Program blocks / 02_Controller / NeuralNetwork

Inversion [FB4]

Inversion Properties							
General							
Name	Inversion	**Number**	4	**Type**	FB	**Language**	SCL
Numbering	Manual						
Information							
Title		**Author**		**Comment**		**Family**	
Version	0.1	**User-defined ID**					

Name	Data type	Default value
▼ Input		
wejscie	Real	0.0
▼ Output		
wyjscie	Real	0.0
InOut		
▼ Static		
x	Array[0..5] of Real	
s	Array[0..7] of Real	
o	Array[0..7] of Real	
s2	Real	0.0
i	Int	0
w1_1	Array[0..7] of Real	
w1_2	Array[0..7] of Real	
w1_3	Array[0..7] of Real	
w1_4	Array[0..7] of Real	
w1_5	Array[0..7] of Real	
w1_6	Array[0..7] of Real	
w_2	Array[0..7] of Real	
bias	Array[0..7] of Real	
bias2	Real	0.0
N	Int	0
Temp		
Constant		

```
0001 #x[2]:=#x[1];              // x(k-2)
0002 #x[1]:=#x[0];              // x(k-1)
0003 #x[0]:=#wejscie;           // x(k)
0004 #x[5]:=#x[4];              // y(k-3)
0005 #x[4]:=#x[3];              // y(k-2)
0006 #x[3]:=#s2;                // y(k-1)
0007
0008 FOR #i:=0 TO #N-1 DO
0009    #s[#i]:=#x[0]*#w1_1[#i] + #x[1]*#w1_2[#i] + #x[2]*#w1_3[#i];
0010    #s[#i]:=#s[#i] + #x[3]*#w1_4[#i] + #x[4]*#w1_5[#i] + #x[5]*#w1_6[#i] + #bias[#i]; // jw, + bias
0011    #o[#i]:=(1.0-EXP(-#s[#i]))/(1.0+EXP(-#s[#i])); // f. sigmoidalna
0012  END_FOR;
0013
0014 #s2:=0.0;
0015 FOR #i:=0 TO #N-1 DO
0016   #s2:=#s2+#o[#i]*#w_2[#i];
0017 END_FOR;
0018
0019 #s2:=#s2+#bias2;
0020 #wyjscie:=#s2;
```