

ACS355 Product Features and Specifications

Product Features

- UL, cUL and CE, C-Tick, GOST-R
- Torque memory
- Safe Torque off (SIL 3 TUV certified)
- Common DC bus
- 600 HZ maximum output frequency
- On/Off cooling fan control
- Optional UL Type 4X / IP66 (Indoor use only)
- Optional Full Graphic and Multilingual Display with real time clock (Advanced Control Panel) (+J400)
- Optional Basic Control Panel (+J404) (not compatible with 4X option):
- Blank Cover (not compatible with 4X option):
- Start-Up, Maintenance and Diagnostic Assistant
- Motor ID Run
- Motor Control
 - Scalar Control, Sensorless Vector and Flux Vector
- Two (2) Programmable Analog Inputs
- Five (5) Programmable Digital inputs
- One (1) Programmable Analog Output
- One (1) Programmable Form C Relay Output
- One (1) Programmable Digital Output (pulse train output)
- Input Speed Signals
 - Two (2) Current 0 (4) - 20 mA, 0 (2)- 10VDC
 - Bipolar voltage reference with external power supply
 - Pulse Train Input
- Start/Stop
 - 2 wire control (dry contact closure)
 - 3 wire control (momentary dry contacts)
- Adjustable Current Limit
- Nine (9) Supervision Functions
- Electronic Reverse
- Power Loss Ride-Through
- DC Injection Braking
- DC Magnetizing Start (provides maximum starting torque)
- Seven (7) Preset Speeds
- Three (3) Critical Speed Lockout Bands
- Two (2) Independently Adjustable Accel and Decel Ramps
- Linear or Adjustable "S" Curve Accel/Decel Ramps
- Internal Braking Chopper
- Sequence Programming
- Ramp to Stop or Coast to a Stop
- Maximum Frequency Programmable up to 500 Hz
- Integral Programmable PID Setpoint Controller
- Coated Boards
- RoHS (Verify RoHS label)
- Internal Modbus RTU
- Built-in EMC Filter
- Unified height and depth (except with 4X option)

Programmable Fault Functions

- AI<Min (A1,2 loss)
- Panel Loss
- External Fault 1, 2
- Motor Thermal Protection
- Motor Stall Protection
- Communications Fault
- Over / Undervoltage
- Supply Phase
- Grounded Fault
- Wiring Fault
- Underload
- Encoder Error
- Over Current

Preprogrammed Protections:

- Overcurrent
- Short Circuit
- Overvoltage (Intermediate Circuit) 1.3 *input voltage
- Undervoltage (Intermediate Circuit) 0.65 * input voltage
- Input Phase Loss and output mis-wiring
- Ambient temperature
- Drive overtemperature
- DC over/undervoltage
- Motor over temperature
- Overspeed
- Underload
- Motor Phase Loss

Available options

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- External 24VDC auxiliary power supply (MPOW-01)
- FlashDrop (MFDT-01)
- NEMA 1 Enclosure Kit (MUL1-R1 / -R3 / -R4)
- DriveWindow Light®-based Start-up & Programming Tool
- Fieldbus Adapters
 - Modbus (FMBA-01, FRSA-00)
 - PROFIBUS RTU (FPBA-01)
 - DeviceNet DP (FDNA-01)
 - CANopen (FCAN-01)
 - Ethernet IP / Modbus TCP/IP (FENA-01)
- ACS355 Options (not compatible with 4X option):
 - External 24VDC auxiliary power supply (MPOW-01)
 - Display, Programming and Demo Cases
 - Speed-Pot, Start / Stop & FWD / REV Switches (MPOT-01)
 - Pulse Encoder Interface (MTAC-01)
 - Relay output module (3 additional Form C relays) (MREL-01)
 - NEMA 4x Cabinet Panel Mounting (ACS/H-CP-EXT-IP66)
- UL Type 4X / NEMA 4X (IP66) Enclosure Option (+B063)
- UL Type 4X Options – only available with 4X enclosure option:
 - Non-Fusible Disconnect Switch (+F278)
 - Pressure Compensation valve (+C169)
 - Cable Gland Kit (+H376)

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Input Connection

Input Voltage (U1, V1, W1)	208/220/230/240Vac 1-phase (0.5 to 3 hp) or 3-phase +/-10%, (0.5 to 15 Hp) 380/400/415/440/460/480Vac 3-phase +/-10% (0.5 to 30 hp)
Input Voltage (U1, V1, W1)	208/220/230/240Vac 3-phase +/-10%, (0.5 to 5 Hp)
UL Type 4X (IP66 Optional Enclosure)	380/400/415/440/460/480Vac 3-phase +/-10% (0.5 to 10 hp)

Output Connection

Output Voltage	0 to U1, 3-phase symmetrical
Output Frequency	0 to 500 Hz
Frequency Resolution	0.01 Hz
Continuous Current	Rated I_{2N} for $f_s=4\text{kHz}$
Short Term Overload Capacity	$1.5 * I_{2N}$ (at least 1 min / 10 min)
Field Weakening Point	30 to 500 Hz
Switching Frequency	4, 8 or 12 kHz (derate I_{2N} to 80% for 8 kHz, derate ambient temp to 30°C and I_{2N} to 65% for 12 kHz) (16 kHz, v. 2.41+)
Accel. & Decel. Time	0.1 to 1800 s
Efficiency	98% at nominal power level
Short circuit withstand rating	100,000 AIC
Connection	Terminals U2, V2, W2

Ambient Conditions, Operation

Air Temperature	-10°C (14°F) to 40°C (104°F), no frost allowed, above 40°C the maximum output current is derated 1% for every additional 1°C (up to 50°C (122°F) maximum limit)
Relative Humidity	5 to 95%, no condensation allowed, maximum relative humidity is 60% in the presence of corrosive gasses
Contamination Levels	
IEC	60721-3-3
Chemical Gasses	3C2
Solid Particles	3S2
Installation Site Altitude	0 to 1000 m (3300 ft) above sea level. At sites from 1000 m to 2000 m (3300 ft to 6600 ft) above sea level, the maximum power is de-rated 1% for every additional 100 m (330 ft).

Ambient Conditions, Storage & Transportation (in Protective Shipping Package)

Air Temperature	-40° to 70°C (-40° to 158°F)
Relative	Humidity Less than 95%, no condensation allowed
Atmospheric Pressure	70 to 106 kPa (10.2 to 15.4 PSI)

Cooling Information

Cooling	Method Internal Fan except for Frame R0 Internal fan in every 4X option enclosure (R1 & R3 frame) (natural convection cooling)
Power Loss	Approximately 3% of rated power

Analog Inputs

Two (2) Programmable Analog Inputs	
Current Reference	
Unipolar	0 (4) to 20 mA, $R_{in}= 100 \text{ ohm}$
Bipolar	20 mA to 20 mA, $R_{in}= 100 \text{ ohm}$
Voltage Reference	
Unipolar	0 (2) to 10 V, $R_{in} > 312 \text{ kohm}$
Bipolar	-10 V to 10 V, $R_{in} > 312 \text{ kohm}$
Resolution	0.1%
Accuracy	+/-1%

Reference Power Supply

Voltage	+10 VDC, +/-1% at 25°C (77°F)
Maximum Load	10 mA
Applicable Potentiometer	1 kohm to 10 kohm

Analog Outputs

One (1) Programmable Current Output	
Signal Level	0 (4) to 20 mA
Accuracy	+/-3% Full Scale Range at 25°C (77°F)
Maximum Load Impedance	500 ohms

Digital Inputs

Five (5) Programmable Digital Inputs	
Signal Level	12-24 VDC, with internal or external supply
Type	PNP and NPN
Input Current	15 mA at 24 VDC
Input Update Time	8 ms, +/- 1ms
Frequency Input	Pulse Train 0 to 16 KHz (X1A:16 only)
Internal 24 VDC Supply for Digital Inputs	
Voltage	24 VDC, +/- 10%
Maximum Current	200 mA

Relay Outputs

One (1) Programmable Relay Output	
Type	NO + NC
Switching Voltage	12-250VAC / 30VDC
Maximum Switching Current	0.5A / 30VDC; 5A / 230 VAC
Maximum Continuous Current	2 Amps RMS

Digital Outputs

One (1) Programmable Digital Output	
Type	Transistor Output PNP
Maximum Switching Voltage	30VDC
Maximum Switching Current	100 mA / 30 VDC, short circuit protected
Frequency	10 Hz ... 16 kHz
Resolution	1 Hz
Accuracy	0.2%

Protections

Single Phase	Input Protected
Overvoltage Trip Limit	$1.3 * \text{Input Voltage}$
Undervoltage Trip Limit	$0.65 * \text{Input Voltage}$
Overtemperature	Protected
Auxiliary Voltage	Short Circuit Protected
Microprocessor Fault	Protected
Motor Stall Protection	Protected
Motor Overtemperature	Protected (I2t)