

VFD Solutions

Variable Frequency Drive Products

HVAC and Building Automation Solutions



Make the most of your energy

Schneider
Electric

Full Range of VFD Solutions



Schneider Electric family of VFD solutions is the right choice for almost any of your applications or power requirements. For motor control applications, 200VAC to 600VAC, simple to complex, and 0.5 Hp to 900 Hp, these VFD's provide world class motor control solutions. And because this family of VFD's is from Schneider Electric, you can be sure these products come backed by superior customer service and support, maximizing your automation investment now and in the future.

Five Different Models to Choose From

Schneider Electric gives you five different models to choose from, for all of today's HVAC/building automation requirements. These models fall into two categories: basic chassis VFD products, and enclosed VFD products.

All Five Models Include

- Run Command Input– Dry contact or 24vdc
- Speed Command Input- X-Y mdc and X-Y vdc
- Run Status Output
 - Programmable Digital Output
 - Assignable to other functions
- Fault Output
 - Form-C contact
 - Assignable to other functions
- Speed Feedback
 - Analog output, X-Y mdc or X-Y vdc
 - Scaleable & Assignable to other Meter Values
- Fire/Safety Interlock
- Ramp-Up/Ramp-Down Momentary Inputs

Operator Interface

- Keypad & Display
- Status LED's – Power On and Fault
- Local/Remote Button
- Programming Software - Free Download

Integrated Modbus Com Port

- RS-485 Multidrop, RTU

HVAC Network Communication Option Cards

- LonWorks, BACnet, Metasys N2, APOGEE FLN (P1)

Application Specific Performance

- Pump and Fan Macro Configuration for fast and easy commissioning
- Automatic Restart after fault or power loss
- Skip Frequency Avoidance to suppress mechanical vibration
- Proportional Integral Regulator (PID) for "stand alone" automation
- Catch on the Fly Restart – Coasting Motor Restart
- Loss of Reference Detection
 - Programmable Response
- Energy Economy Mode – Automatically optimized
- Decel Ramp Adaption to prevent nuisance faults
- Elapsed Time Meter - Resettable
- KWH Meter – Resettable
- Adjustable Carrier Frequency
- Plenum Rated
- Many other functions are included

The Altivar 21 VFD Family

Altivar 21 VFD



OPTIONAL TYPE-1
CONDUIT KIT

The Altivar 21 VFD is a basic chassis drive that can be mounted in a separate enclosure or fitted with a conduit kit for direct wall or machine mounting in a clean dry environment. This unique product offers un-matched value in terms of functions required in HVAC and pump applications, small size, network options, and low cost. The Altivar 21 VFD features a revolutionary technology that reduces power system harmonics without the need for an AC line reactor or DC bus choke

Features:

- 1-100hp @ 460v, 1-40hp @ 208/230v
- Basic chassis VFD with No bypass and No disconnect switch
- Keypad with simple LED Display.
- Rated for continuous duty at 104°F (40°C). Up to 122°F (50°C) with derating
- RHT (Reduced Harmonic Technology)

Options:

- NEMA Type-1 conduit kit for direct wall mounting
- LonWorks, BACnet, Metasys N2 or Apogee P1
- Remote keypad kit
- PC Programming Cable Kit

S-Flex VFD



The new S-Flex VFD is a fully enclosed package that combines the Altivar 21 with a circuit breaker disconnect, optional bypass circuit and many other features required in the new construction market. This product offers all of the features of the Altivar 21 VFD plus, narrow design, quick delivery and low cost. Unlike many of its competitors, the Altivar 21 VFD chassis is fully enclosed in the S-Flex package to prevent EMI and RFI from radiating into the environment and interfering with telephone and control signals.

Features:

- 1-100hp @ 460v, 1-40hp @ 208/230v
- Enclosed Altivar 21 VFD package with CB disconnect
- NEMA Type 1 enclosure
- Narrow space saving design.
- Smoke purge (Firemans override)
- RHT (Reduced Harmonic Technology)
- Fused control power transformer
- Local/Remote button
- Power On light
- 100kA short circuit current rating on VFD & Optional Bypass
- UL508C, NEMA ICS 7.1, NEC 2005 Article 409
- Bottom conduit knock-outs

Options:

- Two contractor bypass with pilot light
- Line contactor (for 3-contactor requirements)
- Line Isolation Switch
- LonWorks, BACnet, Metasys N2 or Apogee P1
- EZ-M Mounting Channel for quick horizontally aligned group installation
- PC Programming Cable Kit
- Seismic qualification

The Altivar 61 VFD Family

Altivar 61 VFD



OPTIONAL TYPE-1 CONDUIT KIT

The Altivar 61 VFD is a basic chassis drive that can be mounted in a separate enclosure or fitted with a conduit kit for direct wall or machine mounting in a clean dry environment. This product offers the widest horsepower range in the market with a common user interface. The Altivar 61 features a high level of functionality and customization, I/O and communication option cards, making it the best choice for the most demanding applications.

Features:

- 1-900hp @ 460v; .5-125hp @ 208/230v; 3-100hp @ 575/690v
- Basic chassis VFD with No bypass and No disconnect switch
- Keypad with Graphical Full Text LCD customizable display
- "Simply Start" menu for easy access to common parameters
- Navigation wheel for easy scrolling through menus
- Programmable Function Keys
- Rated for continuous duty at 122°F (50°C)
- Under Voltage ride-thru qualified to the SEMIF47 Standard

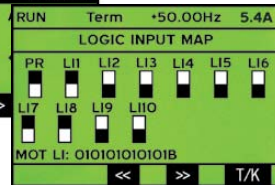
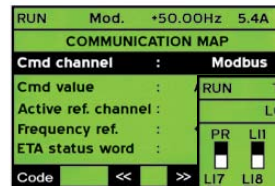
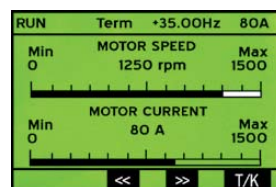
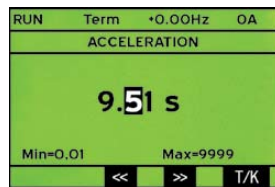
Options:

- NEMA Type-1 conduit kit for direct wall mounting
- LonWorks, BACnet, Metasys N2, Apogee P1, Ethernet or Profibus
- Input/Output extension cards
- Remote keypad mounting kit
- PC Programming Cable Kit

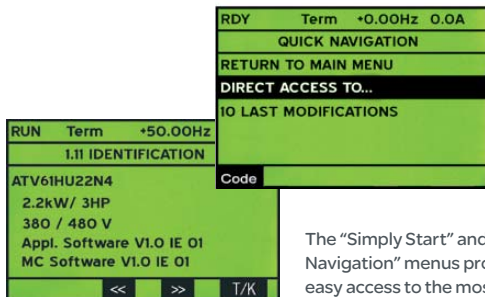
The Altivar 61 VFD family includes a keypad with graphical LCD display to present information clearly.



Keypad with LCD Display



Display of input/output status, communication state, and more.



The "Simply Start" and "Quick Navigation" menus provide easy access to the most common parameters to reduce start up time.



A programmable status line and function keys allow for customization to meet customer needs.

E-Flex VFD



The E-Flex VFD is a fully enclosed package that combines the Altivar 61 with a circuit breaker disconnect, optional bypass circuit and many other features required in the new construction market. The fully enclosed E-Flex package prevents EMI and RFI from interfering with telephone and control signals.

Features:

- 1-100hp @ 460v; 1-50hp @ 208/230v
- Enclosed Altivar 61 VFD package with CB disconnect
- AC Line fuses NOT required
- 3% DC Choke
- NEMA Type 1 Enclosure
- Fused control power transformer
- Industrial operator devices
- HOA switch and speed pot
- UL508C, NEMA ICS 7.1, NEC 2005 Article 409
- 100kA short circuit current rating on VFD & optional Bypass
- Top & Bottom conduit knock-outs

Options:

- LonWorks, BACnet, Metasys N2, Apogee P1, Ethernet or Profibus
- NEMA Type 12K or 3R Enclosure
- 3% or 5% Line Reactor
- Two contactor bypass
- Line Contactor (for 3-Contactor Bypass requirements)
- Test/Normal selector switch
- Pilot lights for power on, fault, run and bypass or auto mode
- Smoke purge (Fireman's override)
- cUL Listing certification
- End Damper Control
- Seismic qualification
- PC programming cable kit

M-Flex VFD



The M-Flex VFD is also a fully enclosed package that combines the Altivar 61 with a circuit breaker disconnect, optional bypass circuit and many other features required in the new construction market. Use the M-Flex any time the E-Flex horsepower range or feature set will not meet your application requirements.

Features:

- 1-500hp @ 460v; 1-50hp @ 208/230v
- Same as the E-Flex VFD package plus:
- Extensive factory installed options are available.
- Industrial Grade Construction
- Permanent wire markings

Options:

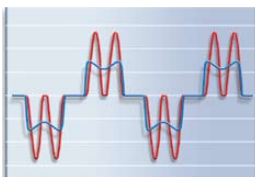
- Same as the E-Flex VFD package plus:
- More communication protocols
- NEMA Type 12K & 1G Enclosure
- Soft-start bypass
- Dual motor overloads
- Motor A/B alternation schemes
- Additional control power VA
- Motor management relay
- Motor protection filter
- Enclosure expansion
- Many more!
- Seismic qualification
- PC programming cable kit

HVAC and Building Automation

VFD Selection Table



	Feature	Altivar 21	Altivar 61
Power Ratings	208/230 vac 460/480 vac 575/690 vac	1-40hp 1-100hp N/A	0.5-125hp 1-900hp 3-100hp
Enclosure	Type-1 Type-12 Type-3R	With Optional Conduit Kit No No	With Optional Conduit Kit No No
Power Features	Disconnect Bypass Line Contactor Reactor	No No No No - Has RHT*	No No No Yes (25-900hp)
I/O	Logic Inputs Relay Outputs Analog Inputs Analog Outputs	3 (2 with Comms) 2 2 (X-Y madc or X-Y vdc) 1 (X-20madc) (N/A w/Comms)	6 2 2 (X-Y madc or X-Y vdc) 1 (X-Y madc or X-Y vdc)
Communication	Modbus RTU LonWorks BACnet Metasys N2 APOGEE FLN P1	Standard Field Installable Field Installable Field Installable Field Installable	Standard Field Installable Field Installable Field Installable Field Installable
Operator Interface	Keypad Display Programming Software Local/Remote Fire/Safety Interlock Smoke Purge Relay Pilot Lites/LED's PID	LED - 4 Characters Yes (PCSoft) Standard Yes No Power On & Fault Standard	LCD - Backlit - Full Text 8 Lines X 24 Characters Yes (PowerSuite) Standard Yes No Power On & Fault Standard



* Reduced Harmonic Technology (RHT) is a revolutionary harmonic mitigating design that reduces total harmonic distortion current to less than 30% at the VFD terminals without the need for an AC line reactor or a DC bus reactor. (THDI < 30%). The international standard IEC61000-3-12 requires THDI levels < 48%. Eliminating the reactor reduces weight and heat loss while improving overall energy efficiency and return on investment. A technical paper is available. Schneider Electric Data Bulletin Number 8800DB0702.



S-Flex	E-Flex	M-Flex
1-40hp 1-100hp —	1-50hp 1-100hp —	1-50hp 1-500hp —
Standard No No	Standard Optional Optional	Standard Optional (1-100hp) No
Yes Optional Optional No - Has RHT*	Yes Optional Optional 3% Standard, 5% Optional	Yes Optional Optional 3% Standard, 5% Optional
3 (2 with Communication Card) 2 2 (X-Y madc or X-Y vdc) 1 (X-Y madc or X-Y vdc)	6 2 2 (X-Y madc or X-Y vdc) 1 (X-Y madc or X-Y vdc)	6 2 2 (X-Y madc or X-Y vdc) 1 (X-Y madc or X-Y vdc)
Standard Optional Optional Optional Optional	Standard Optional Optional Optional Optional	Standard Optional Optional Optional Optional
LED - 4 Characters Yes (PCSoft) Standard Yes Yes (user supplied 120 vac) Power On & Bypass Standard	LCD - Backlit - Full Text 8 Lines X 24 Characters Yes (PowerSuite) Standard Yes Optional Optional Standard	LCD - Backlit - Full Text 8 Lines X 24 Characters Yes (PowerSuite) Standard Yes Optional Optional Standard

*RHT is Reduced Harmonic Technology. See explanation on page 6.

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