

# AC10

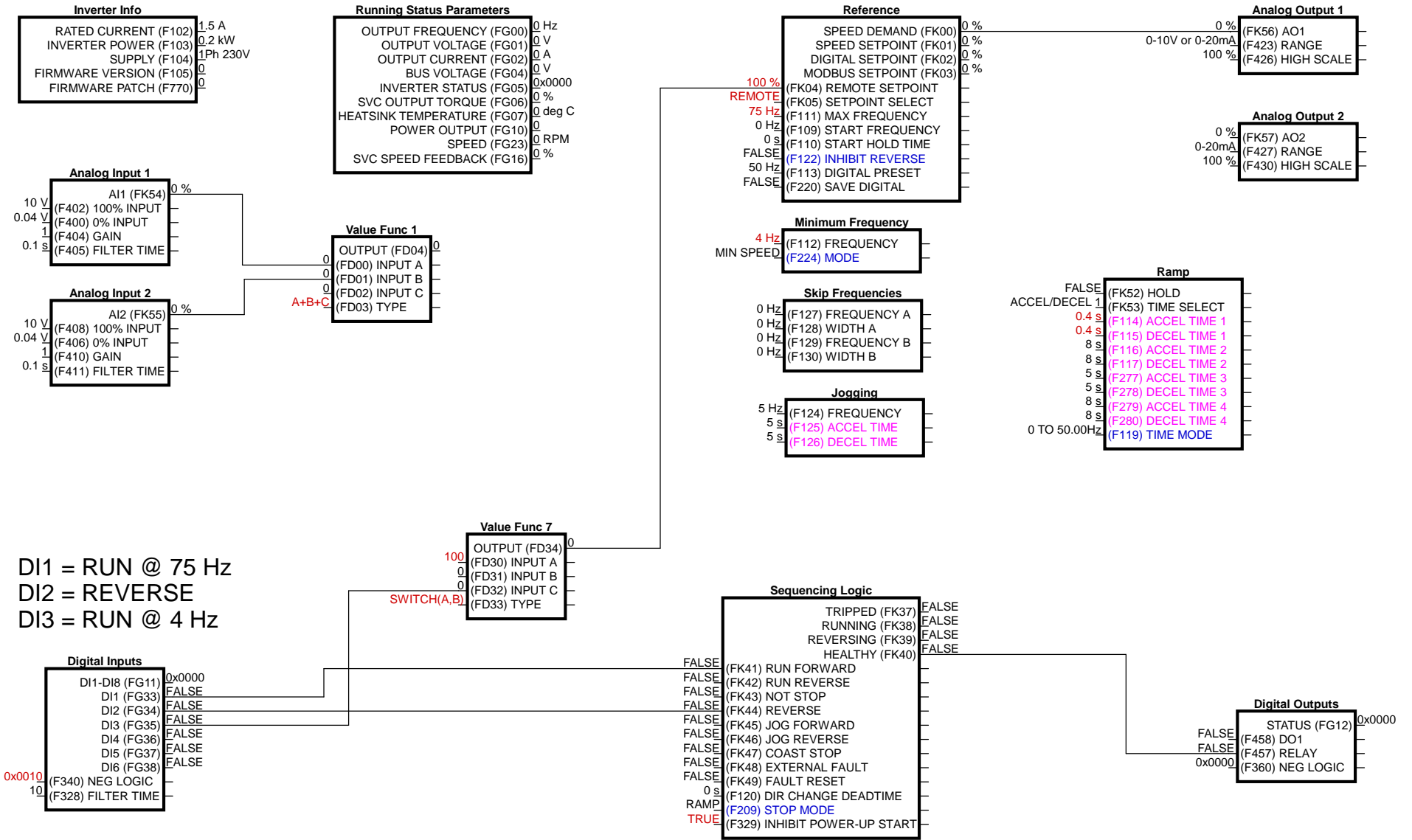
Version 2.32 Template

IP20 frame 1~2 (0.2kW~2.2kW)

IP20 3Ph 400V frame 3~5 (3.7kW~22kW)

Not for IP20 3Ph 230V frame 3~5, use IP20 frame 6~12 template

Inputs in 'Frame Dependent Colour' are frame dependent, see manual for details.  
 Inputs in 'Restricted Access Colour' can only be changed when drive is not running.



## BASIC SPEED CONTROL

DWN			SIZE A	DWG. NO.	RFA
CHK		/1/A10v_MONGUZZI - 3AU1.008	ISSUE		
APP			SCALE	SHEET	1 OF 6
EDIT	LOC				

# Motor Control

**Control Mode**

V/F  
DISABLED

(F106) CONTROL MODE  
(F800) AUTOTUNE MODE

**Motor Nameplate (IM)**

MOTOR POLES(F804) 0

50 Hz (F118) BASE FREQUENCY  
50 Hz (F810) MOTOR RATED FREQUENCY  
2.3 kW (F801) RATED POWER  
400 V (F802) RATED VOLTAGE  
2.1 A (F803) RATED CURRENT  
1460 RPM/min (F805) RATED SPEED

**Induction Motor Data**

13.67 Ohm (F806) STATOR RESISTANCE  
6.835 Ohm (F807) ROTOR RESISTANCE  
37.12 mH (F808) LEAKAGE INDUCTANCE  
758.6 mH (F809) MUTUAL INDUCTANCE

**Motor Nameplate (PMAC)**

192.4 mV/RPM (F870) BACK ELECTROMOTIVE FORCE  
56.6 mH (F871) D-AXIS INDUCTANCE  
108.1 mH (F872) Q-AXIS INDUCTANCE  
4.57 Ohm (F873) STATOR RESISTANCE

**Pattern Generator**

4000 Hz (F153) SWITCHING FREQUENCY  
TRUE (F159) RANDOM PATTERN  
0.3 s (F812) DEFLUX DELAY  
PWM ON (F859) BEHAVIOUR AT 0Hz

**Rotational to Linear Speed Conversion**

1 (F133) DRIVE RATIO OF DRIVEN SYSTEM  
0.001 m (F134) TRANSMISSION-WHEEL RADIUS

**V/F Current Boost**

FALSE (F641) ENABLE  
0.3 A (F844) NO-LOAD CURRENT BOOST

**Voltage Control**

100 % (F152) VOLTAGE AT BASE FREQUENCY  
DISABLED (F154) AUTOMATIC VOLTAGE MODE

**Slip Compensation**

0 % (F136) SLIP COMPENSATION

**Advanced Control**

SVC (F861) PMAC STARTING MODE  
5 % (F862) FREQUENCY SWITCHOVER POINT  
20 % (F876) INJECTION CURRENT WITHOUT LOAD  
0 % (F877) STARTING CURRENT  
10 % (F878) INJECTION CURRENT COMPENSATION WITHOUT LOAD CUTOFF  
1 (F823) CURRENT LOOP Kp  
1 (F825) CURRENT LOOP Ki  
50 (F479) ESTIMATOR Kp  
0.1 (F480) ESTIMATOR Ki  
0 (F475) POSITION OFFSET

**V/F Fluxing**

LINEAR (F137) V/F SHAPE  
7 (F138) LINEAR BOOST  
1.5 (F139) SQUARE BOOST  
1 Hz (F140) FREQUENCY 1  
0 % (F141) VOLTAGE 1  
5 Hz (F142) FREQUENCY 2  
13 % (F143) VOLTAGE 2  
10 Hz (F144) FREQUENCY 3  
24 % (F145) VOLTAGE 3  
20 Hz (F146) FREQUENCY 4  
45 % (F147) VOLTAGE 4  
30 Hz (F148) FREQUENCY 5  
63 % (F149) VOLTAGE 5  
40 Hz (F150) FREQUENCY 6  
81 % (F151) VOLTAGE 6

**Speed Loop Gains**

0.2 (F813) SPEED LOOP KP1  
0.2 (F814) SPEED LOOP KI1  
0.2 (F815) SPEED LOOP KP2  
0.2 (F816) SPEED LOOP KI2  
5 Hz (F817) KP KI SWITCHING FREQ 1  
50 Hz (F818) KP KI SWITCHING FREQ 2

**Torque Control**

SPEED CONTROL (FC00) MODE  
100 % (FC09) TORQUE REFERENCE  
10 % (FC17) OFFSET TORQUE  
10 % (FC23) FORWARD SPEED LIMIT  
10 % (FC25) REVERSE SPEED LIMIT  
200 % (FC30) DRIVING TORQUE LIMIT  
200 % (FC35) RE-GENERATING TORQUE LIMIT  
0.1 s (FC01) SWITCHOVER DELAY TIME  
1 s (FC02) TORQUE ACCEL/DECEL TIME  
10 % (FC16) OFFSET TORQUE CUT-OFF FREQUENCY  
3 (FC29) DRIVING TORQUE LIMIT COEFFICIENT  
3 (FC34) RE-GENERATING TORQUE LIMIT COEFFICIENT

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# Trips and Protection

## Fault History

[NEWEST] FAULT 1 (F708)	NONE
FREQUENCY 1 (F711)	0 Hz
CURRENT 1 (F712)	0 A
VOLTAGE 1 (F713)	0 V
FAULT 2 (F709)	NONE
FREQUENCY 2 (F714)	0 Hz
CURRENT 2 (F715)	0 A
VOLTAGE 2 (F716)	0 V
[OLDEST] FAULT 3 (F710)	NONE
FREQUENCY 3 (F717)	0 Hz
CURRENT 3 (F718)	0 A
VOLTAGE 3 (F719)	0 V
OVER CURRENT COUNT (F720)	0
OVER CURRENT 1 COUNT (F739)	0
OVER VOLTAGE COUNT (F721)	0
OVER TEMPERATURE COUNT (F722)	0
OVERLOAD COUNT (F723)	0

## V/Hz Protection

VOLTAGE AND CURRENT	(F607) PROTECTION MODE
160 %	(F608) CURRENT LIMIT
130 %	(F609) VOLTAGE LIMIT
60 s	(F610) PROTECTION TIMEOUT

## Current Limit SVC

2	(F822) CURRENT LIMIT
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## Overcurrent 1 Protection

TRUE	(F737) ENABLE TRIP
2.5	(F738) TRIP LEVEL

## Motor Overload Protection

MODE 1	(F753) MODE
80 %	(F705) WARNING TIME
100 %	(F707) CURRENT LEVEL
60	(F750) MAX TIME

## Inverter Overload Protection

80 %	(F704) WARNING TIME
150 %	(F706) CURRENT LEVEL

## Analog Input Break Protection

DISABLED	(F741) MODE
50 %	(F742) TRIP THRESHOLD

## Input Phase Loss Protection

TRUE	(F724) ENABLE TRIP
0.5 s	(F728) FILTERING TIME CONSTANT

## Output Phase Loss Protection

FALSE	(F727) ENABLE TRIP
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## Under Voltage Protection

200 V	(F732) TRIP THRESHOLD
5 s	(F729) FILTERING TIME CONSTANT

## Over Temperature Protection

TRUE	(F726) ENABLE TRIP
5 s	(F730) FILTERING TIME CONSTANT
80 %	(F745) WARNING THRESHOLD
TRUE	(F747) AUTO-ADJUST SWITCHING FREQ
RUNNING STATE	(F702) FAN CONTROL

# Auxiliary Functions

## DC Braking

DISABLED	BRAKING THRESHOLD (F611)
1 Hz	(F600) MODE
10 %	(F601) INITIAL FREQUENCY
10 %	(F602) STARTING EFFICIENCY
0.5 s	(F603) STOPPING EFFICIENCY
0.5 s	(F604) STARTING TIME
80 %	(F605) STOPPING TIME
TRUE	(F612) BRAKING DUTY RATIO
	(F622) AUTO DUTY RATIO

## Flycatching

DISABLED	(F613) FUNCTION
FROM MAX FREQUENCY	(F614) MODE
20	(F615) RATE
60 s	(F619) FAULT TIMEOUT
100	(F627) CURRENT LIMITING

## Auto-Start

FALSE	(F213) AFTER REPOWERED
FALSE	(F214) AFTER FAULT RESET
60 s	(F215) START DELAY TIME
0	(F216) MAX RETRIES
3 s	(F217) RESET DELAY TIME

## VDC Adjustment

DISABLED	(F631) MODE
380 V	(F632) TARGET VOLTAGE

## High-Frequency Performance

MODE 1	(F650) MODE
100	(F651) ENABLE FREQUENCY
95	(F652) DISABLE FREQUENCY

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# Multi-stage Speed Control

**Multi-Stage Speed Control**

OUTPUT (FK50) 0 %

NONE (FK51) STAGE SELECT

15 STAGE (F500) TYPE

5 Hz (F504) FREQUENCY 1

FORWARD (F549) DIRECTION 1

5 s (F519) ACCEL TIME 1

5 s (F534) DECEL TIME 1

10 Hz (F505) FREQUENCY 2

FORWARD (F550) DIRECTION 2

5 s (F520) ACCEL TIME 2

5 s (F535) DECEL TIME 2

15 Hz (F506) FREQUENCY 3

FORWARD (F551) DIRECTION 3

5 s (F521) ACCEL TIME 3

5 s (F536) DECEL TIME 3

20 Hz (F507) FREQUENCY 4

FORWARD (F552) DIRECTION 4

5 s (F522) ACCEL TIME 4

5 s (F537) DECEL TIME 4

25 Hz (F508) FREQUENCY 5

FORWARD (F553) DIRECTION 5

5 s (F523) ACCEL TIME 5

5 s (F538) DECEL TIME 5

30 Hz (F509) FREQUENCY 6

FORWARD (F554) DIRECTION 6

5 s (F524) ACCEL TIME 6

5 s (F539) DECEL TIME 6

35 Hz (F510) FREQUENCY 7

FORWARD (F555) DIRECTION 7

5 s (F525) ACCEL TIME 7

5 s (F540) DECEL TIME 7

40 Hz (F511) FREQUENCY 8

FORWARD (F556) DIRECTION 8

5 s (F526) ACCEL TIME 8

5 s (F541) DECEL TIME 8

5 Hz (F512) FREQUENCY 9

FORWARD (F573) DIRECTION 9

5 s (F527) ACCEL TIME 9

5 s (F542) DECEL TIME 9

10 Hz (F513) FREQUENCY 10

FORWARD (F574) DIRECTION 10

5 s (F528) ACCEL TIME 10

5 s (F543) DECEL TIME 10

15 Hz (F514) FREQUENCY 11

FORWARD (F575) DIRECTION 11

5 s (F529) ACCEL TIME 11

5 s (F544) DECEL TIME 11

20 Hz (F515) FREQUENCY 12

FORWARD (F576) DIRECTION 12

5 s (F530) ACCEL TIME 12

5 s (F545) DECEL TIME 12

25 Hz (F516) FREQUENCY 13

FORWARD (F577) DIRECTION 13

5 s (F531) ACCEL TIME 13

5 s (F546) DECEL TIME 13

30 Hz (F517) FREQUENCY 14

FORWARD (F578) DIRECTION 14

5 s (F532) ACCEL TIME 14

5 s (F547) DECEL TIME 14

35 Hz (F518) FREQUENCY 15

FORWARD (F579) DIRECTION 15

5 s (F533) ACCEL TIME 15

5 s (F548) DECEL TIME 15

**Multi-Stage Auto Circulate**

Z (F501) STAGES

0 (F502) CYCLES

FALSE (F503) KEEP RUNNING

1 (F557) RUNNING TIME 1

0 s (F565) STOP TIME 1

1 s (F558) RUNNING TIME 2

0 s (F566) STOP TIME 2

1 s (F559) RUNNING TIME 3

0 s (F567) STOP TIME 3

1 s (F560) RUNNING TIME 4

0 s (F568) STOP TIME 4

1 s (F561) RUNNING TIME 5

0 s (F569) STOP TIME 5

1 s (F562) RUNNING TIME 6

0 s (F570) STOP TIME 6

1 s (F563) RUNNING TIME 7

0 s (F571) STOP TIME 7

1 s (F564) RUNNING TIME 8

0 s (F572) STOP TIME 8

# Other

**Raise/Lower**

OUTPUT (FK28) 0 %

FALSE (FK29) RAISE

FALSE (FK30) LOWER

FALSE (FK31) RESET

10 s (FK32) RAMP TIME

100 % (FK33) MAX VALUE

0 % (FK34) MIN VALUE

0 % (FK35) RESET VALUE

**PID**

OUTPUT (FK10) 0 %

ERROR (FK11) 0 %

LIMITING (FK12) FALSE

0 % (FK13) SETPOINT

0 % (FK14) FEEDBACK

0 % (FK15) FEED FORWARD

1 (FK16) FEEDBACK GAIN

0 (FK17) FEED FORWARD GAIN

0.1 (FK18) P GAIN

1 (FK19) I GAIN

0 (FK20) D GAIN

300 % (FK21) LIMIT

-300 % (FK22) LOW LIMIT

TRUE (FK23) SYMMETRIC LIMITS

FALSE (FK24) ENABLE PID

FALSE (FK25) INTEGRAL DEFEAT

0.05 s (FK26) D FILTER TC

1 (FK27) OUTPUT SCALING

**Analog Input 1 Scaling**

AI1 RAW (F331) 0 %

2 (F403) HIGH SCALE

1 (F401) LOW SCALE

0 V (F418) ZERO DEADZONE

STRAIGHT LINE (F460) LINEARISATION

2 V (F462) VOLTAGE 1

1.2 (F463) SCALE 1

5 V (F464) VOLTAGE 2

1.5 (F465) SCALE 2

8 V (F466) VOLTAGE 3

1.8 (F467) SCALE 3

**Analog Input 2 Scaling**

AI2 RAW (F332) 0 %

2 (F409) HIGH SCALE

1 (F407) LOW SCALE

0 V (F419) ZERO DEADZONE

STRAIGHT LINE (F461) LINEARISATION

2 V (F468) VOLTAGE 1

1.2 (F469) SCALE 1

5 V (F470) VOLTAGE 2

1.5 (F471) SCALE 2

8 V (F472) VOLTAGE 3

1.8 (F473) SCALE 3

**Analog Input Filter**

10 (F437) WIDTH

**Keypad**

0x000E (F131) RUN DISPLAY ITEMS

0x000B (F132) STOP DISPLAY ITEMS

DISABLED (F643) MULTI-FUNCTION KEY

100 s (F646) BACKLIGHT TIME

REMOTE IF FITTED (F421) SELECT

**Modbus**

ACTIVITY (F908) 0

0 s (F905) TIMEOUT

TRUE (F219) DISABLE SAVE

**Password**

FALSE (F107) ENABLE

8 (F108) SET

**Clone**

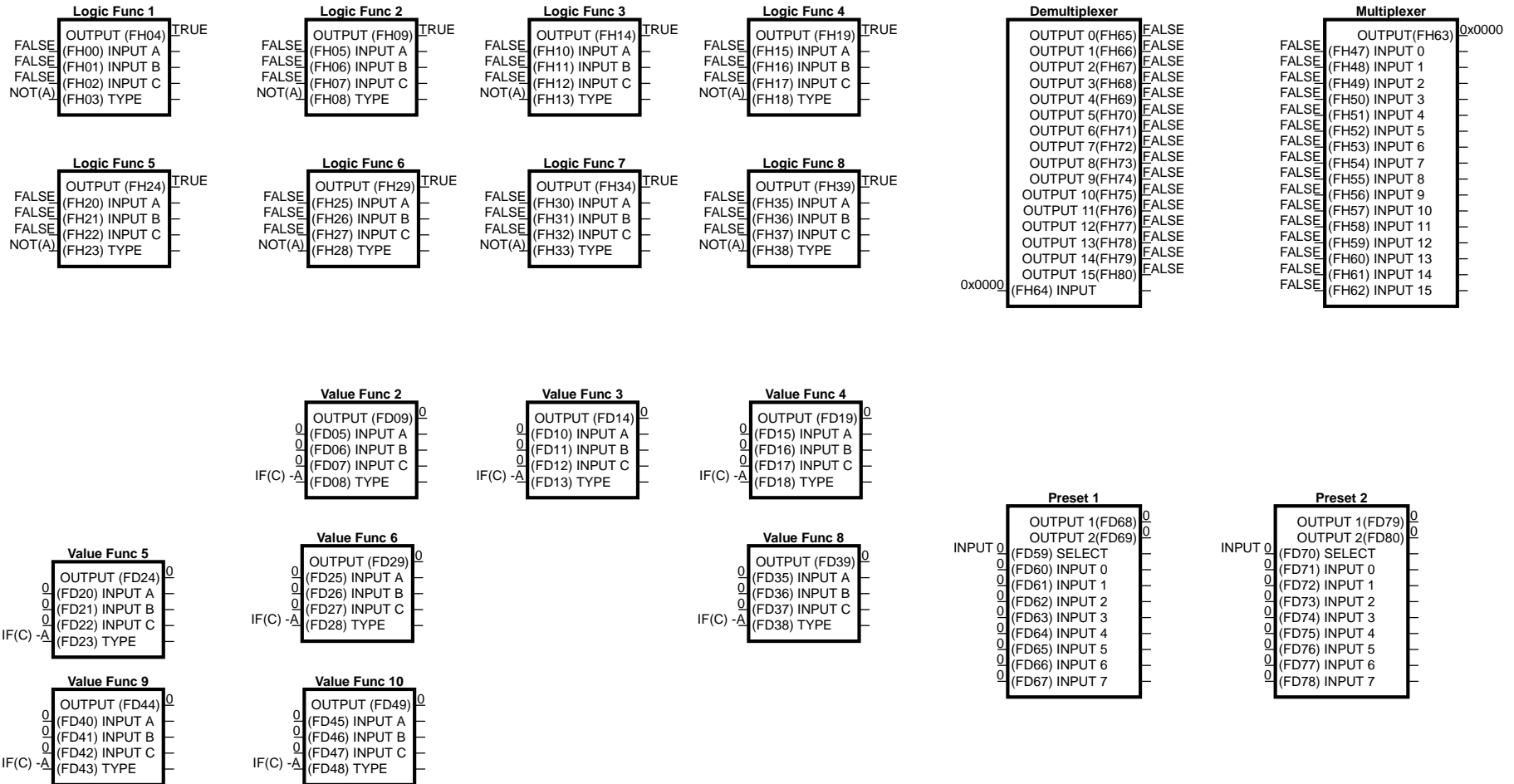
SAME ONLY (F638) LOAD ALLOW

TRUE (F640) EXCLUDE MOTOR PARAMS

CODE (F639) 0

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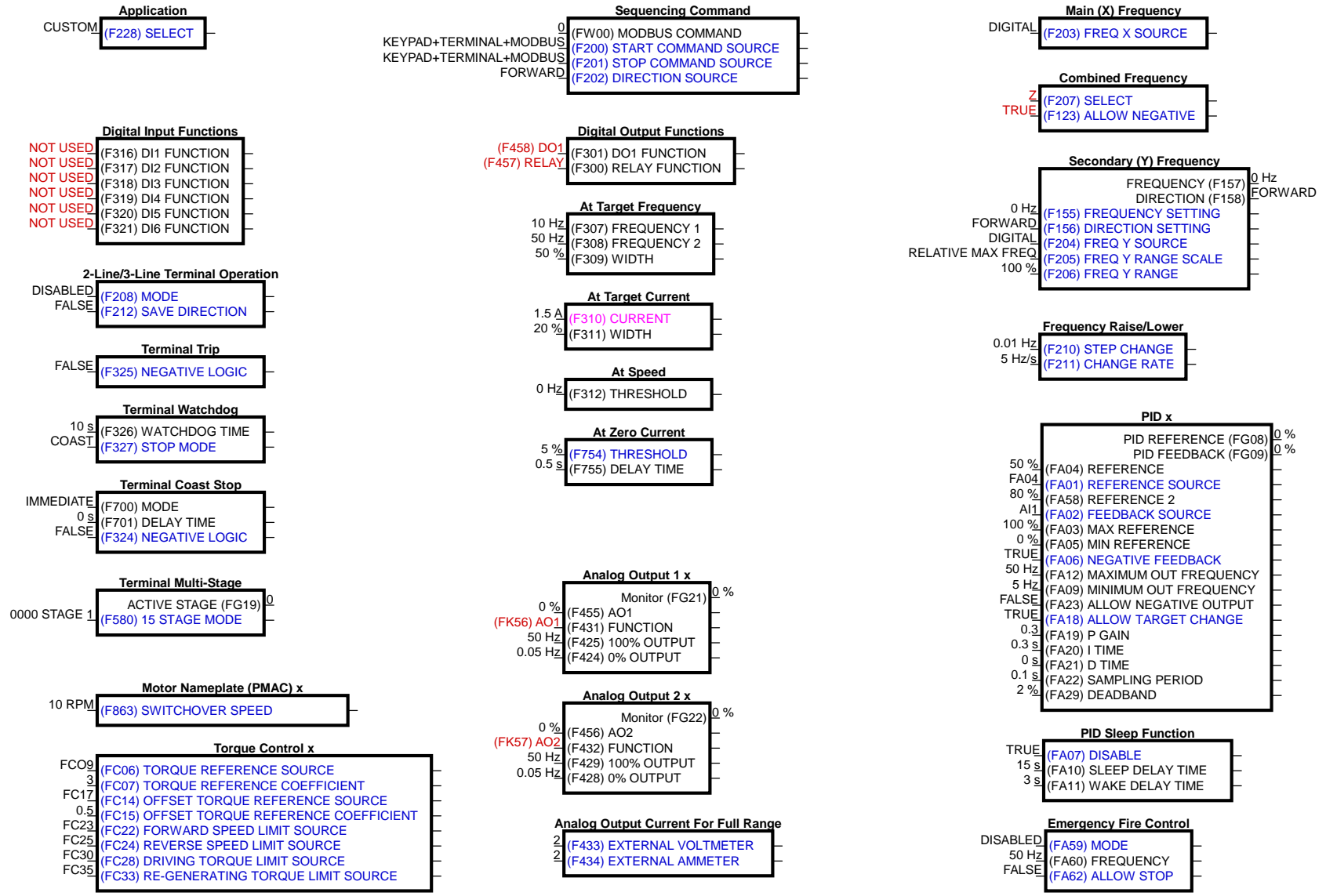
# General Purpose Blocks



DWN		SIZE A	DWG. NO.	RFA
CHK		/1/A10v_MONGUZZI - 3AU1.008		ISSUE
APP		SCALE	SHEET	5 OF 6
EDIT	LOC			

# Deprecated Blocks

Avoid using these blocks, their functionality has been superseded and only are included in order to provide backward compatibility.



DWN			SIZE A	DWG. NO.	RFA
CHK		/1/A10v_MONGUZZI - 3AU1.008	ISSUE		
APP			SCALE	SHEET	6 OF 6
EDIT	LOC				