C4

DRIVE STARTUP MANUAL

M1000

VERSION 6.2

SMARTRISE

Document History

Date	Version	Summary of Changes
October 15, 2024	6.2	Added Accucoder column to Table 1: Wiring References for Common Encoders
January 13, 2021	6.1	Split Operation section to an Operation and Troubleshooting section and added updates.
November 2,2020	6.0	Changed header name from NTS Slowdown to Construction Speed Updated description and procedure to reference the car running in Construction mode
March 12, 2020	5.0	Added LOTO to Construction procedure Added NTS procedure
March 5, 2020	4.0	Updated Construction procedure to include the run box must be set to ON
November 4, 2019	3.0	Added tuning steps
August 23, 2019	2.0	Changed cover page New document format Added secondary brake wiring
October 23,2018	1.0	Initial Submittal

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M1000 Drive

The M1000 drive is an AC drive.

Figure 1: M1000 Drive

Equipment/Settings Verification

Set and verify the equipment matches the job specific parameters for proper operation. See the *C4 Controller* sheet *01 Getting Started* Parameter Table for more information.

Car	Group #	Group Car ID	Contract Speed	Floors	Capacity	Main Line Voltage	Motor Volts	Motor HP	Motor FLA	Motor Poles	Motor RPM	Motor Freq	Minimum Drive AWG	Minimum Motor AWG	Disc. Size	Drive
1	N/A	N/A	100	4	3000	240	230	15	42	8	873	60	6	6	60	M1000-L02M0040SAC-D01

Car	Doors	DX Breaker Voltage	Brake Pick	Brake Hold	Brake Ohm	Brake Amp	M. Cont. P/N	B.1 Cont P/N	Encoder PPR	Brake	DBR Ohm Range	DBR Min. Wattage
1	1	220	115	115	100	1	CA7-43	CA7-12	1024	HS GRIPPER	4-14 Ohms	2400

Figure 2: Example of Parameter Table

Grounding Requirements

NOTE: A proper and effective building ground connection is required for the safe and successful operation of the controller.

Examples of a proper building-to-controller ground is as follows:

1. Attach the ground wire to the street side of a water main.
2. Attach the ground wire to a grounding rod in the pit.

The controller has a common ground bus terminal connection.

Figure 3: Ground Bus Terminal

- The building, motor, transformer, and filter(s) must all share a common ground. This removes ground loops, limits impedance, and routes noise into the ground.

Wiring

A checklist must be completed during the drive wiring process. See Appendix for terminal locations.

Power

Perform the following to connect power. See the *C4 Controller* sheet *03 Machine Room* for job specific information.

- Connect main line power to terminal blocks L1/L2/L3.
- Connect the ground wire to the yellow/green terminal block next to L1-L3.

Brake

Perform the following to connect the brakes. See the *C4 Controller* sheet *5 Brakes* for job specific information.

- Connect the main brake wiring to terminal K1 / K2 and the secondary brake wiring (if equipped) to terminals J1 / J2 located on the terminal block next to the M Contactor.

Motor / Encoder

Perform the following to connect the drive to the motor and encoder cable. See the *C4 Controller* sheet *04 Drive and Motor* for job specific information.

- Connect motor leads to the M contactor at T1/T2/T3.
- Connect the encoder cable, if applicable, to the PG card located under the top cover.

The table below lists the Terminal Descriptions. Record the encoder wiring color code for future release.

Table 1: Wiring References for Common Encoders

Encoder	Drive	Hollister Whitney	Heidenhain	Torin ECN413	Zeihl	Accucoder
PWR	IP	Brown	Green/Blue + Brown	Red/Pink	Gary/Green	Brown
COM	IG	White	Green/White + White	Black + Red/White	Pink/Yellow	White
A	A+	Green	Green/Black	Green + Black	Gray/Pink	Green
/A	A-	Yellow	Yellow/Black	Yellow + Black	Red/Blue	Yellow
B	B+	Blue	Blue/Black	Blue + Black	Blue	Gray
/B	B-	Red	Red/Black	Red + Black	Red	Pink
Z						Blue
/Z						Red
CLOCK+	CK	Black	Gray	Gray	White	

Encoder	Drive	Hollister Whitney	Heidenhain	Torin ECN413	Zeihl	Accucoder
CLOCK-	$\overline{CK}$	Violet	Pink	Clear OR Silver	Brown	
DATA+	DT	Gray	Violet	Purple	Violet	
DATA-	$\overline{DT}$	Pink	Yellow	White	Black	
SHIELD	FE	Shield	Shield	Large Red	Shield	Shield

Construction

All safety inputs are functional during Construction mode on the C4 product. When these safety devices are installed, they are connected per the *C4 Controller* sheet *02 Machine Room I/O* of the prints, even if still on Construction mode. The following includes instructions for when none of these devices have been installed prior to beginning on Construction mode.

Perform the following to wire the Construction Box. See the *C4 Controller* sheet *01 – Getting Started* for job specific information.

1. Turn off power to the controller.
2. On the MR board, connect a jumper from L120 to terminals LFT, LFM, and LFB.
3. Are there rear doors?
   a. If there are rear doors, connect L120 to terminals LRT, LRM, and LRB. Go to step 4.
   b. If there are no rear doors, go to step 4.
4. Connect a jumper from H120 to PIT, BUT, BFL, and TFL.
5. Is a secondary brake present?

   NOTE: There will be two Brake boards.

   a. If a secondary Brake board is present, connect a jumper from M120 to SFM. Go to step 6.
   b. If no secondary Brake board is present, go to step 6.

      NOTE: Rope gripper contact will make SFM.
6. Is a Run/Stop switch being used?
   a. If a Run/Stop switch is used, go to step 7.
   b. If a Run/Stop switch is not used, connect a jumper from H120 to SFH. Go to step 9.
7. Connect a wire from the MR board H120 to one side of the Construction Box Run/Stop switch.
8. Connect a wire from the MR Board SFH to the other side of the Construction Box Run/Stop switch.

   NOTE: A closed switch indicates run and an open switch indicates stop.
9. Connect a jumper from 24 VDC to MM.

10. Is the run box being used?
    a. If the run box is being used, perform the following:
        - Connect the UP button to the input of the CUP
        - Connect the DOWN button to the input of the CDN
        - Connect the Enable to CEN (jump high if not available)
        - Power up the controller by turning on main power, pressing in all push breakers, and turning on the L1/L2 breaker
        - Go to step 11
    b. If the run box is not being used, power up the controller by turning on main power, pressing in all push breakers, and turning on the L1/L2 breaker. Go to step 12.
11. Press the right button to access the Main Menu and navigate to Setup | Miscellaneous | Enable Const. Box to On. Scroll right and press Save.

    NOTE: When the Enable Construction Box is On, the onboard inspection buttons are disabled.
12. Verify the Car Door Bypass and Hoistway Bypass switches are in the OFF position.
13. Place the INSPECTION switch to INSPECTION.
14. Verify the mode of operation is Construction.

Construction Speed

During installation, the Car Top (CT) and Car Operating Panel (COP) are not connected to the controller. The normal terminal stopping (NTS) may cause the car to run slow while moving on Construction mode.

If car runs slower than command speed, perform the following:

1. Turn off power to the controller.
2. Temporarily remove the NTS wire on the MR board.
3. Connect a jumper from NTS input on the drive to REF.
4. Power up the controller.
5. Leave the jumper on while on Construction mode.

When no longer on Construction mode, perform the following:

1. Turn off power to the controller.
2. Remove the jumper from NTS input on the drive to REF.
3. Reconnect the NTS wire to the MR board.
4. Power up the controller.

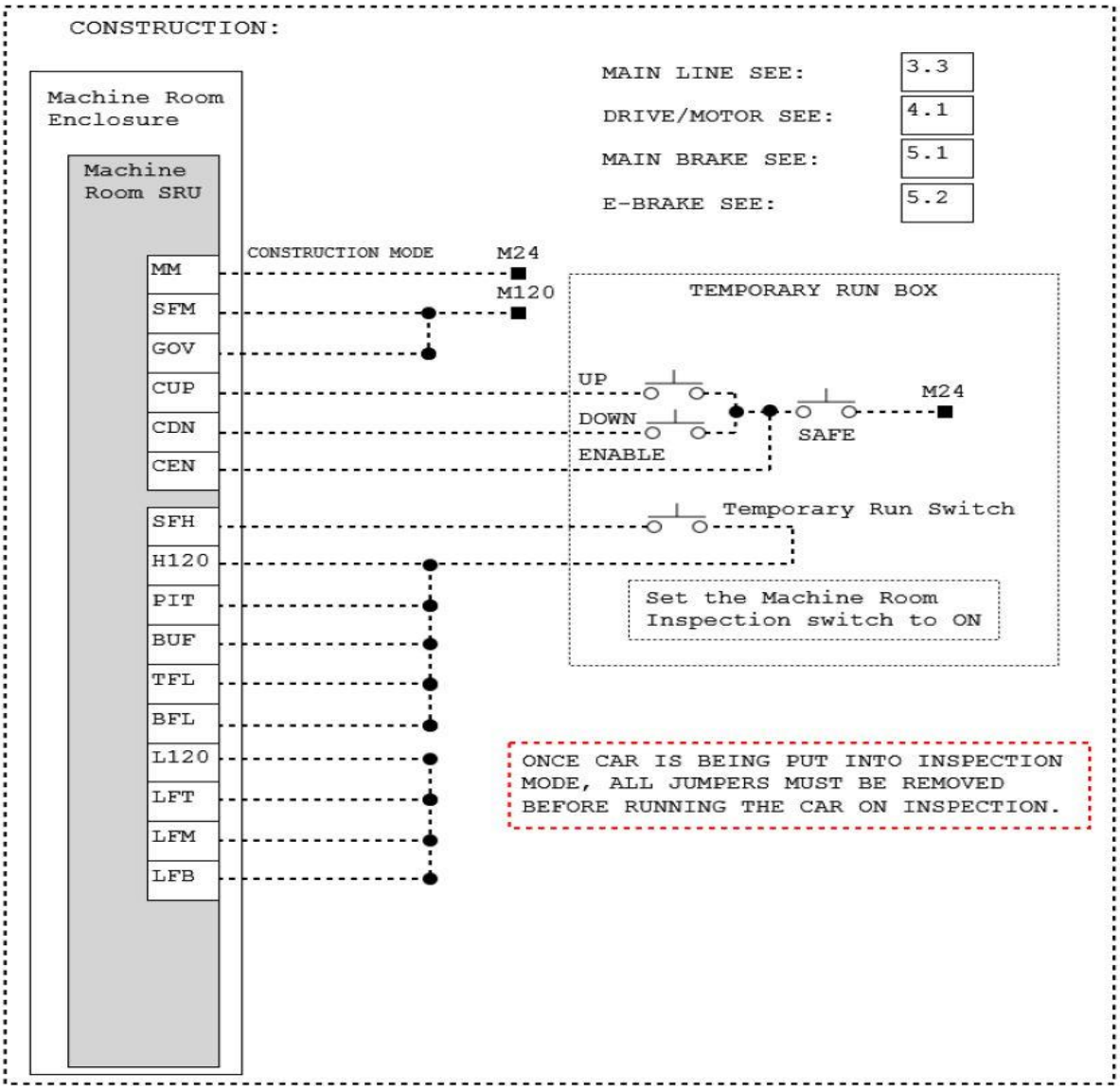

Figure 4: Example of Construction Wiring

Powering Up

Perform the following to power up the drive.

1. Apply external power by closing the main disconnect.
2. Close the two-pole breaker and all pushbutton breakers.
3. Verify the LCD on the Smartrise board and the drive powers up.

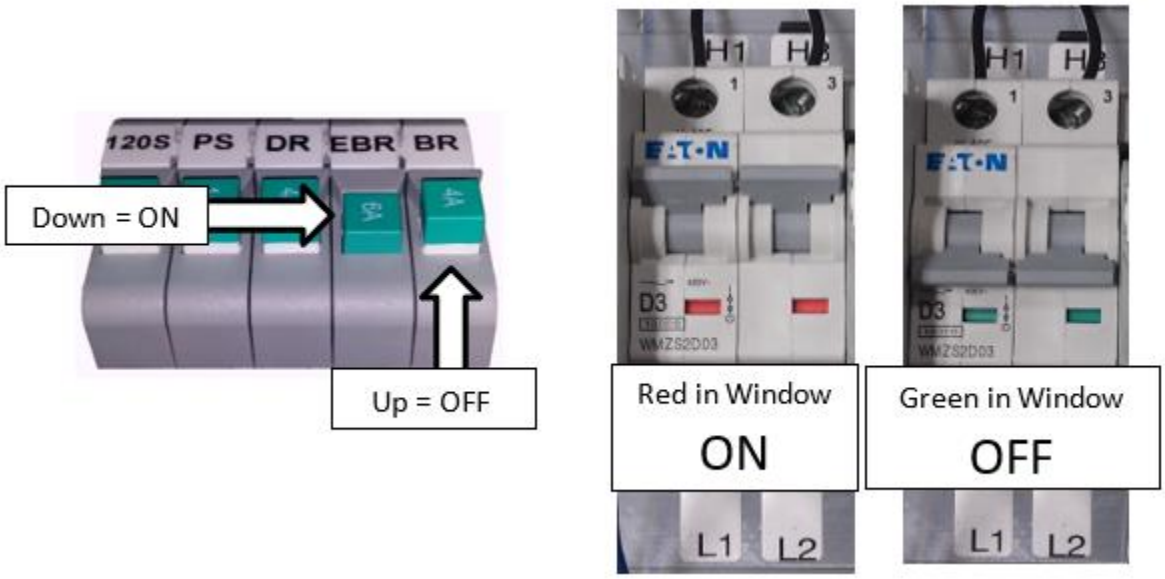

Figure 5: Breakers

Closed Loop Induction Motor Quick Start-Up Guide

This quick start-up guide outlines the general parameters that must be changed/verified when a drive is installed with information that is readily available. The drive will not run if ONLY these parameters are set. Because different elevator controller manufacturers have different interfaces, it is recommended that the parameters in the drive be set to the settings recommended by the elevator controller in the drive technical documentation.

The following are the start-up steps.

1. Set/verify that the drive is set up to run in Closed Loop Vector for Control Method (U8).
2. Verify that the drive has an Encoder board.
   NOTE: The PG-X3 is the most common card used for closed-loop induction motors. See the *Magnetek M1000 AC Elevator Drive* for the PG-X3 Option Card encoder setup.

3. Set / verify that the hoistway parameters are set up properly.
   - The Contract Car Speed (A1) should be set to the elevator contract speed in ft/min.
   - The Contract Mtr Speed (A1) should be set to an RPM where the elevator contract speed can be achieved (measured with a hand tachometer).
4. Set / verify that the Input Voltage (A4) is the same as the measured incoming voltage.

5. Perform the U9 Autotune.
    - Perform the “Tune-No Rotate1” for Tuning Mode Sel (U9).
        - Enter the motor nameplate HP
        - Enter the motor nameplate voltage
        - Enter the motor nameplate current
        - Enter the motor nameplate frequency
        - Enter the motor poles
        - Enter the nameplate rated speed (where slip is incorporated in)
        - Enter the encoder PPR
        - Leave the pre-calculated default for no-load current unless the no-load current is printed on the nameplate
    - BEGIN ALIGNMENT to Yes but **DON’T PRESS THE ENTER BUTTON**.
    - Turn on DIP 6A. The M contactor automatically engages, and the screen displays TUNE command. Press the Enter Button on the drive to start the alignment.
6. Did the Tune-No Rotate1 (U9) pass?
    a. If the Tune-No Rotate1 (U9) did not pass, go to step 7.
    b. If the Tune-No Rotate1 (U9) passed, turn off DIP 6A and the process ends.
7. If you are running on construction/inspection and run into the following:
    - If the motor is running slowly/uncontrolled and drawing high current:
        - Swap Encoder Connect (C1)
        - Verify that the encoder is working
    - If the elevator is running at controlled/proper speed but in the opposite direction of what it is being told:
        - Swap both the Encoder Connect (C1) and Motor Rotation (C1). Go to step 5.

Induction Motor Key Drive Parameters

The table below lists the Parameters for A1 Drive.

Table 2: Parameters for A1 Drive

Parameter	Description	Default	Units	Suggested Adjustments
Contract Car Spd	Elevator contract speed	400	fpm	Set to the speed the elevator will be certified at.
Contract Mtr Spd	Rotational motor shaft speed that makes the elevator run at contract speed	1130	RPM	Adjust this value to ensure the actual running speed of the elevator matches the contract car speed. If the elevator is traveling too fast, lower the value. If the elevator is traveling too slow, increase the value. **NOTE**: A power cycle may be required for this to have an effect.

Parameter	Description	Default	Units	Suggested Adjustments
Response	Sets the sensitivity of the speed regulator	10.0		Normally, the default of 10 is used. An increase to 20 will make the drive more responsive. Too low of a value causes the drive to have sluggish responsiveness.
Inertia	System inertia	2.00	sec	Normally, the default of 2 is used.
Encoder Pulses	Encoder's pulses per revolution	1024	PPR	Set this to match the encoder nameplate PPR.
Mtr Torque Limit	Sets the maximum motoring torque the drive can produce	200	%	It is recommended to set this to 250%.
Regen Torq Limit	Sets the maximum regenerative torque the drive can produce	200	%	It is recommended to set this to 250%.

The table below lists the Parameters for A4 Power Convert.

Table 3: Parameters for A4 Power Convert

Parameter	Description	Default	Units	Suggested Adjustments
Input Voltage	Nominal line-to-line AC input voltage in RMS	Per drive model	VAC	Set the input voltage to match the measured voltage across R, S, and T.

The table below lists the Parameters for A5 Motor.

Table 4: Parameters for A5 Motor

Parameter	Description	Default	Units	Suggested Adjustments
Mtr Rated Power	Motor rated output power on the nameplate	Per drive model	HP	This parameter should be set to match the motor nameplate power. This parameter is automatically populated after a successful U9 AUTOTUNE.
Mtr Rated Voltage	Motor rated voltage on the nameplate	Per drive model	VAC	This parameter should be set to match the motor nameplate voltage. This parameter is automatically populated after a successful U9 AUTOTUNE.
Max Frequency	Motor rated frequency on the nameplate	60	Hz	This parameter should be set to match the motor nameplate frequency. This parameter is automatically populated after a successful U9 AUTOTUNE.

Parameter	Description	Default	Units	Suggested Adjustments
Motor Rated FLA	Motor rated current on the nameplate	Per drive model	A	This parameter should be set to match the motor nameplate current. This parameter is automatically populated after a successful U9 AUTOTUNE.
Number of Poles	Number of poles the motor has	4	--	This parameter should be set to match the number of poles inside the motor. This parameter is automatically populated after a successful U9 AUTOTUNE.
Motor Rated Slip	Slip frequency of the motor	Per drive model	Hz	It is recommended that this setting be determined by a U9 AUTOTUNE.
No-Load Current	Magnetizing current of the motor	Per drive model	A	It is recommended that this setting be determined by a U9 AUTOTUNE.
Leak Inductance	Inductance of the motor	Per drive model	%	It is recommended that this setting be determined by a U9 AUTOTUNE.
Term Resistance	Resistance of the motor	Per drive model	^	It is recommended that this setting be determined by a U9 AUTOTUNE.

The table below lists the Parameters for C1 User Switches.

Table 5: Parameters for C1 User Switches

Parameter	Description	Default	Units	Suggested Adjustments
Motor Rotation	Rotation of the motor that the drive interprets as up or down	Forward	Forward Reverse	If the elevator is running controlled but in the wrong direction, swap BOTH this parameter and Encoder Connect.

The table below lists the Parameters for U8 Basic.

Table 6: Parameters for U8 Basic

Parameter	Description	Default	Units	Suggested Adjustments
Control Method	Sets the type of motor control technique	Closed Loop Vect	Closed Loop Open Loop Vector PM ClosedLoopVct V/f Control	Set this parameter to Closed Loop Vect.

The table below lists the Parameters for U9 Autotune.

Table 7: Parameters for U9 Autotune

Parameter	Description	Default	Units	Suggested Adjustments
Tuning Mode Sel	Sets the type of autotuning the drive performs	TuneNo Rotate1	Standard Tuning Tune-No Rotate1 Term Resistance Tune-No Rotate2	For convenience, it is recommended that the Tune-No Rotate1 is performed.

Closed Loop Permanent Magnet Quick Startup Guide

This quick startup guide outlines the general parameters that must be changed/verified when a drive is installed with information that is readily available. The drive will not run if ONLY these parameters are set. Because different elevator controller manufacturers have different interfaces, it is recommended that the parameters in the drive be set to the settings recommended by the elevator controller in the drive technical documentation.

The following are the startup steps

1. Set / verify that the drive is set up to run in PM ClosedLoopVCT for Control Method (U8).
2. Verify that the drive has an encoder board.
   NOTE: The PG-X3 is the most common card used for closed-loop permanent magnet motors. See the *Magnetek M1000 AC Elevator Drive* for the PG-X3 Option Card encoder setup.

3. Set/verify that the hoistway parameters are set up properly:
   - The Contract Car Speed (A1) should be set to the elevator contract speed in ft/min.
   - The Contract Mtr Speed (A1) should be set to an RPM where the elevator contract speed can be achieved (measured with a hand tachometer).
4. Set / verify that the Input Voltage (A4) is the same as the measured incoming voltage.
5. Perform the U9 Autotune.
   - Perform the “Tune-No Rotate1” for Tuning Mode Sel (U9).
     - Enter the motor nameplate HP
     - Enter the motor nameplate voltage
     - Enter the motor nameplate current
     - Enter the motor nameplate frequency
     - Enter the motor poles
     - Enter the nameplate rated speed (where slip is incorporated in)
     - Enter the encoder PPR
   - BEGIN ALIGNMENT to Yes but **DON’T PRESS THE ENTER BUTTON**.
   - Turn on DIP 6A. The M contactor automatically engages, and the screen displays TUNE command. Press the Enter Button on the drive to start the alignment.

6. Perform the InitPoleEstPrms for PM Tuning Mode (U9).
   - BEGIN ALIGNMENT to Yes but **DON'T PRESS THE ENTER BUTTON**.
   - Turn on DIP 6A. The M contactor automatically engages, and the screen displays TUNE command. Press the Enter Button on the drive to start the alignment.

   NOTE: If this fails with an angle deviation fault, a non-rotational alignment should not be performed.

7. Did the InitPoleEstPrms for PM Tuning Mode (U9) fail for angle deviation?
   a. If the InitPoleEstPrms for PM Tuning Mode (U9) fail for angle deviation, see the *Magnetek M1000 AC Elevator Drive* for PM Autotune then go to step 9.
   b. If the InitPoleEstPrms for PM Tuning Mode (U9) did not fail angle deviation, turn off DIP 6A and go to step 8.
8. Perform the PolePos-norotate for PM Tuning Mode (U9).
   - BEGIN ALIGNMENT to Yes but **DON'T PRESS THE ENTER BUTTON**.
   - Turn on DIP 6A. The M contactor automatically engages, and the screen displays TUNE command. Press the Enter Button on the drive to start the alignment.
9. Did the PolePos-norotate for PM Tuning Mode (U9) pass?
   a. If the PolePos-norotate for PM Tuning Mode (U9) did not pass, go to step 10.
   b. If the PolePos-norotate for PM Tuning Mode (U9) passed, turn off DIP 6A and the process ends.
10. If you are running on construction/inspection and run into the following:
    - If the motor is running slowly/uncontrolled and drawing high current:
      - Swap Encoder Connect (C1)
      - Verify that the encoder is working
    - If the elevator is running at controlled/proper speed but in the opposite direction of what it is being told:
      - Swap both the Encoder Connect (C1) and Motor Rotation (C1). Go to step 8.

Induction Motor Key Drive Parameters

The table below lists the Parameters for the A1 Drive.

Table 8: Parameters for A1 Drive

Parameter	Description	Default	Units	Suggested Adjustments
Contract Car Spd	Elevator contract speed	400	fpm	Set to the speed the elevator will be certified at.

Parameter	Description	Default	Units	Suggested Adjustments
Contract Mtr Spd	Rotational motor shaft speed that makes the elevator run at contract speed	1130	RPM	Adjust this value to ensure the actual running speed of the elevator matches the contract car speed. If the elevator is traveling too fast, lower the value. If the elevator is traveling too slow, increase the value. **NOTE**: A power cycle may be required for this to have an effect.
Response	Sets the sensitivity of the speed regulator	10.0		Normally, the default of 10 is used. An increase to 20 makes the drive more responsive. Too low of a value causes the drive to have sluggish responsiveness.
Inertia	System inertia	2.00	sec	Normally, the default of 2 is used.
Encoder Pulses	Encoder's pulses per revolution	1024	PPR	Set this to match the encoder nameplate PPR.
Mtr Torque Limit	Sets the maximum motoring torque the drive can produce	200	%	It is recommended to set this to 250%.
Regen Torq Limit	Sets the maximum regenerative torque the drive can produce	200	%	It is recommended to set this to 250%.

The table below lists the Parameters for A4 Power Convert.

Table 9: Parameters for A4 Power Convert

Parameter	Description	Default	Units	Suggested Adjustments
Input Voltage	Nominal line-to-line AC input voltage in RMS.	Per drive model	VAC	Set the input voltage to match the measured voltage across R, S, and T.

The table below lists the Parameters for A5 Motor.

Table 10: Parameters for A5 Motor

Parameter	Description	Default	Units	Suggested Adjustments
PM Mtr Power	Motor rated output power on the nameplate	Per drive model	HP	This parameter should be set to match the motor nameplate power. This parameter is automatically populated after a successful U9 AUTOTUNE.
Mtr Rated Voltage	Motor rated voltage on the nameplate	Per drive model	VAC	This parameter should be set to match the motor nameplate voltage. This parameter is automatically populated after a successful U9 AUTOTUNE.

Parameter	Description	Default	Units	Suggested Adjustments
PM Mtr Rated FLA	Motor rated current on the nameplate	Per drive model	A	This parameter should be set to match the motor nameplate current. This parameter is automatically populated after a successful U9 AUTOTUNE.
PM Motor Poles	Number of poles the motor has	12	--	This parameter should be set to match the number of poles inside the motor. This parameter is automatically populated after a successful U9 AUTOTUNE.
Max Motor Speed	Sets the maximum speed the motor can rotate	96	RPM	This parameter should be set to a value that is greater or equal to the RPM stamped on the nameplate. This parameter is automatically populated after a successful U9 AUTOTUNE.
Rated Motor Speed	Motor rated speed on the nameplate	96	RPM	This parameter should be set to match the motor nameplate speed in RPM. This parameter is automatically populated after a successful U9 AUTOTUNE.
PM Mtr Arm Ohms	Resistance of the motor	Per drive model	^	It is recommended that this setting be determined by a U9 AUTOTUNE.
PM Mtr d Induct	Inductance in the D-Axis	Per drive model	mH	It is recommended that this setting be determined by a U9 AUTOTUNE.
PM Mtr q Induct	Inductance in the Q-Axis	Per drive model	mH	It is recommended that this setting be determined by a U9 AUTOTUNE.
Enc Z-Pulse Offs	Angular offset position of the magnets to the encoder zero position	0.0	Deg	It is recommended that this setting be determined by a U9 AUTOTUNE.

The table below lists the Parameters for C1 User Switches.

Table 11: Parameters for C1 User Switches

Parameter	Description	Default	Units	Suggested Adjustments
Motor Rotation	Rotation of the motor that the drive interprets as up or down	Forward	Forward Reverse	If the elevator is running controlled but in the wrong direction, swap BOTH this parameter and Encoder Connect.
Encoder Select	Type of absolute encoder interface	EnDat Sin/Cos	EnDat SerialOnly EnDat Sin/Cos Hiperface	Typically, this parameter should be left at default.

Parameter	Description	Default	Units	Suggested Adjustments
Ser Enc Comm Spd	Communication speed between the drive and absolute encoder	1M/9600bps	1M/9600bps 500k/19200bps 1M/38400bps 1M/38400bps	This parameter should be left at default.
Encoder Connect	Rotation of the encoder that the drive interprets as forward or reverse	Forward	Forward Reverse	This should be set to a phase orientation that will let the motor run without excessive motor current.

The table below lists the Parameters for U8 Basic.

Table 12: Parameters for U8 Basic

Parameter	Description	Default	Units	Suggested Adjustments
Control Method	Sets the type of motor control technique	Closed Loop Vect	Closed Loop Open Loop Vector PM ClosedLoopVct V/f Control	Set this parameter to PM Closed Loop Vect.

The table below lists the Parameters for U9 Autotune.

Table 13: Parameters for U9 Autotune

Parameter	Description	Default	Units	Suggested Adjustments
PM Tuning Mode	Sets the type of autotuning the drive performs	TuneNo Rotate	Standard Tuning Tune-No Rotate Term Resistance InitPoleEstPrms PolePos-norotate PolePos - rotate Ind VoltageConst	Perform the Tune-No Rotate, InitPoleEstPrms, and PolePos-norotate in that order.

Operation

Run the car and complete the checklist during the verification process.

No Faults

Make sure the car is moving without triggering a fault either on the Smartrise MR board or the drive. If the MR board displays a drive fault, look at the drive to see what the fault is. See Drive Fault / Encoder Fault for troubleshooting drive fault.

Proper Direction

Make sure the car is moving in the same direction as the control switch on the Run Box. See Wrong Direction for troubleshooting proper direction faults.

At Speed

Make sure the car is moving at the proper inspection speed. See Car Moving to Slow or Rough for troubleshooting at speed faults.

Under Control

Make sure that the car is moving under full control. The car should stop when commanded from the Run Box. Verify that the car runs with no faults for 10 seconds or more. See Brake Not Lifting for troubleshooting under control faults.

Continuous Run

Make sure that the car does not stall when using a geared motor. See Car Stalling for troubleshooting when the car stalls.

Troubleshooting

The following sections list troubleshooting procedures.

Drive Fault / Encoder Fault

The most common fault at startup with a Magnetek drive is the Encoder fault.

Perform the following checks to correct this fault:

- Check for a solid shield-to-ground connection at the motor and drive.
- Check for correct colored encoder wires to the terminals.
- Swap A+ / A- on terminal TB1.

Brake Not Lifting

If the brake is not picking, make sure that the brake is wired according to *C4 Controller* sheet *05 Brake Connection* and if there is a second brake installed, verify that the EB terminal is jumpered to the terminal. See the *C4 Controller* sheet *01 – Getting Started* for more information.

If the brake has the proper voltage check the following:

- During a run command, check the DC voltage between points K1 / K2 and J1 / J2 if secondary brake is installed. Verify the voltages are also at the brake coil(s) when commanded to pick.
- Verify that the actual brake voltage matches the brake coil voltage shown on the *C4 Controller* sheet *01 – Getting Started* Parameter table.

Wrong Direction

If the car is moving in the wrong direction check the following:

- If the car is moving only in one direction, swap the ENC 1 ROT DIRECT (C1) in the Magnetek Drive to forward or reverse for PM application. For induction application, swap A and A/ encoder wires.
- If the car is moving in the opposite direction, swap both direction of the ENC 1 ROT DIRECT (C1) and MOTOR ROTATION (C1) for PM application. For induction application, swap A+ / A- encoder wires.

Car Moving to Slow or Rough

If the car is moving to slow or rough perform the following:

- Swap the encoder wires A+ and A- on drive TB1.
- Verify the brakes are lifting fully.

Car Stalling

With a geared motor, if your car is on Construction and is stalling after an attempted run perform the following:

- Navigate to MAIN MENU | SETUP | SPEEDS | MIN ACCEL SPEED and increase the parameter from 1 to 5.

Appendix

The figure below shows the terminal locations.

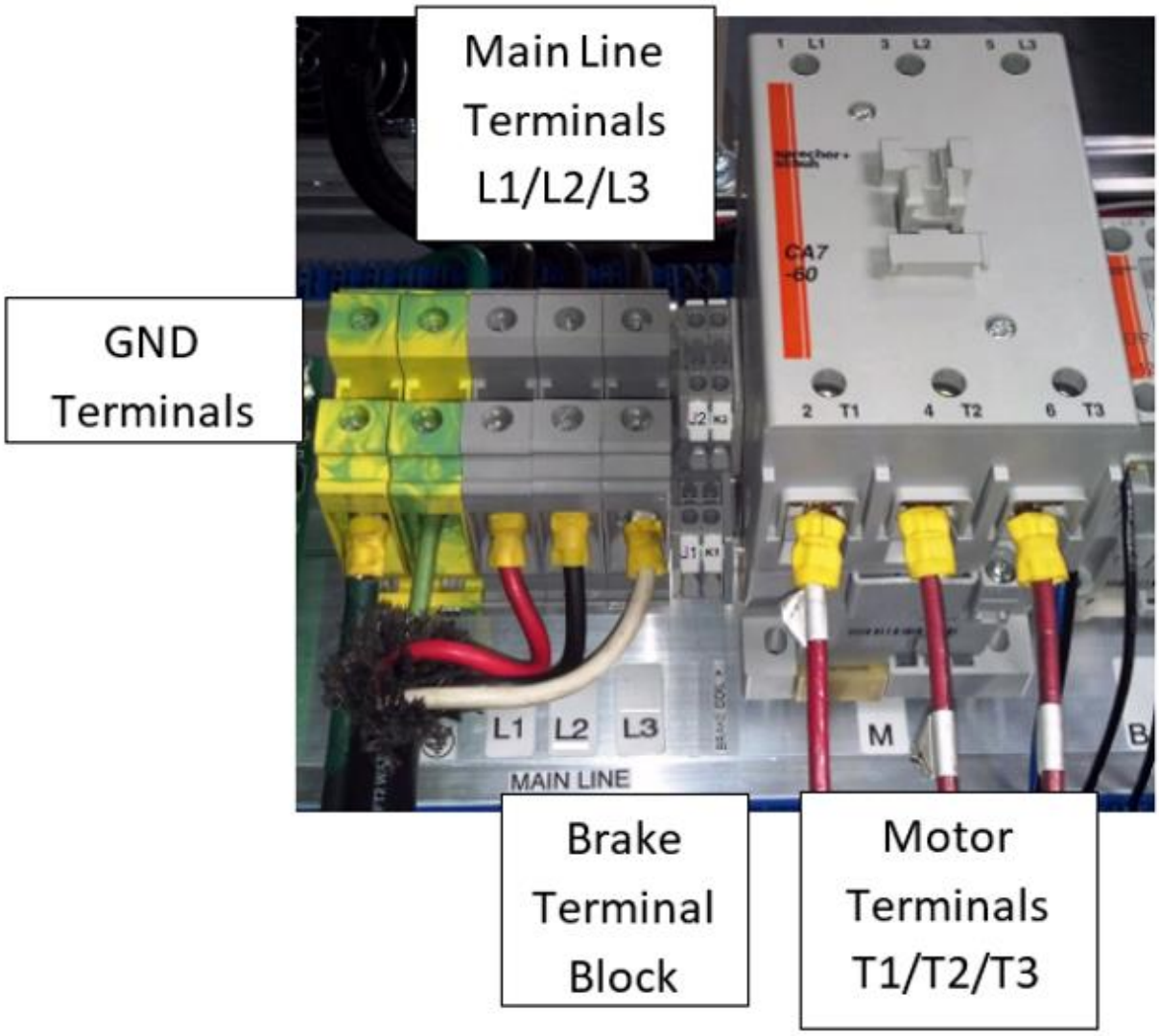

Figure 6: Terminal Locations

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