ACS580-07 Product Overview

Description

The ACS580-07 cabinet-built single drives are designed for quick delivery and simple installation, commissioning and use. A compact design makes handling the units easy and with all the essential features built-in, commissioning and setup time is greatly reduced by leveraging the Primary Settings menus and assistants. Although the cabinets are stocked with predefined options for quick delivery, a number of plug-n-play options are available for field installation. For instance, the assistant control panel, which provides 16 different language options, can be upgraded to an optional Bluetooth control panel to enable wireless commissioning and monitoring.

ACS580 drives are designed for customers who value reliability, high quality, and robustness in their applications. The product features, such as coated boards and compact UL type 12 enclosure, make the ACS580 suitable for harsh conditions. Additionally, all ACS580 drives and their protective functions are thoroughly tested for performance at maximum temperature with nominal loads.

Drive Module Main features include

- Incoming air temperature measurement for protecting the drive from different temperature related failure mechanisms
- Integrated safety including safe torque-off (STO) as standard (TÜV Nord certificate)
- Supports various motor types including: Asynchronous induction and synchronous PM motors,
- Primary control program - common software used throughout the ACS580 drive series
- Control unit supporting a wide range of fieldbuses and input/output options
- Coated boards as standard
- Speed controlled cooling fan
- Built-in choke
- Adaptive programming
- Color coded connection terminals

Standard Main Cabinet features include (with +C129 UL Option)

- Compact design for easy cabinet assembly and maintenance
- Intuitive and easy to operate control panel with USB connection
- Cabling: top entry and exit cabling
- Enclosure class UL Type12 (IP54)
- Solid removable 3mm cable conduit plate
- Disconnect Switch with rotary through the door handle
- Fast acting UL fuses

ACS580 Standard Features

Standard Features

UL and cUL (requires +C129 option selection)
Graphical Multilingual Display
Graphical Metering and Trending on Display
Intelligent Primary Settings Menu
Motor ID Run
Motor Control
- Open Loop Vector
- Scalar Control

Input Fuses and Disconnect
Two (2) Programmable Analog Inputs
Six (6) Programmable Digital inputs
Two (2) programmable Analog Outputs
Three (3) Programmable Form C Relay Outputs
Dual Input Safe Torque Off (STO)
Two (2) Expansion Slots for Fieldbus (communication) and/or I/O Modules
Adjustable Filters on Analog Inputs and Outputs
Input Speed Signals
- Two (2) Voltage +/- 0(2)-10 Vdc / Current 0(4)-20 mA
- Increase/Decrease Reference Contacts
- Fieldbus Adapters (communication modules)

Start/Stop
- 2-wire Control (dry contact closure)
- 3-wire Control (momentary dry contacts)

Adjustable Current Limit
Adjustable Torque Limit
Three (3) Supervision Functions
Electronic Reverse
Power Loss Ride-Through
Maximum Output Frequency Programmable up to 500 Hz
Two (2) Integral Programmable PID Setpoint Controllers
Built-in Modbus RTU

Available options

I/O Option Modules
- External 24V AC/DC Input, 2 RO, 1 DO Module CMOD-01
- 115/230V Digital Interface Module CHDI-01
- External 24V AC/DC Input, Isolated PTC interface CMOD-02

Fieldbus Adapter Modules
- DeviceNet™ adaptor FDNA-01
- ProfiBus-DP adaptor FPBA-01
- ConrolNet adaptor FCNA-01
- CANOpen adaptor FCAN-01
- Ethernet/IP adaptor FENA-11
- Ethernet/IP adaptor FENA-21
- ModBus adaptor FSCA-01
- EtherCat adaptor FECA-01
- EtherPOWERLINK FEPL-02

DriveComposer / **DriveComposerPro Start-up & Programming**
Control Panel
- All Compatible Industrial Panel ACS-AP-I
- Assistant Control Panel with Bluetooth ACS-AP-W
- Blank Control Panel Cover CDUM

Cold Configuration Tool CCA-01



ACS580 Specifications

Input ratings	Input voltage range	380-500 V
	Input voltage tolerance	±10%
	Phase	Three phase
	Frequency	47 to 63 Hz
	Short circuit rating (UL 508c)	100,000 rms symmetrical amperes up to 600 V when input cables protected by class T or similar type fuses
Output ratings	Horsepower	150 - 700 HP @ 480 VAC
	Overload capacity	Heavy duty = 50% for 60 seconds every 5 minutes Light duty = 10% for 60 seconds every 5 minutes
	Frequency	0 - 500 Hz
	Voltage	0 to maximum input voltage (RMS)
	Motor types	Asynchronous AC induction motors, permanent magnet synchronous motors and synchronous reluctance motors
Protective features	Overcurrent	Excessive output current
	DC overvoltage	High DC bus
	Overtemp	Drive heatsink above operating temperature, max ambient temperature exceeded
	Short circuit	Short on motor output terminals
	Undervoltage	Low voltage on drive input
	Loss of reference	Analog input programmed for 4-20 ma but signal less than 4 ma
	Motor overtemp	Excessive estimated motor temperature
	Loss of keypad	Drive will trip if under keypad control and keypad communication is lost
	Motor stall	Motor cannot achieve commanded speed due to excessive load
	Ground fault	Ground fault detected in motor or motor cabling
	Motor phase fault	Loss at one of the motor phases
Environmental	Temperature	0 to 40°C (32 to 104°F). 0 to 50°C (32 to 122°F) w/ derate. No frost allowed.
	Cooling	Forced air
	Enclosure	UL type 12 (IP54)
	Altitude	Sea level to 3300 ft. (1000 m) Derate 1% per 330 ft. (100 m) up to 6562 ft. (2000 m)
	Humidity	5 to 95% RH non-condensing
	Vibration	10…57 Hz: max 0.075 mm amplitued; 57…150 Hz: 1g
Keypad display	Display	LCD graphical
	Keys	10 key keypad with tactile response
	Functions	Output status monitoring, digital speed control, parameter setting and display, diagnostic and fault log display, motor run, local/remote toggle, graphical monitoring
	Remote mount	Keypad may be mounted up to 9 ft. using appropriate cable (see Options for kit)
	Trip	Last three faults stored in fault history
Control specifications	Switching frequency	3 kHz (typical)
	Accel/decel	0-1800 seconds
	Speed control accuracy	20% of motor nominal slip
	Skip frequencies	Three configurable bands 0-max speed
	PC setup software	Drive composer, drive composer pro
	Maximum output frequency	500 Hz
	Selectable operating modes	2-Wire, 3-Wire, Motor Potentiometer, Hand/Auto, PID
Analog inputs	Two single ended	0 (2) to 10 V, Rin > 312kΩ single-ended 0 (4) to 20mA, Rin = 10Ω single-ended
	Resolution	± 1%
Analog outputs	Two current outputs	0 to 20 mA, load < 500 Ω
	Resolution	± 3%
Digital inputs	Six digital inputs	15 V...24 VDC with internal or external supply
	Input impedance	Pull-up or pull-down (PNP or NPN) (DI1 to DI5); NPN (DI6) 2.4 kΩ
Digital outputs	Three relay outputs	Form C
	Maximum switching voltage	250 VAC/30 VDC
	Maximum continuous current	2 A/30 VDC or 250 VAC
Safety	Safe torque off (STO)	STO standard input; 17...30 VDC, 55 mA

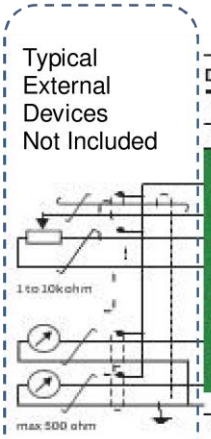
ACS580 control Panel

Assistant Control Panel Features

The ACS580 Assistant Control Panel features:

- Intuitive to operate
- Primary Settings menu to ease drive commissioning
- Real Time Clock
- Diagnostic and Maintenance functions
- Full Graphic Display, including Chart, Graph, Meter options
- 21 editable home views
- USB interface for PC and tool connection as standard
- Parameters are Alpha-numeric
- N. A. version supports 14 languages as standard
- Dedicated Help key
- 4 User Sets
- Parameters stored in control panel memory for later transfer to other drives or for backup of a particular system.
- Back-up and Restore
  - Parameters and/or motor data
  - Automatic back-up 2 hours after parameter change
- Modified Parameter Display
  - Creates unique short menu
  - Shows parameters that differ from default

ACS580 Control Terminals



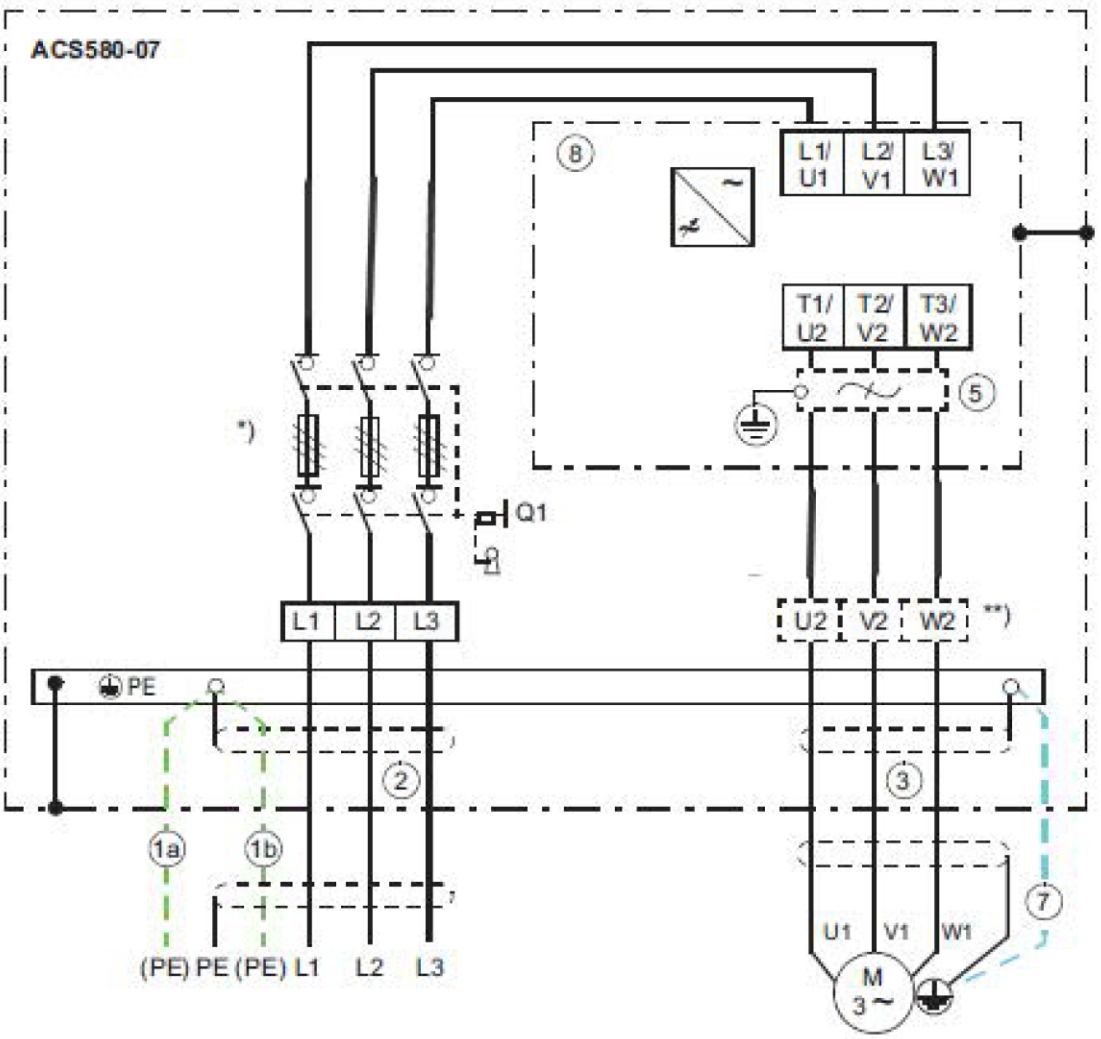
Default factory I/O connection diagram

Terminal	Meaning	Default macro connections
XI	**Reference voltage and analog inputs and outputs**	
1	SCR	Signal cable shield (screen)
2	AI1	External frequency reference 1: 0 to 10 V
3	AGND	Analog input circuit common
4	+10 V	Output reference voltage 10 V DC
5	AI2	Not used
6	AGND	Analog input circuit common
7	AO1	Output frequency: 0 to 20 mA
8	AO2	Output current: 0 to 20 mA
9	AGND	Analog output circuit common
X2 & X3	**Aux. voltage output and programmable digital inputs**	
10	+24 V	Auxiliary voltage output +24 V DC
11	DGND	Auxiliary voltage output common
12	DCOM	Digital input common for all DI
13	DI1	Start/Stop: Activate to start
14	DI2	Fwd/Rev: Activate to reverse rotation direction
15	DI3	Constant speed selection
16	DI4	Constant speed selection
17	DI5	Ramp pair selection: Activate to select second pair
18	DI6	Not used
X6, X7 X8	**Relay outputs**	
	RO1C	Ready
	RO1A	250 V AC/30 V DC
	RO1B	2 A
	RO2C	Running
	RO2A	250 V AC/30 V DC
	RO2B	2 A
	RO3C	Fault (-1)
	RO3A	250 V AC/30 V DC
	RO3B	2 A
X5	**EIA-485 Modbus RTU**	
29	B+	Built-in Modbus RTU fieldbus interface
30	A-	
31	DGND	
X4	**Safe torque off**	
34	OUT1	Safe torque off. Both circuits must be closed for the drive to start. The circuits are closed with jumper wires in the standard delivery.
35	OUT2	
36	SGND	
37	IN1	
38	IN2	
X10*	**24 V AC/DC**	
40	24 V	AC/DC-in. Ext. 24 V AC/DC input to power up the control unit when the main supply is disconnected
41	24 V	AC/DC+in.

* The terminals 40-41 are integrated in the frame sizes R6-R11. For the frame sizes R1-R5 I/O options (+L) are needed.

Control unit terminal wire sizes: 0.5…2.5 mm^2 (24…12 AWG). Tightening torques: 0.5 N·m (5 lbf·in) for both stranded and solid wiring

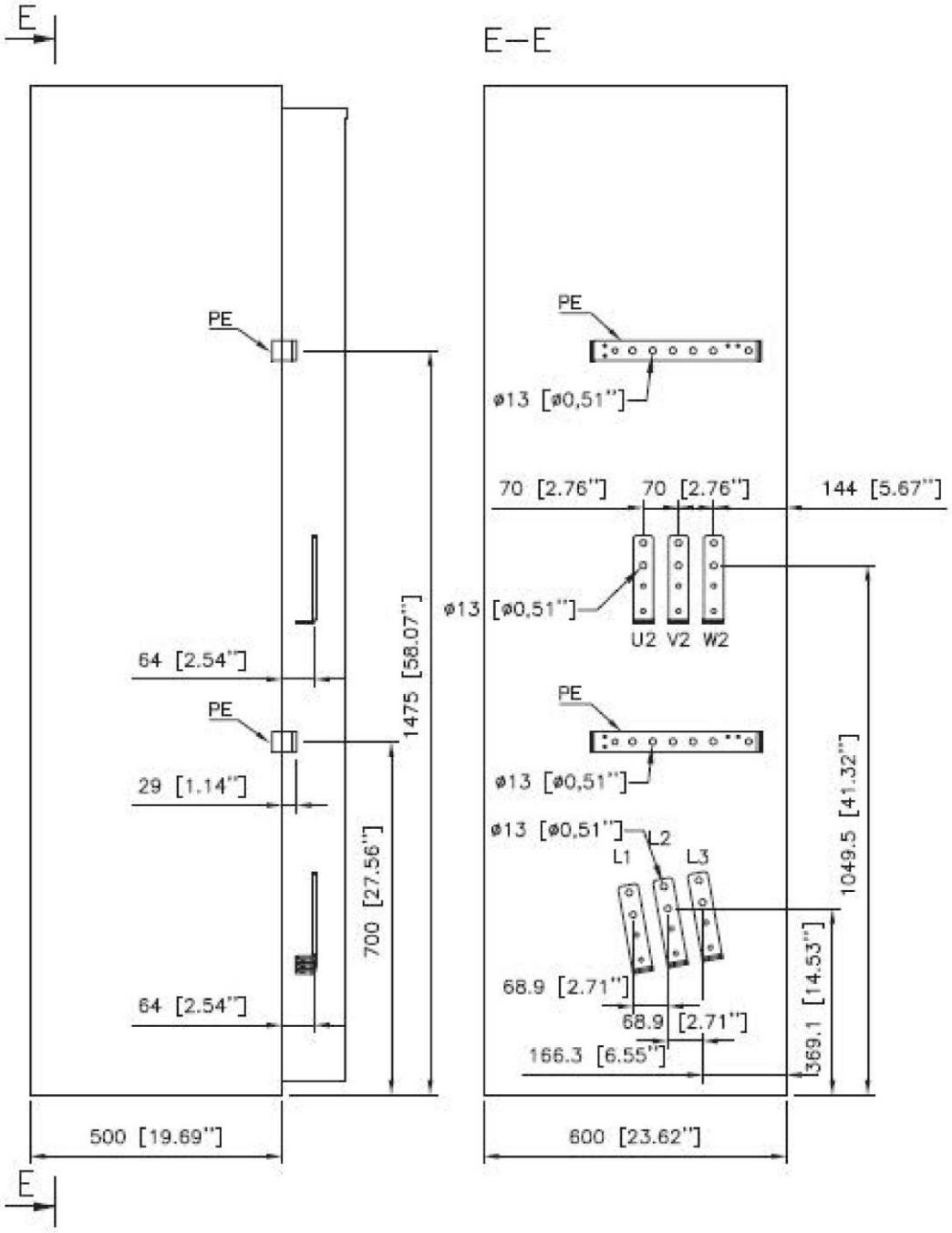
Cable Connections



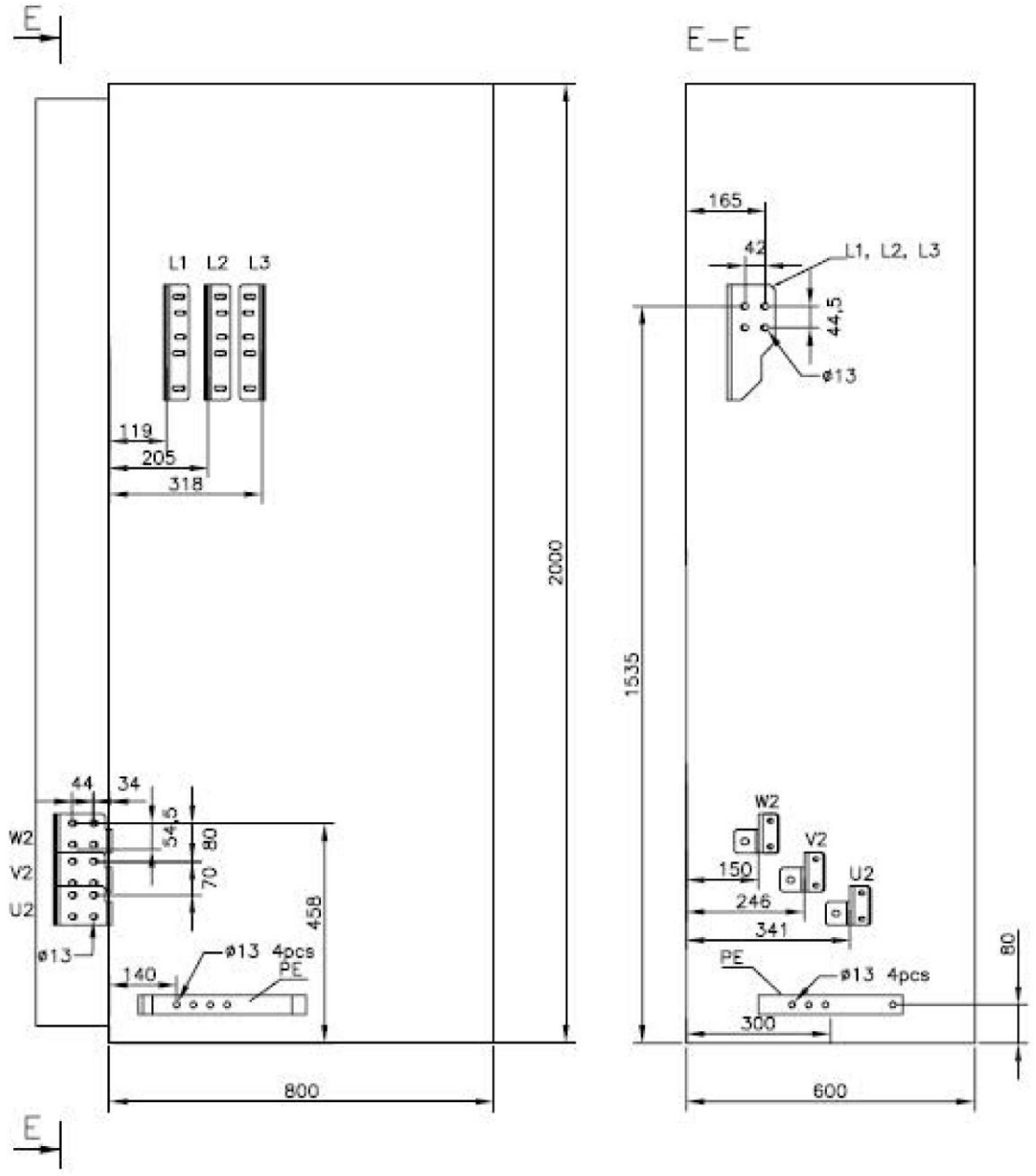
1. Use a separate grounding PE cable (1a) or a cable with a separate PE conductor (1b) if the conductivity of the shield does not meet the requirements for the PE conductor. (follow local codes for cable size)
2. 360-degree grounding is recommended if shielded cable is used. Ground the other end of the input cable shield or PE conductor at the distribution board.
3. 360-degree grounding is required.
5. Common mode filter (standard in frames R10 and R11)
7. Use a separate grounding cable if the shield does not meet the requirements of IEC 61439-1 and there is no symmetrically constructed grounding conductor in the cable.
8. Drive module

Note:
If there is a symmetrically constructed grounding conductor on the motor cable in addition to the conductive shield, connect the grounding conductor to the grounding terminal at the drive and motor ends.
Do not use an asymmetrically constructed motor cable. Connecting its fourth conductor at the motor end increases bearing currents and causes extra wear.

Frames R8 and R9: Input and motor cable terminal dimensions (top entry and exit, options +H351 and +H353)



Frame R10: Input and motor cable terminal dimensions (top entry and exit)



Frame R11: Input and motor cable terminal dimensions (top entry and exit)