

ECVD/ECSS Enclosed Variable Frequency Drives & Soft Starters

- CLASSIFICATIONS
- Cl. I, Div. 1 & 2
- Cl. I, Zone 1 & 2
- Cl. II, Div. 1
- Cl. II, Div. 2

About:

VFDs and Soft Starters are a common means for starting and controlling motors for specialized equipment. While each device is designed with specific features to control a motor, there are several key factors that separate the two. Whether your application necessitates a soft starter or VFD, ICS is well equipped with the working capacity, and technical knowledge to design and build a solution that best fits your needs. While both devices are designed to gradually start and ramp up an electric motor, the key advantage of a VFD is its speed control.

Description and Benefits:

Soft Starter:

A typical Soft Starter uses six Thyristors or "Silicon Controlled Rectifiers" laid out in a non-parallel pattern in order to start a motor smoothly. This allows a motor to "ramp-up" at a slower pace compared to the immediate inrush current spiking to 600% of the motors running load amps as is the case when using full voltage or across the line starters.

Common Applications:

- Waste Water Pump
- Fixed Rate Conveyor Belt
- Fans

Variable Frequency Drive:

A standard VFD will contain three main components- a rectifier, a filter, and an inverter. The rectifier receives incoming AC voltage and changes it to DC voltage. Next, the Filter utilizes capacitors to "clean" the DC voltage creating a smooth incoming power. Finally, the inverter uses transistors to convert the DC voltage into a frequency in Hertz (Hz) which will drive the motor to a specific RPM. This allows for precise speed control and conditional starting capabilities.

Common Applications:

- Irrigation Pumps
- Cranes and Hoists
- A/C Systems
- Specialized Conveyors



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**INTEGRATED
CIRCUIT SOLUTIONS**

ECVD/ECSS™

Outdoor Rated Enclosed VFD's and Soft Starters

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PART NUMBER BUILDER

ECVD/ECSS™ Series

Example: ECVD-218 R-75 B125-1-R1/G1/T3-LN5*KPD*AMR

- ECVD- ICS Enclosed VFD
- 218- Combination VFD + 2 Contactor Bypass
- R- NEMA 3R
- 75- 75HP @ 480V
- B125- MCCB 3PH 125A 480V
- 1- 120V Control- 480- 120V CPT
- R1- RED "RUN" LIGHT
- G1- GRN "OFF" LIGHT
- T3- 3POS "HOA" SWITCH
- LN5- 5% Line Reactor
- KPD- Door Mounted Keypad
- AMR- Ammeter



INTEGRATED
CIRCUIT SOLUTIONS

ECVD - 218 R - 75 B125 - 1 -

Series

- ECVD** Enclosed Variable Frequency Drive
- ECSS** Enclosed Soft Starter

Type

- 006** Soft Starter (non-combination)
- 016** Combination Soft Starter
- 008** VFD (non-combination)
- 018** Combination VFD †
- 218** Combination VFD plus 2 contactor bypass †
- 318** Combination VFD plus 3 contactor bypass †

Enclosure Type

- R** NEMA 3R/12 Painted Steel
- G** NEMA 3R/4/12 Galvanized Painted Steel
- SS4** NEMA 4X Stainless Steel (304)
- SS6** NEMA 4X Stainless Steel (316)
- N** NEMA 4X Non-Metallic

Horsepower Rating @ 480V †

- 1-1500** HP

Disconnect Type (Amperage)

- B** Breaker (015-2000)
- F** Fused (015-2000)
- N** Non- Fused (030-1200)

Control Voltage

- 0** 120V- Separate Control
- 1** 120V- CPT 480-120V
- 2** 240V
- 3** 277V
- 4** 480V
- 8** 12VAC
- 8D** 12VDC
- 9** 24VAC
- 9D** 24VDC

† Combination drives for 40hp applications and above will come standard with vent and fan built into enclosure.

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R1/G1/T3 - LN5*KPD*AMR

Cover Control Options

- S1** RED Push Button "START"
- S3** GREEN Push Button "STOP"
- R1** RED Pilot Light "RUN"
- G1** GREEN Pilot Light "OFF"
- T3** 3 POS Selector Switch "HAND OFF AUTO"
- T2** 2 POS Selector Switch "ON OFF"
- XR** BLACK Electronic Reset Button
- M1** AMBER Pilot Light
- S1E** RED Mushroom Head Push Button

Factory Modifications †³

- 001** Shunt Trip (120V)
- BD** Breather/Drain installed
- 50C** Ambient Compensated Breaker
- EGL** External Ground Lug
- EPX** Epoxy Coating (External)
- 8TB** 8-Point Terminal Block- 30A @ 300V
- DF** DV/DT Filter
- LN(*)** Line Reactor (3=3%, 5=5%)
- LD(*)** Load Reactor (3=3%, 5=5%)
- CR(*)** Control Relay (Specify Voltage)
- KPD** Door Mounted Keypad
- AMR** Ammeter
- PT** Potentiometer
- PX** Purge System †²
- AC** A/C System

Starter Mods

- A01** 1N.O./1N.C aux contact
- A02** 2N.O./2N.C aux contact
- A03** 3N.O./3N.C aux contact

Breaker Mods

- C01** 1A/1B aux switch
- C02** 2A/2B aux switch

Accessories

- HT1** Heater

†² consult factory for assistance selecting correct purge unit based on application

†³ Multiple factory mods must be separated by asterisks "*"