               |         |         |          |     |
| Constant  ▼ Return             |                 |         |         |                 |    |               |         |         |          |     |
| NORMALIZ                       | ZATION          |         |         | Void            |    |               |         |         |          |     |
| 0001 #Y :=                     | (#X - #N        | 4U) / # | SIGMA;  |                 |    |               |         |         |          |     |
| Symbol                         |                 | /       | Address |                 |    | Туре          |         | Comment |          |     |
| #MU<br>#SIGMA                  |                 |         |         |                 |    | Real<br>Real  |         |         |          |     |
| #X<br>#Y                       |                 |         |         |                 |    | Real<br>Real  |         |         |          |     |
|                                |                 |         |         |                 |    |               |         |         |          |     |
|                                | T               |         |         |                 |    |               |         |         |          |     |

| Totally Integrated |  |
|--------------------|--|
| Automation Portal  |  |

# NEURAL\_NETWORK\_WEIGHTS\_BIASES\_NORMALIZATION [DB39]

| NEURAL_NETWO | RK_WEIGHTS_BIASE                                    | S_NORM    | ALIZATI | ON Prope   | erties |        |              |       |            |          |          |       |    |
|--------------|---|-----------|---------|------------|--------|--------|--------------|-------|------------|----------|----------|-------|----|
| General      |   |           |         |            |        |        |              |       |            |          |          |       |    |
| Name         | NEURAL_NET-<br>WORK_WEIGHTS_BIA<br>SES_NORMALIZATIO | ۹-        | Number  | •          | 39     |        | Туре         | DE    | }          |          | Langu    | age   | DB |
| Numbering    | Automatic   |           |         |            |        |        |              |       |            |          |          |       |    |
| Information  |   |           |         |            |        |        |              |       |            |          |          |       |    |
| Title        |   |           | Author  |            |        |        | Comment      |       |            |          | Family   | /     |    |
| Version      | 0.1   |           | User-de | fined ID   |        |        |              |       |            |          |          |       |    |
| Name         |   | Data type | e S     | Start valu | ie     | Retain | Accessible V | /rit- | Visible in | Setpoint | Supervi- | Comme | nt |

| me             | Data type    | Start value        | Retain         | Accessible                       | Writ-        | Visible in | Setnoint       | Supervi | Comment |
|----------------|--------------|--------------------|----------------|----------------------------------|--------------|------------|----------------|---------|---------|
|                | рата туре    | Start value        | Retain         | from<br>HMI/OPC<br>UA/Web<br>API | able         | HMI engi-  |                | sion    | Comment |
| Static         |              | 1.505.4            |                | _                                | _            | _          |                |         |         |
| W_1_1          | Real         | -1.5254            | False          | True                             | True         |            | False          |         |         |
| W_2_1          | Real<br>Real | -2.8213<br>-2.0056 | False<br>False | True                             | True<br>True |            | False<br>False |         |         |
| W_3_1          | Real         | -0.531             | False          | True<br>True                     | True         |            | False          |         |         |
| W_4_1<br>W_5_1 | Real         | 0.0872             | False          | True                             | True         |            | False          |         |         |
| W_6_1          | Real         | -2.642             | False          | True                             | True         |            | False          |         |         |
| W_7_1          | Real         | 2.2675             | False          | True                             | True         |            | False          |         |         |
| W_8_1          | Real         | 1.6801             | False          | True                             | True         |            | False          |         |         |
| <br>W_9_1      | Real         | -2.4497            | False          | True                             | True         |            | False          |         |         |
| B_1            | Real         | 2.1953             | False          | True                             | True         | True       | False          |         |         |
| W_1_2          | Real         | 0.1749             | False          | True                             | True         | True       | False          |         |         |
| W_2_2          | Real         | 1.147              | False          | True                             | True         | True       | False          |         |         |
| W_3_2          | Real         | 0.011              | False          | True                             | True         | True       | False          |         |         |
| W_4_2          | Real         | 0.9485             | False          | True                             | True         |            | False          |         |         |
| W_5_2          | Real         | -0.7185            | False          | True                             | True         |            | False          |         |         |
| W_6_2          | Real         | -0.5225            | False          | True                             | True         |            | False          |         |         |
| W_7_2          | Real         | 0.5567             | False          | True                             | True         | True       | False          |         |         |
| W_8_2          | Real         | -3.0506            | False          | True                             | True         |            | False          |         |         |
| W_9_2          | Real         | 0.2267             | False          | True                             | True         |            | False          |         |         |
| B_2            | Real         | 0.3133             | False          | True                             | True         |            | False          |         |         |
| W_1_3          | Real         | -0.95              | False          | True                             | True         |            | False          |         |         |
| W_2_3          | Real         | -1.6201            | False          | True                             | True         |            | False          |         |         |
| W_3_3          | Real         | 0.7642             | False          | True                             | True         |            | False          |         |         |
| W_4_3          | Real         | -0.7214            | False          | True                             | True         |            | False          |         |         |
| W_5_3          | Real         | 0.0942             | False          | True                             | True         |            | False          |         |         |
| W_6_3          | Real         | -0.7018            | False          | True                             | True         |            | False          |         |         |
| W_7_3          | Real<br>Real | 1.4409<br>0.2737   | False<br>False | True<br>True                     | True<br>True |            | False<br>False |         |         |
| W_8_3          | Real         | -2.2615            |                | True                             | True         |            | False          |         |         |
| W_9_3          | Real         | 2.1811             | False<br>False | True                             | True         |            | False          |         |         |
| B_3<br>W_1_4   | Real         | -0.4291            | False          | True                             | True         |            | False          |         |         |
| W_1_4<br>W_2_4 | Real         | -0.1496            | False          | True                             | True         |            | False          |         |         |
| W_3_4          | Real         | -0.168             | False          | True                             | True         |            | False          |         |         |
| W_4_4          | Real         | -1.5874            | False          | True                             | True         |            | False          |         |         |
| W_5_4          | Real         | 0.3165             | False          | True                             | True         |            | False          |         |         |
| W_6_4          | Real         | 0.6999             | False          | True                             | True         |            | False          |         |         |
| W_7_4          | Real         | 0.9615             | False          | True                             | True         |            | False          |         |         |
| W_8_4          | Real         | 1.7618             | False          | True                             | True         |            | False          |         |         |
| W_9_4          | Real         | -1.9396            | False          | True                             | True         |            | False          |         |         |
| B_4            | Real         | -0.6922            | False          | True                             | True         |            | False          |         |         |
| W_1_5          | Real         | -0.4147            | False          | True                             | True         | True       | False          |         |         |
| W_2_5          | Real         | 1.626              | False          | True                             | True         | True       | False          |         |         |
| W_3_5          | Real         | -0.9535            | False          | True                             | True         | True       | False          |         |         |
| W_4_5          | Real         | 1.3389             | False          | True                             | True         |            | False          |         |         |
| W_5_5          | Real         | 0.4307             | False          | True                             | True         |            | False          |         |         |
| W_6_5          | Real         | 0.1598             | False          | True                             | True         | -          | False          |         |         |
| W_7_5          | Real         | 0.8035             | False          | True                             | True         |            | False          |         |         |
| W_8_5          | Real         | -1.2008            | False          | True                             | True         |            | False          |         |         |
| W_9_5          | Real         | 1.5433             | False          | True                             | True         |            | False          |         |         |
| B_5            | Real         | 5.7215             | False          | True                             | True         |            | False          |         |         |
| W_1_6          | Real         | 2.5432             | False          | True                             | True         |            | False          |         |         |
| W_2_6          | Real         | 2.2072             | False          | True                             | True         |            | False          |         |         |
| W_3_6          | Real         | 0.4781             | False          | True                             | True         |            | False          |         |         |
| W_4_6          | Real         | -2.3549            | False          | True                             | True         |            | False          |         |         |
| W_5_6          | Real         | -0.0015            | False          | True                             | True         | -          | False          |         |         |
| W_6_6<br>W_7_6 | Real         | -0.7786            | False          | True                             | True<br>True |            | False          |         |         |
| VV / D         | Real         | 0.1003             | False          | True                             | rrue         | rrue       | False          | 1       |         |

| Totally Integrated<br>Automation Portal |           |             |        |      |  |          |                  |         |  |
|---|-----------|-------------|--------|------|--|----------|------------------|---------|--|
| Name                                    | Data type | Start value | Retain | from | Writ- Visible in<br>able HMI engi-<br>from neering<br>HMI/<br>OPC<br>UA/<br>Web<br>API | Setpoint | Supervi-<br>sion | Comment |  |
| W_9_6                                   | Real      | -4.3691     | False  | True | True True  | False    |                  |         |  |
| B_6                                     | Real      | 2.357       | False  | True | True True  | False    |                  |         |  |

True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

True True

False

W\_1\_0

W\_2\_O

W\_3\_0

W\_4\_0 W\_5\_0

W\_6\_0

 ${\sf SIGMA\_TankLvl}$ 

MU\_CISet

MU\_Pump

MU\_UV%

MU\_Flow SIGMA\_Flow

MU\_InfTurb

MU\_EffTurb
SIGMA\_EffTurb

MU\_pH

SIGMA\_pH

 $MU\_CoagPPM$ 

SIGMA\_CoagPPM

SIGMA\_InfTurb

 ${\sf SIGMA\_CISet}$ 

SIGMA\_Pump

SIGMA\_UV%

B\_O MU\_TankLvI Real

Real Real

Real

Real

Real

Real

Real

Real

Real

Real

Real

Real

Real

Real

2.6014

-2.9345

2.8387

-2.7334

4.3664

2.6695

4.1839

63.6731

13.011

0.7181

0.0714

1.6355

0.4813

30.5615

4.7297

92.9365

5.4898

1.6341

1.8581

0.6325

0.4388

8.638

0.4105

2.0431

5.9868