Myostat Motion Control Inc .
Cool Muscle 1
RT3 Application Note

Cool Muscle Language Notes for Inputs

1. Inputs

1. Speed Control Using Multiple Digital Inputs as Binary Control

This example uses inputs 1-4 on the motor as digital inputs to set a speed. It uses a binary combination of the inputs to calculate 16 different set-points. All calculations and executions are done in three logic banks. The 1st logic bank calculates the binary combination. If it has changed the 2nd logic bank decides if the motor should be stopped or a speed is set. The 3rd logic bank sets required speed.

CML Code Used:

.1 → sending just the motor ID allows all following commands to be sent to that ID.

K87=5 → 5ms logic bank scan time
K85=1 → Logic bank 1 is started on power-up

P0=1000000000 → set direct mode to speed control
S0=0 → default speed is 0
A0=10 → default acceleration is 10

N10-N25 → N registers define constants to compare the binary combination too.
S1-S15→ S registers set the speed options for the binary combination

V0=0 → used to calculate and hold the binary combination
V1=0 → temporary variable used in calculations

V2=2 → binary multiplier for IN2
V4=4 → binary multiplier for IN3
B8=8 → binary multiplier for IN4

L1-L3 → indicated the start of a logic bank
END → indicates the end of a logic bank

$ → save the data to the eeprom to it is retained on a power cycle

Example CML Code:

```
/set ID to motor 1
.1

/set logic bank scan time
/and startup bank
K87=5
K85=1

/clear program banks
/and logic banks
B100
```

```
L100

/set P0 to speed control
/default speed is 0
P0=1000000000
S0=0
A0=10

/assign N values to be
/used as constants to compare
/to the input combination
N10=0
N11=1
N12=2
N13=3
N14=4
N15=5
N16=6
N17=7
N18=8
N19=9
N20=10
N21=11
N22=12
N23=13
N24=14
N25=15

/define speeds
S1=10
S2=20
S3=30
S4=40
S5=50
S6=60
S7=70
S8=80
S9=90
S10=100
S11=110
S12=120
S13=130
S14=140
S15=150

/set default values for variables
V0=0
V1=0
V3=0
```

```
V2=2
V4=4
V8=8

/scan inputs and calculate
/binary combination
/if it has changed call logic 2
L1.1
V0=I1;
V1=I2*V2;
V0=V0+V1;
V1=I3*V4;
V0=V0+V1;
V1=I4*V8;
V0=V0+V1;
V0!=V3, CL2,T0
END.1

/depending on combination
/stop the motor or set a speed
/by calling L3
L2.1
V3=V0;
V0==N10,],CL3
END.1

/set the speed and start the motor
L3.1
V0==N11,S0=S1,T0
V0==N12,S0=S2,T0
V0==N13,S0=S3,T0
V0==N14,S0=S4,T0
V0==N15,S0=S5,T0
V0==N16,S0=S6,T0
V0==N17,S0=S7,T0
V0==N18,S0=S8,T0
V0==N19,S0=S9,T0
V0==N20,S0=S10,T0
V0==N21,S0=S11,T0
V0==N22,S0=S12,T0
V0==N23,S0=S13,T0
V0==N24,S0=S14,T0
V0==N25,S0=S15,T0
^.1
END.1

/save data to eeprom
$.1
```

/start the logic bank
[L1.1