



#### General information:

Range of product	ACS580
Product or component type	High performance DTC drive
Product specific application	Complex, heavy duty
Component name	ACS580-C54-169A-3
Motor power kW	90 kW at 380...500 V 3 phases
Motor power hp	125 hp at 380...500 V 3 phases
Power supply voltage	360...500 V AC
Network number of phases	3 phases
Line current	187.5 A for 480V 3 phases 90kW /125hp 236.8 A for 380 V 3 phases 90kW /125hp
EMC filter	Integrated EMC C3 filter
DC reactor	Integrated DC reactor
Filter	With standard Common Mode Filter
Assembly style	With heat sink
Apparent power	120 kVA at 380 V 3 phases 90kW /125hp
Prospective line Isc	<= 35 kA, 3 phases
Nominal output current	169 A
Maximum transient current	273 A for 60 s 3 phases 90kW /125hp 364 A for 2 s 3 phases 90kW /125hp
Speed drive output frequency	0.1...600 Hz
Nominal switching frequency	2.5 kHz
Switching frequency	2.5...16 kHz adjustable 2.5...16 kHz with derating factor

#### Complementary

Product destination	Asynchronous motors/Synchronous/Servo motor
Power supply voltage limits	360...500 V
Power supply frequency	50...60 Hz (-5...5%)
Power supply frequency limits	47.5...63 Hz
Speed range	1...100 for asynchronous motor in open-loop mode, without speed feedback 1...1000 for asynchronous motor in closed-loop mode with encoder feedback 1...50 for synchronous motor in open-loop mode, without speed feedback
Speed accuracy	+/- 0.01 % of nominal speed for 0.2 Tn to Tn torque variation in closed-loop mode with encoder feedback +/- 10 % of nominal slip for 0.2 Tn to Tn torque variation without speed feedback
Torque accuracy	+/- 10 % in open-loop mode, without speed feedback +/- 3 % in closed-loop mode with encoder feedback

Transient overload	150 % of nominal motor torque +/- 10 % for 60 s every 10 minutes 200 % of nominal motor torque +/- 10 % for 3s
Braking torque	< 150 % with braking or hoist resistor 30 % without braking resistor
Synchronous motor control profile	Vector control without speed feedback
Diagnostic	LCD keypad
Output voltage	<= power supply voltage
Insulation	Electrical between power and control
Electrical connection	AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, DI 1..DI 8, PWR terminal 2.5 mm <sup>2</sup> / AWG 14 L1/R, L2/S, L3/T, U/T1, V/T2, W/T3 terminal 4 x 185 mm <sup>2</sup> PC/-, PA/+ terminal 4 x 185 mm <sup>2</sup>
Tightening torque	AI1-/AI1+, AI2, AO1, R1A, R1B, R1C, DI 1..DI 8, PWR 0.6 N.m L1/R, L2/S, L3/T, U/T1, V/T2, W/T3 41 N.m / 360 lb.in PC/-, PA/+ 41 N.m / 360 lb.in
Supply	Internal supply for reference potentiometer (1 to 10 kOhm), 10.5 V DC +/- 5 % , <= 10 mA for overload and short-circuit protection Internal supply, 24 V DC , voltage limits 21...27 V, <= 200 mA for overload and short-circuit protection
Analogue input number	2
Analogue input type	AI1-/AI1+ bipolar differential voltage +/- 10 V DC, input voltage 24 V max , resolution 11 bits + sign AI2 software-configurable current 0...20 mA , impedance 242 Ohm, resolution 11 bits AI2 software-configurable voltage 0...10 V DC, input voltage 24 V max, impedance 30000 Ohm, resolution 11 bits
Linearity error	AI1-/AI1+, AI2 +/- 0.15 % of maximum value AO1 +/- 0.2 %
Analogue output number	2
Analogue output type	AO1 software-configurable logic output 10 V <= 20 mA AO1 software-configurable current 0...20 mA, impedance 500 Ohm, resolution 10 bits AO1 software-configurable voltage 0...10 V DC, impedance 470 Ohm, resolution 10 bits
Discrete output number	2
Discrete output type	R1A, R1B, R1C configurable relay logic NO/NC, electrical durability 100000 cycles
Discrete input number	8
Discrete input type	DI1...DI65: impedance: 3500 Ohm DI7-DI8: impedance: 3500 Ohm
Acceleration and deceleration ramps	Automatic adaptation of ramp if braking capacity exceeded, by using resistor Linear adjustable separately from 0.01 to 9000 s S, U or customized
Braking to standstill	By DC injection
Protection type	Drive against exceeding limit speed Drive against input phase loss Drive break on the control circuit Drive input phase breaks Drive line supply overvoltage Drive line supply undervoltage Drive overcurrent between output phases and earth Drive overheating protection Drive overvoltages on the DC bus Drive short-circuit between motor phases Drive thermal protection Motor motor phase break Motor power removal Motor thermal protection
Insulation resistance	> 1 MOhm at 500 V DC for 1 minute to earth
Frequency resolution	Analog input 0.024/50 Hz Display unit 0.1 Hz
Communication port protocol	Modbus RTU/CANOPEN/PROFIBUS
Type of connector	1 RJ45 for Modbus on front face 1 RJ45 for Modbus on terminal
Physical interface	2-wire RS 485 for Modbus
Transmission frame	RTU for Modbus
Transmission rate	4800 bps, 9600 bps, 19200 bps, 38.4 Kbps for Modbus on terminal 9600 bps, 19200 bps for Modbus on front face

Data format	8 bits, 1 stop, even parity for Modbus on front face 8 bits, odd even or no configurable parity for Modbus on terminal
Number of addresses	1...247 for Modbus
Marking	CE
Operating position	Vertical +/- 10 degree
Depth	305mm
Height	680mm
Width	290mm
Product weight	46 kg
Option card	Profibus, TTL/HTL encoder

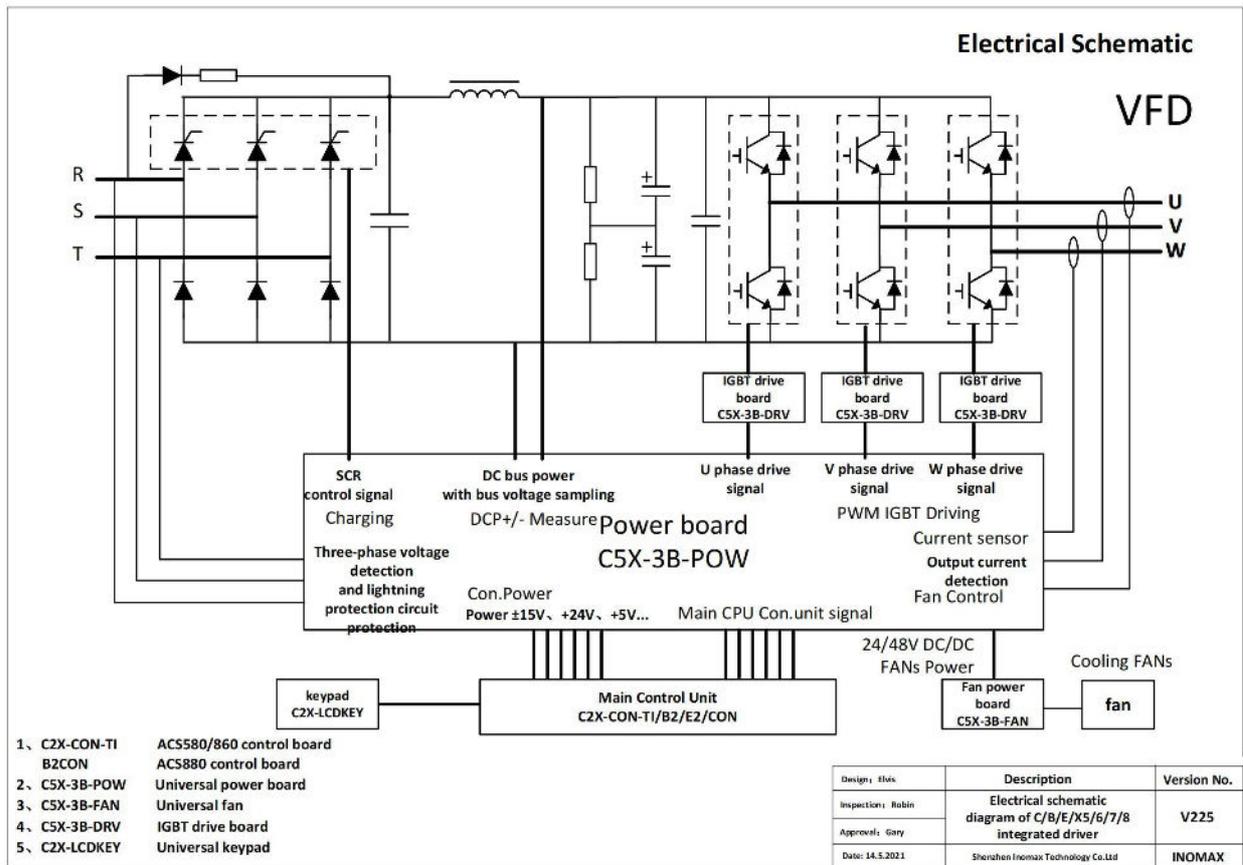
## Environment

Noise level	35dB conforming to 86/188/EEC
Standards	EN 55011 class A group 2 EN 61800-3 environments 1 category C3 EN 61800-3 environments 2 category C3 EN/IEC 61800-3 EN/IEC 61800-5-1
Product certifications	CE ISO9001
IP degree of protection	IP21
Vibration resistance	0.6 gn (f = 10...200 Hz) conforming to EN/IEC 60068-2-6 1.5 mm peak to peak (f = 3...10 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	4 gn for 11 ms conforming to EN/IEC 60068-2-27
Relative humidity	5...95 % without condensation conforming 5...95 % without dripping water conforming
Ambient air temperature for operation	-10...50 °C without derating
Ambient air temperature for storage	-25...70 °C
Operating altitude	<= 1000 m without derating 1000...3000 m with current derating 1 % per 100 m





# Wiring diagram



**INOMAX ACS580 Features and benefits**

ACS580 VFD	FEATURE	RESULT	BENEFIT
  	Good motor speed accuracy without tachometer.	Allows speed to be controlled better than 0.5% accuracy. No tachometer needed in 95% of all applications.	Investment cost savings. Increased savings. Increased reliability. Better process control. Higher product quality. Leads to a true universal drive.
	Excellent torque control without tachometer.	Drive for demanding applications. Allows required torque at all times. Torque repeatability 1%. Torque response time less than 5ms.	Similar performance to DC but without tachometer. Reduced mechanical failures for machinery. Less downtime. Lower investment.
	Full torque at zero speed with or without tachometer/encoder.	No mechanical brake needed. Smooth transition between drive and brake. Allows drive to be used in traditional DC drive applications.	Investment cost saving. Better load control. Can use AC drive and motor instead of DC. Standard AC motor means less maintenance and lower cost.
	Control down to zero speed and position with encoder.	Servo drive performance.	Cost effective, high performance torque drive; provides position control and better static accuracy. High accuracy control with standard AC motor.
	Rapid control DC link voltage.	Power loss ride through.	Drive will not trip. Less down time. Avoids process interruptions. Less waste in continuous process.
	Automatic start (Direct restart).	Starting with motor residual inductance present. No restarting delay required.	Can start into a motor that is running without waiting for flux to decay. Can transfer motor from line to drive. No restart. No interruptions on process.
	Automatic start (Flying start).	Synchronises to rotating motor.	No process interruptions. Smooth control of machinery. Resume control in all situations.
	Flux braking.	Controlled braking between two speed points.	Investment cost savings. Better process control. No delay required as in DC braking. Can be used for decelerating to other than zero speed. Reduced need for brake chopper and resistor.
	Flux optimization.	Motor losses minimised. Less motor noise.	Controlled motor.
	Self identification/ Auto-tuning.	Tuning the motor to drive for top performance.	Easy and accurate set-up. No parameter tuning required. Less commissioning time. Guaranteed starting torque. Easy retrofit for any AC system.
No predetermined switching pattern of power devices.	Low noise. No fixed carrier, therefore acoustic noise reasonable due to "white" noise spectrum.	Cost savings in acoustic barriers in noise sensitive applications. No harmful mechanical resonances. Lower stresses in gearboxes, fans, pumps.	
No limits on maximum acceleration and deceleration rate.	Can accelerate and decelerate in quickest time possible without mechanical constraints.	Better process control.	