



Reversing starter, 6.6 A, Actuator output 1, 230/277 V AC, AS-Interface®, S-7.A.E. for 62 modules



Part no. **RAMO-WA2AI2S-C320S1**  
 Catalog No. **174473**  
 Alternate Catalog No. **RAMO-WA2AI2S-C320S1**

## Delivery program

|   |          |        |   |
|---|----------|--------|---|
|   |          |        | This item is only available until 06/30/2020, after which it will be replaced with the following item: Y7-198540, RAM05-W212A32-5120S1  |
| Product range   |          |        | Motor starter   |
| Basic function  |          |        | Reversing starter   |
| Rated operational voltage   | $U_e$    |        | 400 V AC, 3-phase<br>480 V AC, 3-phase  |
| Output voltage with $V_e$   | $U_2$    |        | = $U_{LN}$  |
| Mains voltage (50/60Hz)   | $U_{LN}$ | V      | 380 (-15%) - 480 (+10%)   |
| At 150% overload  | $I_e$    | A      | 6.6   |
| <b>assigned motor rating P</b>                                    |          |        |   |
| Note  |          |        | at 400 V, 50 Hz   |
| 150 % Overload  | P        | kW     | 0,09 - 3  |
| Note  |          |        | at 480 V, 60 Hz   |
| 150 % Overload  | P        | HP     | 0,125 - 3   |
| Note  |          |        | for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with $1500 \text{ rpm}^{-1}$ at 50 Hz or $1800 \text{ min}^{-1}$ at 60 Hz   |
| Description   |          |        | Integrated thermistor monitoring PTC and thermo-click<br>Two sensor inputs through M12 sockets (max. 150 mA) for quick stop and interlocked manual operation<br>Connections pluggable in power section<br>Connection of supply voltage via adapter cable on round or flexible busbar junction<br>Diagnostics and reset on device and via AS-Interface with AUTO - OFF/RESET - HAND key switches<br>With electronic motor protection for allocated motor power from 0.09 – 3.0 kW (400 V)/0.125 – 3.0 HP (480 V) |
| Actuator output   |          | Number | 1   |
| Control voltage external brake (50/60 Hz)                         |          | V      | 230/277 V AC  |
| Interface/field bus (built-in)                                    |          |        | AS-Interface®   |
| AS-Interface profile cable  |          |        | S-7.A.E. for 62 modules   |
| <b>Instructions</b> for actuation of motors with mechanical brake |          |        |   |

## Technical data

### General

|                                    |           |    |   |
|------------------------------------|-----------|----|---|
| Standards                          |           |    | IEC/EN 60947-4-2<br>UL 60947-4-2<br>Guideline 2011/65/EU (RoHS)<br>CE approval<br>UL approval<br>CCC approval |
| Climatic proofing                  | $\rho_w$  | %  | < 95%, non-condensing<br>IEC/EN 50178   |
| Ambient temperature                |           |    |   |
| Operating ambient temperature min. |           | °C | -10   |
| Operating ambient temperature max. |           | °C | +55   |
| Storage                            | $\theta$  | °C | -30 - +70   |
| Overvoltage category               |           |    | III   |
| Rated impulse withstand voltage    | $U_{imp}$ | kV | 4   |
| Radio interference level           |           |    |   |
| Environment (EMC)                  |           |    | Device class A  |
| maximum motor cable length         | l         | m  | 10  |
| Mechanical shock resistance        |           | g  | 1000 shocks per shaft, semi-sinusoidal 15 g/11 ms<br>IEC/EN 60068-2-27  |

|                      |  |   |  |
|----------------------|--|---|--|
| Vibration            |  |   | Oscillation frequency: 10 - 150 Hz<br>Amplitude 0.15 mm: 6 Hz<br>Amplitude transition frequency on acceleration: 57 Hz<br>IEC/EN 60068-2-6 |
| Mounting position    |  |   | Vertical   |
| Altitude             |  | m | 0 - 1000 m above sea level<br>above 1000 m with 1 % performance reduction per 100 m<br>max. 2000 m   |
| Degree of Protection |  |   | IP65<br>NEMA12   |

### Main circuit

|  |            |    |   |
|--|------------|----|---|
| Supply   |            |    |   |
| Rated operational voltage                              | $U_e$      |    | 400 V AC, 3-phase<br>480 V AC, 3-phase  |
| Mains voltage (50/60Hz)                                | $U_{LN}$   | V  | 380 (-15%) - 480 (+10%)   |
| Input current (150% overload)                          | $I_{LN}$   | A  | 6.6   |
| System configuration                                   |            |    | AC voltage<br>Center-point earthed star network (TN-S network)<br>Phase-earthed AC supply systems are not permitted.  |
| Supply frequency                                       | $f_{LN}$   | Hz | 50/60   |
| Frequency range  | $f_{LN}$   | Hz | 47 - 63 Hz ( $\pm 0\%$ )  |
| Mains switch-on frequency                              |            |    | Maximum of one time every 60 seconds  |
| Rated conditional short-circuit current                | $I_q$      | kA | < 10  |
| Short-circuit protection for output circuits, external |            |    | Type 1 coordination via the power bus' feeder unit  |
| Power section  |            |    |   |
| Function   |            |    | Reversing starter with relays, thyristors and bypass contacts, 2-phase controlled   |
| On-delay   | $t_{0N}$   | ms | 20 - 35   |
| Off-delay  | $t_{0FF}$  | ms | 20 - 35   |
| Lifespan, mechanical                                   | Operations |    | AC3: > 10.000.000   |
| Lifespan, electrical                                   | Operations |    | AC3: > 10.000.000   |
| Overload cycle   |            |    | AC-53a  |
| Output voltage with $V_e$                              | $U_2$      |    | = $U_{LN}$  |
| Output Frequency                                       | $f_2$      | Hz | = $f_{LN}$  |
| Rated operational current                              |            |    |   |
| At 150% overload                                       | $I_e$      | A  | 6.6   |
| Motor current limit                                    | $I$        | A  | 0.3 - 6.6<br>adjustable   |
| Fitted with  |            |    | without manual override switch  |
| Motor feeder   |            |    |   |
| Note   |            |    | for normal internally and externally ventilated 4 pole, three-phase asynchronous motors with $1500 \text{ rpm}^{-1}$ at 50 Hz or $1800 \text{ min}^{-1}$ at 60 Hz |
| Note   |            |    | at 400 V, 50 Hz   |
| Note   |            |    | at 480 V, 60 Hz   |
| Actuator for external motor brake                      |            |    |   |
| Braking voltage  | $U$        | V  | 230/277 V AC -15% / +10%  |
| Braking current  | $I$        | A  | $\leq 0.6 \text{ A}$<br>(max. 6 A for 120 ms)   |

### Control section

|                                |       |   |  |
|--------------------------------|-------|---|--|
| External control voltage       | $U_c$ | V | 24 V DC - 15 % / + 20 % via AS-Interface® plug   |
| Interface/field bus (built-in) |       |   | AS-Interface®  |
| AS-Interface®                  |       |   | max. total power consumption from AS-Interface® power supply unit (30 V): 250 mA<br>Specification: S-7.A.E.<br>Number of slave addresses: 62 |

### Design verification as per IEC/EN 61439

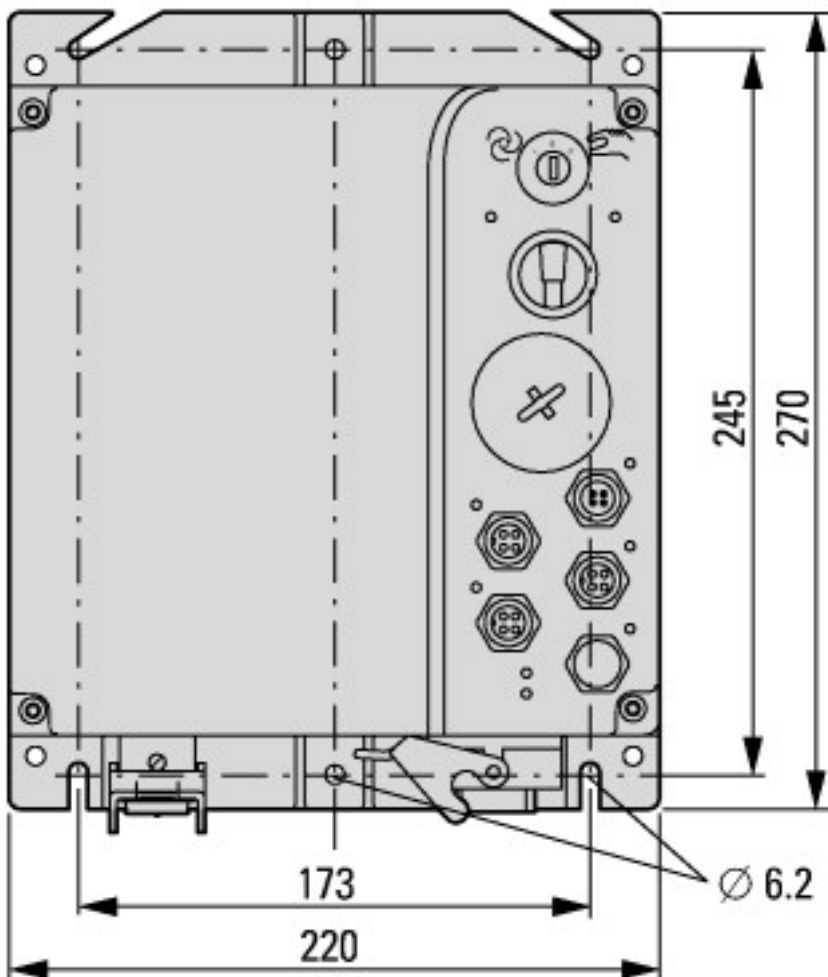
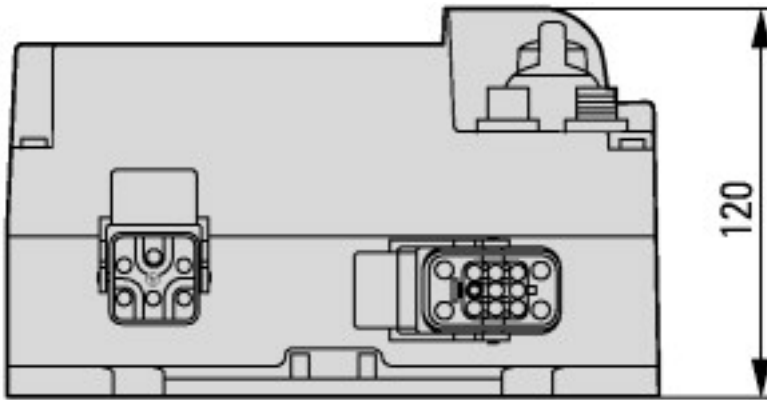
|  |  |    |     |
|--|--|----|-----|
| Technical data for design verification |  |    |     |
| Operating ambient temperature min.     |  | °C | -10 |
| Operating ambient temperature max.     |  | °C | 55  |

## Technical data ETIM 7.0

| Low-voltage industrial components (EG000017) / Motor starter/Motor starter combination (EC001037)  |    |                   |
|--|----|-------------------|
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Load breakout, motor breakout / Motor starter combination (ecl@ss10.0.1-27-37-09-05 [AJZ718013]) |    |                   |
| Kind of motor starter  |    | Reversing starter |
| With short-circuit release   |    | Yes               |
| Rated control supply voltage Us at AC 50HZ   | V  | 0 - 0             |
| Rated control supply voltage Us at AC 60HZ   | V  | 0 - 0             |
| Rated control supply voltage Us at DC  | V  | 0 - 0             |
| Voltage type for actuating   |    | AC                |
| Rated operation power at AC-3, 230 V, 3-phase  | kW | 0                 |
| Rated operation power at AC-3, 400 V   | kW | 3                 |
| Rated power, 460 V, 60 Hz, 3-phase   | kW | 2.238             |
| Rated power, 575 V, 60 Hz, 3-phase   | kW | 0                 |
| Rated operation current Ie   | A  | 6.6               |
| Rated operation current at AC-3, 400 V   | A  | 6.6               |
| Overload release current setting   | A  | 0.3 - 6.6         |
| Rated conditional short-circuit current, type 1, 480 Y/277 V   | A  | 65000             |
| Rated conditional short-circuit current, type 1, 600 Y/347 V   | A  | 0                 |
| Rated conditional short-circuit current, type 2, 230 V   | A  | 0                 |
| Rated conditional short-circuit current, type 2, 400 V   | A  | 0                 |
| Number of auxiliary contacts as normally open contact  |    | 0                 |
| Number of auxiliary contacts as normally closed contact  |    | 0                 |
| Ambient temperature, upper operating limit   | °C | 55                |
| Temperature compensated overload protection  |    | Yes               |
| Release class  |    | CLASS 10          |
| Type of electrical connection of main circuit  |    | Other             |
| Type of electrical connection for auxiliary- and control current circuit   |    | Other             |
| Rail mounting possible   |    | No                |
| With transformer   |    | No                |
| Number of command positions  |    | 2                 |
| Suitable for emergency stop  |    | No                |
| Coordination class according to IEC 60947-4-3  |    | Class 1           |
| Number of indicator lights   |    | 0                 |
| External reset possible  |    | Yes               |
| With fuse  |    | No                |
| Degree of protection (IP)  |    | IP65              |
| Degree of protection (NEMA)  |    | 12                |
| Supporting protocol for TCP/IP   |    | No                |
| Supporting protocol for PROFIBUS   |    | No                |
| Supporting protocol for CAN  |    | No                |
| Supporting protocol for INTERBUS   |    | No                |
| Supporting protocol for ASI  |    | Yes               |
| Supporting protocol for MODBUS   |    | No                |
| Supporting protocol for Data-Highway   |    | No                |
| Supporting protocol for DeviceNet  |    | No                |
| Supporting protocol for SUCONET  |    | No                |
| Supporting protocol for LON  |    | No                |
| Supporting protocol for PROFINET IO  |    | No                |
| Supporting protocol for PROFINET CBA   |    | No                |
| Supporting protocol for SERCOS   |    | No                |
| Supporting protocol for Foundation Fieldbus  |    | No                |
| Supporting protocol for EtherNet/IP  |    | No                |
| Supporting protocol for AS-Interface Safety at Work  |    | No                |
| Supporting protocol for DeviceNet Safety   |    | No                |
| Supporting protocol for INTERBUS-Safety  |    | No                |

|   |    |     |
|---|----|-----|
| Supporting protocol for PROFI-safe        |    | No  |
| Supporting protocol for SafetyBUS p       |    | No  |
| Supporting protocol for other bus systems |    | No  |
| Width                                     | mm | 220 |
| Height                                    | mm | 270 |
| Depth                                     | mm | 120 |

## Dimensions



## Assets (links)

### Declaration of CE Conformity

00002804

### Instruction Leaflets

IL03406019Z2018\_04

## Additional product information (links)

CA04020001Z-EN Product Range Catalog: Efficient Engineering for Starting and Controlling Motors

[http://www.eaton.eu/DE/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct\\_1095238.pdf](http://www.eaton.eu/DE/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_1095238.pdf)