

## ANNEX1 – PARAMETER LIST

| PARAMETER NAME                  | UNIT             | VALUE RANGE | FACTORY DEFAULTS | OPEN LOOP | CLOSED LOOP | GEARLESS |
|---------------------------------|------------------|-------------|------------------|-----------|-------------|----------|
| <b>SPEED PARAMETERS</b>         |                  |             |                  |           |             |          |
| S01-V1 Speed (Slow Speed)       | m/s              | 0-5         | 0.07             | 0.15      | 0.07        | 0.07     |
| S02-V2 Speed (Inspection Speed) | m/s              | 0-5         | 0.30             | 0.30      | 0.30        | 0.30     |
| S03-V3 Speed (Middle Speed)     | m/s              | 0-5         | 0.50             | 0.50      | 0.50        | 0.50     |
| S04-V4 Speed (High Speed)       | m/s              | 0-5         | 1                | 1         | 1           | 1        |
| S05-V5 Speed (Ultra Speed)      | m/s              | 0-5         | 1                | 1         | 1           | 1        |
| S06-V6 Speed (Releveling Speed) | m/s              | 0-5         | 0.03             | 0.10      | 0.03        | 0.03     |
| S07-VR Rescue Speed             | m/s              | 0-5         | 0.03             | 0.10      | 0.04        | 0.04     |
| S08-Start Mode                  | -                | 0-2         | 0                | 2         | 0           | 0        |
| S09-Start Speed                 | m/s              | 0-0.10      | 0                | 0         | 0           | 0        |
| S10-Acceleration                | m/s <sup>2</sup> | 0.01-1      | 0.4              | 0.4       | 0.4         | 0.4      |
| S11-Acc Curve 1                 | m/s <sup>3</sup> | 0.01-1      | 0.25             | 0.25      | 0.25        | 0.25     |
| S12-Acc Curve 2                 | m/s <sup>3</sup> | 0.01-1      | 0.33             | 0.33      | 0.33        | 0.33     |
| S13-Deceleration                | m/s <sup>2</sup> | 0.01-1      | 0.5              | 0.5       | 0.5         | 0.5      |
| S14-Dec Curve 1                 | m/s <sup>3</sup> | 0.01-1      | 0.42             | 0.42      | 0.42        | 0.42     |
| S15-Dec Curve 2                 | m/s <sup>3</sup> | 0.01-1      | 0.25             | 0.25      | 0.25        | 0.25     |
| S16-Deceleration Mode           | -                | 0-2         | 1                | 1         | 1           | 1        |
| S17-Stop Speed                  | m/s              | 0-0.02      | 0.002            | 0.002     | 0.002       | 0        |
| S18-Stop Speed Reference        | -                | 1-2         | 1                | 2         | 1           | 1        |
| S19-Speed Input                 | -                | 0-1         | 0                | 0         | 0           | 0        |
| S20-DB Speed                    | m/s              | 0-100       | 0                | 0         | 0           | 0        |
| S21-Speed Format                | -                | 0-2         | 1                | 1         | 1           | 1        |
| <b>TIMING PARAMETERS</b>        |                  |             |                  |           |             |          |
| T01-Contactor Wait Period       | s                | 0.2-5       | 0.2              | 0.2       | 0.2         | 0.2      |
| T02-Brake Wait Period           | s                | 0.2-5       | 0.2              | 0.2       | 0.2         | 0.2      |
| T03-Hold Time on Startup        | s                | 0.2-5       | 0.3              | 0.3       | 0.3         | 0.3      |
| T04-Start Speed Ramp            | s                | 0.2-5       | 0.4              | 0.4       | 0.4         | 0.4      |
| T05-Start Speed Wait            | s                | 0.2-5       | 0.3              | 0.3       | 0.3         | 0.3      |
| T06-Brake Release Period        | s                | 0.2-5       | 0.2              | 0.2       | 0.2         | 0.2      |
| T07-DC Brake Period             | s                | 0.2-5       | 0.3              | 0.3       | 0.3         | 0.3      |
| T08-Contactor Release Period    | s                | 0.2-5       | 0.2              | 0.2       | 0.2         | 0.2      |

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|--------------------------------|------|-------------|------------------|-----------|-------------|----------|
| <b>CONTROL PARAMETERS</b>      |      |             |                  |           |             |          |
| C01-Drive Type                 | -    | 1-2         | 1                | 2         | 1           | 1        |
| C02-Encoder Filter             | ms   | 1-5         | 3                | -         | 3           | 3        |
| C03-Zero Speed Kp              | -    | 1-200       | 16               | -         | 16          | 16       |
| C04-Zero Speed Kd              | -    | 0-200       | 20               | -         | 20          | 20       |
| C05-Start Speed Kp             | -    | 0.1-100     | 24               | -         | 16          | 16       |
| C06-Start Speed Ti             | ms   | 0-10000     | 300              | -         | 300         | 300      |
| C07-Low Speed Kp               | -    | 0.1-100     | 24               | -         | 8           | 8        |
| C08-Low Speed Ti               | ms   | 0-10000     | 300              | -         | 300         | 300      |
| C09-High Speed Kp              | -    | 0.1-100     | 4                | -         | 4           | 4        |
| C10-High Speed Ti              | ms   | 0-10000     | 300              | -         | 300         | 300      |
| C11-PI Low Limit               | m/s  | 0-5         | 0.3              | -         | 0.12        | 0.12     |
| C12-PI High Limit              | m/s  | 0-5         | 0.6              | -         | 0.6         | 0.6      |
| C13-Carrier Frequency          | -    | 1-6         | 2                | 2         | 2           | 5        |
| C14-DC Brake Level             | %    | 0-100       | 10               | 10        | 10          | 10       |
| C15-Reserved                   | -    | -           | -                | -         | -           | -        |
| C16-V/F Boost Frequency        | m/s  | 0.01-5      | 0.1              | 0.1       | -           | 0.1      |
| C17-V/F Boost Voltage          | -    | 0.01-1      | 0.1              | 0.1       | -           | 0.1      |
| C18-Rescue Direction Selection | -    | 0-1         | 1                | 1         | 1           | 1        |
| C19-Rescue Voltage             | V    | 0-4         | 0                | 0         | 0           | 0        |
| C20-Field Weakening            | -    | 0-2         | 0                | 0         | 0           | 0        |
| C21-Current Torque Kp          | -    | 0.1-9.9     | 1                | -         | 1           | 1        |
| C22-Current Torque Ki          | ms   | 10-999      | 100              | -         | 100         | 400      |

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|--------------------------|------|-------------|------------------|-----------|-------------|----------|
| <b>MOTOR PARAMETERS</b>  |      |             |                  |           |             |          |
| M01-Motor Type           | -    | 1-2         | 1                | 1         | 1           | 2        |
| M02-Motor Speed          | m/s  | 0.1-5       | 1                | 1         | 1           | 1        |
| M03-Motor RPM Value      | rpm  | 100-3000    | 1500             | 1500      | 1500        | 120      |
| M04-Motor Frequency      | Hz   | 5-100       | 50               | 50        | 50          | 25       |
| M05-Motor Current        | A    | 1-45        | 14               | 14        | 14          | 10       |
| M06-Motor Voltage        | V    | 100-500     | 380              | 380       | 380         | 380      |
| M07-Motor Cos Value      | -    | 0.1-1       | 0.85             | 0.85      | 0.85        | 0.85     |
| M08-Motor Poles          | -    | 2-64        | 4                | 4         | 4           | 16       |
| M09-Motor Noload Current | %    | 10-100      | 35               | 35        | 35          | 35       |
| M10-Encoder Pulse Count  | ppr  | 100-5000    | 1024             | -         | 1024        | 2048     |
| M11-Motor Rs             | Ohm  | 0.1-10      | 0.7              | 0.7       | 0.7         | 0.7      |
| M12-Motor Ls             | mH   | 10-3000     | 100              | 100       | 100         | 100      |
| M13-Motor Rr             | Ohm  | 0.1-100     | 0.9              | 0.9       | 0.9         | 0.9      |
| M14-Motor Lm             | mH   | 10-100      | 110              | 110       | 110         | 110      |
| M15-Motor Tr             | ms   | 10-3000     | 85               | 85        | 85          | 85       |
| M16-Command Direction    | -    | 1-2         | 1                | 1         | 1           | 1        |
| M17-Encoder Direction    | -    | 1-2         | 1                | -         | 1           | 1        |
| M18-Encoder Type         | -    | 0-4         | 0                | -         | 0           | 1        |
| M19-Encoder Offset       | deg  | 0-359.99    | 0                | -         | -           | 0        |