

# TECHNICAL DOCUMENTATION

## Example 12.4

Project	Example 12.4
Designer	
Application	EXAMPLE_12_4.stu
Software Version	ControlExpert V15.0-SP1
Creation Date	6/16/2023 10:34:34 AM
Last Modification Date	6/16/2023 10:45:26 AM
Target PLC	BMX P34 1000 02.00CPU 340-10 Modbus

# MAST

**Specific properties**

Configuration	Cyclic
Task period configuration	0
Watchdog time configuration	250

# Main\_Oper\_Intf : [MAST]

```
120| 1| 10| 20| 30| 40| 50| 60| 70| 80| 90| 100| 110|
      134|
1  (* Example 12.4 *)
2  (* Copyright (c) 2023 Dogwood Valley Press, LLC *)
3
4  (* Make sure T428_Min is at least 2.1 and no more than 13.4 *)
5  IF (T428_Min < 2.1) THEN T428_Min := 2.1; END_IF;
6  IF (T428_Min > 13.4) THEN T428_Min := 13.4; END_IF;
7
8  (* Calculate max level *)
9  T428_Max := T428_Min + 1.5;
10
11 (* Low level alarms *)
12 T428_LOLA := (LT428_Val < 4.0);
13 T428_Hrn_Act := (LT428_Val < 2.0);
14
15 (* Transitions for level and ack button *)
16 HrnTrig(CLK:=T428_Hrn_Act);
17 AckTrig(CLK:=Alm_Ack);
18 (* Trigger horn when level drops below 2.0 or *)
19 (* stays below 2 for 5 minutes after ack'd *)
20 IF (HrnTrig.Q) OR (Ack_Tmr.Q) THEN
21   T428_HORN := TRUE;
22 ELSE
23   IF AckTrig.Q THEN
24     T428_HORN := FALSE;
25   END_IF;
26 END_IF;
27
28 (* Time level staying below 2 after ack *)
29 IF (AckTrig.Q AND T428_Hrn_Act) THEN
30   Ack_Tmr_En := TRUE;
31 END_IF;
32 IF Ack_Tmr_En AND (NOT T428_Hrn_Act OR Ack_Tmr.Q ) THEN
33   Ack_Tmr_En := FALSE;
34 END_IF;
35 Ack_Tmr( IN:=Ack_Tmr_En, PT:=t#5m0s0ms);
```

# Main : [MAST]

120|

1|10|20|30|40|50|60|70|80|90|100|110|

134|

```
1 (* Example 12.3 *)
2 (* Copyright (c) 2023 Dogwood Valley Press, LLC *)
3
4 (* Convert analog input to level *)
5 LT428_Val := (INT_TO_REAL(LT428_MEAS))*(15.0-1.0)/10000.0 + 1.0;
6
7 (* Level control: turn on when low, turn off when *)
8 (*   high. If not enabled, always turn off      *)
9 IF T428_Cntrl THEN
10   IF (LT428_Val < T428_Min) THEN
11     XV427_OPEN := TRUE;
12   END_IF;
13   IF (LT428_Val > T428_Max) THEN
14     XV427_OPEN := FALSE;
15   END_IF;
16 ELSE
17   XV427_OPEN := FALSE;
18 END_IF;
```

# FAST

**Specific properties**

Configuration	Periodic
Task period configuration	5
Watchdog time configuration	100

# Cross References

## Application:

### Addresses

Object	Referred into	Location	Usage
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### Variables or FB instances

Object	Referred into	Location	Usage
Ack_Tmr	Main_Oper_Intf : [MAST]	(l 20, c: 20)	R
		(l 32, c: 40)	R
		(l 35, c: 1)	FC
Ack_Tmr_En	Main_Oper_Intf : [MAST]	(l 30, c: 3)	W
		(l 32, c: 4)	R
		(l 33, c: 3)	W
		(l 35, c: 14)	R
AckTrig	Main_Oper_Intf : [MAST]	(l 17, c: 1)	FC
		(l 23, c: 6)	R
		(l 29, c: 5)	R
Alm_Ack	Main_Oper_Intf : [MAST]	(l 17, c: 14)	R
HmTrig	Main_Oper_Intf : [MAST]	(l 16, c: 1)	FC
		(l 20, c: 5)	R
LT428_MEAS	Main : [MAST]	(l 5, c: 27)	R
LT428_Val	Main_Oper_Intf : [MAST]	(l 12, c: 15)	R
		(l 13, c: 18)	R
	Main : [MAST]	(l 10, c: 9)	R
		(l 13, c: 9)	R
		(l 5, c: 1)	W
T428_Cntrl	Main : [MAST]	(l 9, c: 4)	R
T428_HORN	Main_Oper_Intf : [MAST]	(l 21, c: 3)	W
		(l 24, c: 5)	W
T428_Hrn_Act	Main_Oper_Intf : [MAST]	(l 13, c: 1)	W
		(l 16, c: 14)	R
		(l 29, c: 19)	R
		(l 32, c: 24)	R
T428_LOLA	Main_Oper_Intf : [MAST]	(l 12, c: 1)	W
T428_Max	Main_Oper_Intf : [MAST]	(l 9, c: 1)	W
	Main : [MAST]	(l 13, c: 21)	R
T428_Min	Main_Oper_Intf : [MAST]	(l 5, c: 26)	W
		(l 6, c: 5)	R
		(l 6, c: 27)	W
		(l 9, c: 13)	R
		(l 5, c: 5)	R
	Main : [MAST]	(l 10, c: 21)	R
XV427_OPEN	Main : [MAST]	(l 11, c: 9)	W
		(l 14, c: 9)	W
		(l 17, c: 5)	W

### EF objects

Object	Referred into	Location	Usage
int_to_real	Main : [MAST]	(l 5, c: 15)	FC