

Universal Frequency Converter of ADL980 Series

1. Introduction



The universal frequency converter of ADL 980 series, produced by our company based on independent R&D technologies, featuring high quality, multifunction, low frequency, high torque and flux vector control, quick torque response, good load adaptability, reliable operation, high accuracy and reliability, provided with functions as as automatic parameter tuning, zero-servo null-speed sensor, vector control and V/F control switch, perfect user password protection, quick menu design, rotation speed tracking, built-in PID controller, signal setting / feedback disconnection monitoring & switching, underload protection, fault signal tracking, automatic restart upon fault, built-in braking unit, 25 fault protection modes, fault monitoring, different I/O terminals, different speed setting modes, automatic voltage adjustment, wobble frequency control and multi-speed control, can help to increase the power factor and efficiency as much as possible and meet requirement of different load to motion control. The keyboard is provided with a LED for display of running data and fault codes. The LCD can show state information and operation description in Chinese and help to copy and download parameters; The powerful background commissioning and monitoring software can be used through the built-in standard RS485 interface network; The MODBUS bus protocol and expansion card are compatible with on-site bus control such as PROFIBUS, DEVICENET and CANOPEN etc.

Application:

OEM machinery: Machinery used for textile industry, plastics industry, food industry, printing industry, package industry, carpentry, winding, mining and hoisting etc.

Heavy industry: Industries such as metallurgy, chemical industry, cement, electric power, coal, petroleum, paper making, water supply, heating & ventilation and sewage treatment etc.



2. Feature

- 2.1. Multiple control modes, good versatility.
- 2.2. Automatic identification of motor parameter.
- 2.3. 150% torque output under 0.5Hz.
- 2.4. Powerful low speed / reliable high speed running.
- 2.5. Null-speed torque output.
- 2.6. Silent running.
- 2.7. Trip control, realizing powerful and stable running.
- 2.8. Quick menu design.
- 2.9. Easy PLC, PID adjustment.
- 2.10. Built-in flexible PWM power consumption brake for quick shutdown.
- 2.11. Compact and handy structure.
- 2.12. Customized design with good stability and high anti-interference ability
- 2.13. Built-in RS-485 communication interface, standard MODBUS protocol.
- 2.14. 25 protection modes.

3. Nameplate

Model →
Input power supply →
Output power supply →
Freq. setting range →
Serial no. and barcode →

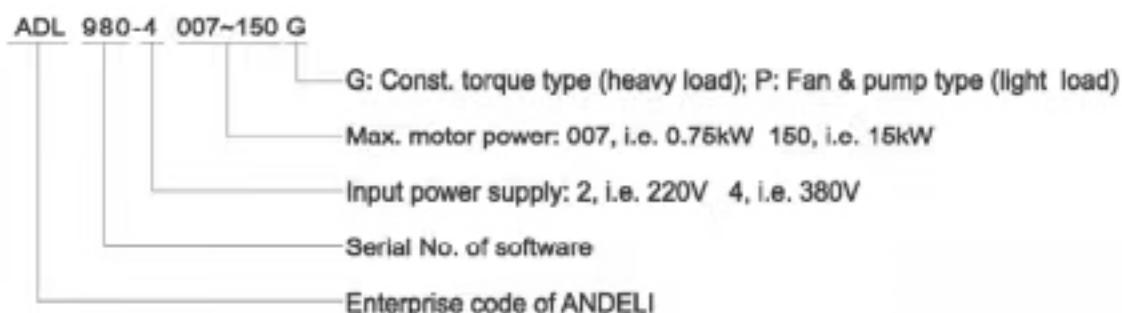
Manufacturer →

MODEL: ADL980-4015G
INPUT: 3PH AC380V 50/60Hz
OUTPUT: 3PH AC0-380V 1.5kW 3.7A
FREQUENCY RANGE: 0-600Hz

A94015G110100001

ANDELI GROUP CO.,LTD.

4. Model

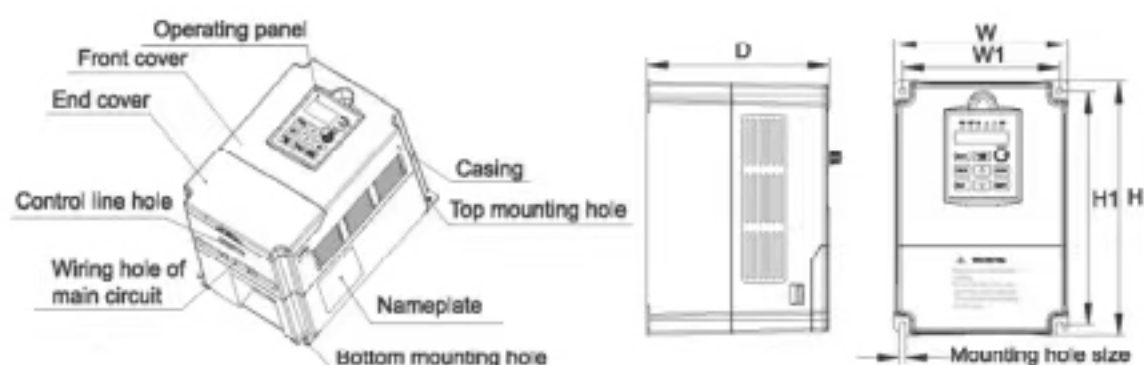


5. Technical specification

Item		Spec.
Input	Rated voltage / freq.	380V or 220V 50Hz/60Hz
	Variable volt range	Variation range: $\leq \pm 20\%$ voltage unbalance rate: $\leq 3\%$ freq. range: $\leq \pm 5\%$
Output	Voltage	0~380V or 0~220V
	Freq.	0~600Hz
	Overload capacity	G type: 160% rated current 1min, 180% 1s, 200%-instantaneous protection P type: 120% rated current -1min, 150% -1s, 100% - instantaneous protection
Main control	Control mode	Standard V/F control, flux vector control
	Modulation mode	Space voltage vector PWM modulation
	Speed control range	1:50
	Start torque	$\geq 150\%$ rated torque under 2.0Hz
	Freq. accuracy	Digital setting: max. freq. $\pm 0.01\%$ Analog setting: max. freq. $\pm 0.2\%$
	Freq. resolution	Digital setting: 0.01Hz analog setting: max. freq. $\times 0.05\%$
	Torque increase	Automatic torque increase, manual torque increase 0.1%~30.0%
	V/F curve	Three modes: One customized V/F curve, quadratic V/F curve and linear V/F curve
	Acc. / dec. curve	Three modes: Linear acc. / dec. S-shaped acc./dec.; four acc./dec. durations, optional time unit (min/s), the longest duration: 60h
	DC braking	Initial freq. for shutdown DC braking: 0.00Hz~max. output freq. Braking duration: 0.0~30.0s Braking current: 0.0%~100.0% rated current
	Automatic voltage regulation (AVR)	When the grid voltage changes, the constant output voltage can be kept
	Slip comp.	Available slip setting can help to compensate speed change caused by load, realizing higher speed control accuracy
	Automatic current limiting	Automatic current limiting during operation, preventing fault trip caused by frequent overcurrent
	Overvoltage stall	Automatic voltage limiting during operation, preventing fault trip caused by deceleration overvoltage
Customized function	Textile wobble freq.	Textile wobble freq. control, realizing fixed wobble freq. and variable wobble freq.
	Freq. combination	The running command channels and freq. setting channels can combine at random
	Length setting	Length reaching shutdown, max. length: 65.535KM
	Inching	Inching freq. range: 0.00 Hz~max. output freq.; Inching acc./dec. duration: 0.1~3600.0s, settable; inching interval: 0.1~3600.0s, settable
	Multi-speed running	Multi-speed running through PLC or control terminals

Item		Spec.
Running function	Built-in closed- loop process control	A closed-loop control system can be formed easily
	Running command channel	Operation panel, control terminal and serial port setting switchable through different ways
	Freq. setting channel	Digital setting, analog voltage setting, analog current setting, impulse setting, serial port setting, terminal setting and multi-speed setting switchable through different ways.
	Auxiliary freq. setting	Free auxiliary freq. trimming and synthesis
	Impulse output terminal	0 ~ 50kHz rectangular impulse signal output, realizing output of set freq. and output freq. etc.
	Analog output terminal	One line analog signal output, 0/4 ~ 20mA or 0/2 ~ 10V optional, realizing output of set freq. and output freq. etc.
Operating panel	LED display	61 types of parameters such as set freq., output freq., output voltage and output current etc. can be displayed
	LCD display	Optional, Chinese / English guidance
	Parameter copy	Quick upload and download of parameters through the operation panel are allowed
	Key function selection	Part of the keys can be customized for fear of misoperation
Environment	Protection	Open-phase protection (optional), overcurrent protection, overvoltage protection, undervoltage protection, overheat protection, overload protection and underload protection etc.
	Place	Indoor, free from direct light, dust, corrosive gas, inflammable gas, oil mist, steam, water drop or salt etc.
	Altitude	The rated value shall be lowered for places with the altitude being over 1000m. 10% of the rated value shall be lowered per 1000m
	Ambient temp.	-10℃ ~ + 40℃ (the rated value shall be lowered when the ambient temp. is within 40℃ ~ 50℃)
	Humidity	5% ~ 95% RH, without condensate
	Vibration	Below 5.9m / (0.6g)
	Storage temp.	-40℃ ~ + 70℃
Structure	Protection class	IP 20
	Cooling mode	Air cooling, with fan control
	Efficiency	45kW or lower ≥ 93%; 55kW or higher ≥ 95%

6.Exterior structure



7.Exterior structure

Installation dimension of wall hanging plastic casing equipment

Note: G: Constant torque load (heavy) P: Fan & pump load (light)

Model	Output freq. (KW)	W	W1	H	H1	D	Installation dim.
ADL980-4007G/4015P	0.75/1.5	126	111	170	157	165	Φ4.5
ADL980-4015G/4022P	1.5/2.2	126	111	170	157	165	Φ4.5
ADL980-4022G/4037P	2.2/3.7	126	111	170	157	165	Φ4.5
ADL980-4037G/4055P	3.7/5.5	152	137	220	208	170	Φ5
ADL980-4055G/4075P	5.5/7.5	152	137	220	208	170	Φ5
ADL980-4075G/4110P	7.5/11	217	205	300	286	217	Φ6.5
ADL980-4110G/4150P	11/15	217	205	300	286	217	Φ6.5
ADL980-4150G/4185P	15/18.5	217	205	300	286	217	Φ6.5

Installation dimension of wall hanging iron casing equipment

Note: G: Constant torque load (heavy) P: Fan & pump load (light)

Model	Output freq. (KW)	W	W1	H	H1	D	Installation dim.
ADL980-4185G/4220P	18.5/22	260	180	440	422	275	Φ9
ADL980-4220G/4300P	22/30	260	180	440	422	275	Φ9
ADL980-4300G/4370P	30/37	320	220	530	512	310	Φ11
ADL980-4370G/4450P	37/45	320	220	530	512	310	Φ11
ADL980-4450G/4550P	45/55	320	220	530	512	310	Φ11
ADL980-4550G/4750P	55/75	435	260	680	656	370	Φ11
ADL980-4750G/4900P	75/90	435	260	680	656	370	Φ11
ADL980-4900G/41100P	90/110	435	260	680	656	370	Φ11
ADL980-41100G/41320P	110/132	490	315	810	782	360	Φ11
ADL980-41320G/41600P	132/160	490	315	810	782	360	Φ11
ADL980-41600G/41850P	160/185	620		1300		445	Φ11
ADL980-41850G/42000P	185/200	620		1300		445	Φ11
ADL980-42000G/42200P	200/220	760		1550		450	Φ11
ADL980-42200G/42500P	220/250	760		1550		450	Φ11
ADL980-42500G/42850P	250/285	760		1550		450	Φ11
ADL980-42850G/43150P	285/315	850		1700		500	Φ13
ADL980-43150G/43500P	315/350	850		1700		500	Φ13
ADL980-43500G/44000P	350/400	850		1700		500	Φ13

8.Notification before ordering

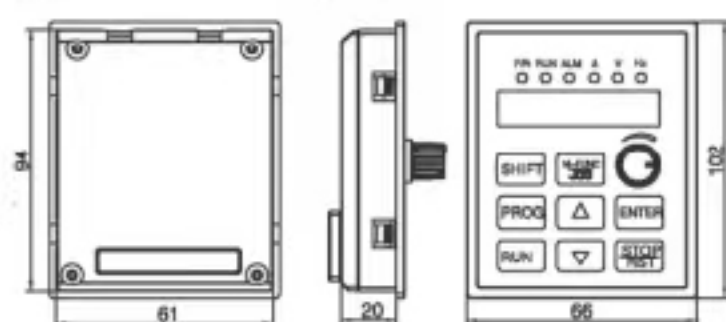
8.1 The ADL980G is an universal high performance FC. The product is available for hoisting equipment and mining / building / packaging / printing machines etc.

8.2 The ADL980P is a light load type FC being available for different pumps and fans etc.

8.3 If external keyboards and extension lines are required, please inform us during ordering.

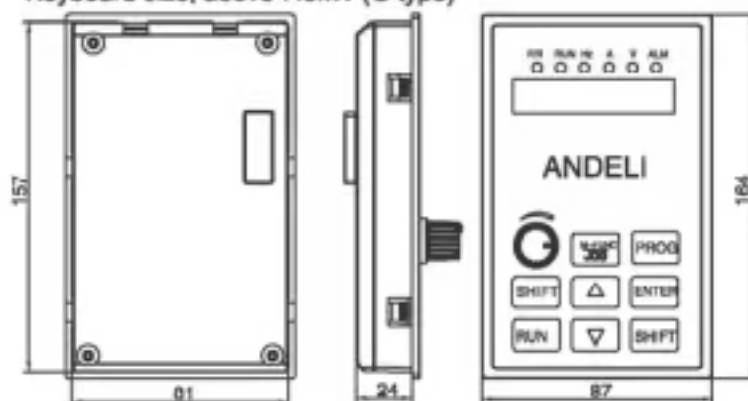
9. Size of operating panel

Keyboard size, 0.75~5.5kW (G type)



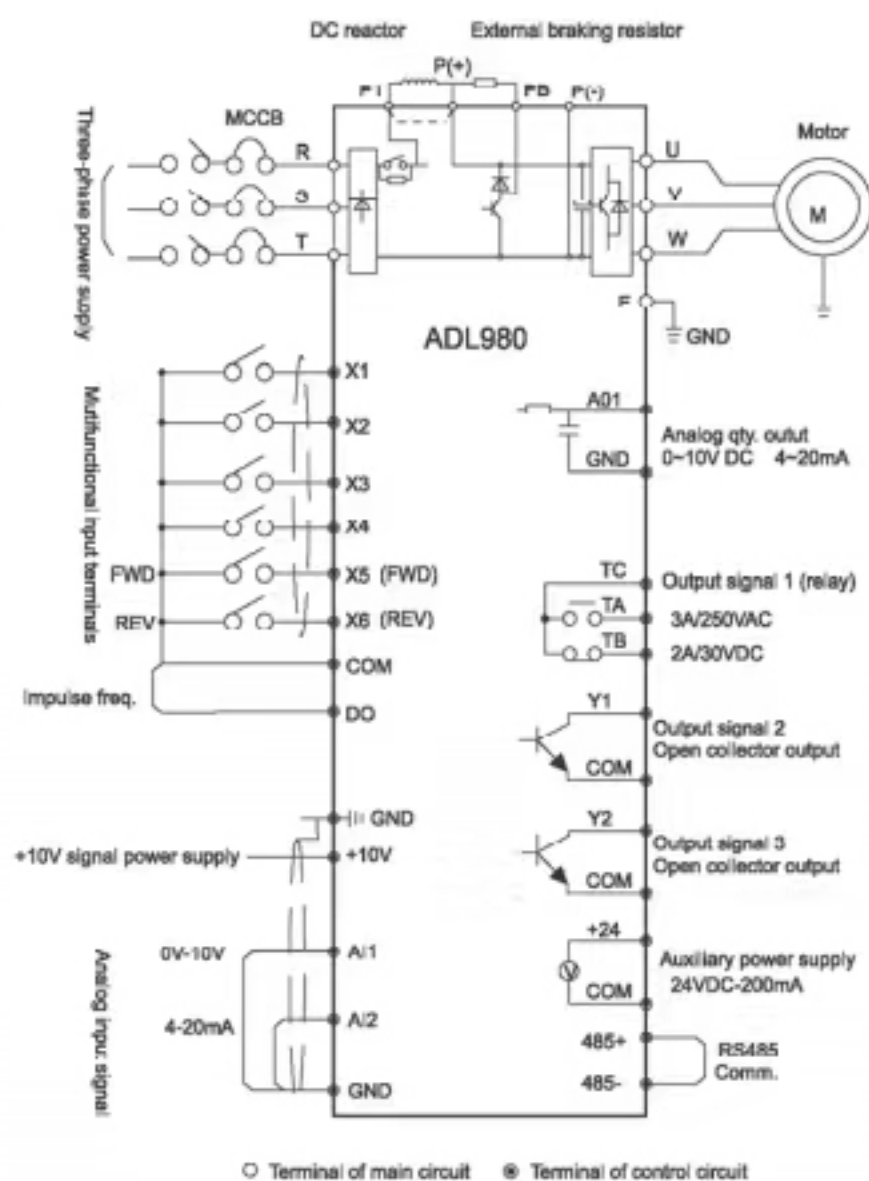
Hole size

Keyboard size, above 7.5kW (G type)



Hole size

10. Wiring diagram for basic running



Basic wiring schematic of FC