

EUROTHERM® FLEXIBLE SOLUTIONS

Drives

VARIABLE FREQUENCY DRIVES (AC)
SOFT STARTERS
VARIABLE SPEED DRIVES (DC)



...FROM SIMPLE APPLICATIONS TO COMPLEX SYSTEMS

A wide choice of AC Drives, Soft Starters and

Over the last 40 years, Eurotherm has built up a reputation as a global Drives supplier with sophisticated products that have been supplied to satisfied customers all over the world for use in all kind of applications and various markets.

*FROM SIMPLE APPLICATIONS
TO COMPLEX*

Flexible Pro

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Easy Inst

AC Drives

A wide range of variable speed drives for AC induction motors with Output Power Ratings from 0.18kW/0.25HP up to 2100kW/2800HP.



Soft Starters

A complete range of micro-processor based Soft Starters with Output Power Ratings from 1.1kW/1.5HP up to 1850kW/2500HP with standard internal By-Pass Relay.



DC Drives



SYSTEMS
programming
Dynamic Performance
High Accuracy
Installation and Operation



DC Drives

Analogue and Digital, 1- and 4-quadrant, variable speed drives with internal field controller and universal speed feedback inputs. Armature current ranges from 3.4Amp to 1850Amp



Software

Almost every AC Drive, DC Drive and Soft Starter can be commissioned and configured by software supplied free of charge and downloadable.



AC Drives

- Multi purpose
- High performance
- Local keypad
- Compact units
- Flexible programming
- High starting torque
- Easy installation and operation

A wide range of variable speed drives for AC induction motors with Output Power Ratings from 0.18kW/0.25HP up to 2100kW/2800HP.

A complete range of different models to be used from simple applications up to complex system solutions where high accuracy and dynamic performance are required. Control modes like V/Hz, Sensorless Vector and Close Loop Vector are all available.

A large number of Fieldbus interfaces and internal PLC programming functionality are offered for system integration. For regenerative applications an Active Front End (AFE) is available, and all models are standard equipped with an internal PID control loop for automatic Flow, Pressure and Level control applications.

The models ERCFW08, ERCFW09 and ERCFW11 are most suitable for system integration. On all models we offer a number of Fieldbus interfaces and internal PLC programming functionality is available for some models.

PID Control Loop SENSORLESS VECTOR Close Loop Vector



ERCFW08 Series Variable Speed Drives

These Variable Speed Drives (VSDs) incorporate the most advanced technology and full features in a compact product, with a host of special functions available. Power Ratings up to 15kW/20HP.

ERCFW09 Series Variable Speed Drives

The ERCFW09 Series of Variable Speed Drives incorporates the world's most advanced technology in drives for three-phase AC induction motors. Power Ratings up to 1100kW/1500HP.



ERCFW10 Series Variable Speed Drives

Designed for the control and speed variation of three-phase induction motors, ERCFW10 drives unite modern design and technology – providing compactness and simplicity with a flexible programming facility. Power Ratings up to 2.2kW/3.0HP.



ERCFW11 Series Variable Speed Drives

The ERCFW-11 Series are variable speed Drives with state of the art technology for three-phase induction motors. It can be used in a vast range of applications, since it is designed for running on either Normal or Heavy Duty Cycle loads. Its performance is excellent, providing increased productivity and an improvement in the quality of the process in which it is used. Soft PLC standard and Power Ratings up to 2100kW/2800HP.



Soft Starters

- **Output Power Ratings from 0.55kW/0.75HP up to 1850kW/2800HP**
- **Voltage control for smooth starting and stopping**
- **Easy parameter setting for trouble free start-up**
- **Pump control feature that prevents pumps running at no load and eliminates pipeline water hammer**

A complete range of micro-processor based Soft Starters with Output Power Ratings from 0.55kW/0.75HP up to 1850kW/2800HP.

Available with internal By-Pass Relay standard for all models, Fieldbus communication, intelligent pump control, optimised motor starting torque, electronic motor protection, etc.

ERSSW series soft starters are static starters designed for the acceleration, deceleration and protection of three phase induction motors. This series is based on microprocessors with state-of-the-art design for the best starting performance and a low cost complete solution.

The control of voltage applied to the motor, by means of thyristor firing angle variation, enables smooth starting and stopping. With proper adjustments it is possible to optimise the motor starting torque so that the starting current remains as low as possible.

3-wire (Star or Delta) and 6-wire (inside Delta) connections to the motor are possible.

Remote HMI with parameter copy function for mounting in cabinet door or at the front of the soft starter are available.

BY-PASS PROTECTION **Built-in Motor** *Easy Operation*



ERSSW05 Series Soft Starters

The ERSSW05 Plus Micro Soft-Starters, with Digital Signal Processor (DSP) control have been designed to supply an excellent performance during starting and stopping of electric motors with excellent cost/benefit ratio. Internal By-Pass Relay standard. Power Ratings up to 45kW/60HP.

ERSSW06 Series Soft Starters

The ERSSW06 series are static starters designed for the acceleration, deceleration and protection of three phase induction motors. The voltage control applied to the motor, by means of thyristor firing angle variation, enables smooth starting and stopping. Internal By-Pass Relay standard. Power Ratings up to 1850kW/2500HP.



ERSSW07 Series Soft Starter

Soft-Starters are static starting switches, designed for the acceleration, deceleration and protection of three phase, electric, induction motors, through the control of the voltage applied to the motor. Internal By-Pass Relay standard. Power Ratings up to 150kW/200HP.

DC Drives

- Armature current ratings up to 1850Amps (up to 3000 Amp using stack driver units)
- Range of 1- and 4-quadrant DC Drives
- Compact design
- Can be used in speed or current control modes
- CE, UL, and cUL approved
- Internal field controller and universal speed feedback inputs

The DC Drive product range can be used to control DC shunt and DC permanent magnet motors and offers a wider choice of variable speed DC drives than any other manufacturer.

The range has over 50 models with Armature current ratings up to 1850 Amps.

For higher armature currents (up to 3000 Amps) we can offer a Digital, DC stack driver unit with external thyristor stack.

Both the Analog and Digital, 1- and 4-quadrant, variable speed drives (VSD) have an internal field controller and universal speed feedback inputs (pulse encoder, tacho and armature voltage).

Analog DC Drives: The Din-rail mounted analog Series (ER-340/680/1220) is available for armature currents from 3.4A up to 12.2A in both 1- and 4-quadrant, non-isolated and isolated versions.

The panel mounted analog Series (ER-3200i and ER3600XRi) is available for armature currents from 4A up to 48A in both 1- and 4-quadrant isolated versions.

Digital DC Drives: This range is probably the most powerful drive on the market today including 2-quadrant (most ER-PL models) and 4-quadrant versions (all ERPLX models), internal field controller and fully programmable function blocks and soft wiring. (ER-PL/ER-PLX).

A number of predefined application function blocks are available as standard for winders, section control, diameter calculation, etc. Armature Current outputs are available up to 1850 Amps. The optional Fieldbus communication can be used for complete system integration.

Compact Design INTERNAL FIELD CONTROLLER *Used in Speed or Current Modes*

ER-340/-680/-1220 Series Variable Speed Drives

The ER-340, ER-680 and ER-1220 series are series of speed controllers for shunt wound or permanent magnet motors, utilising speed feedback from the armature voltage, or from a shaft mounted tachogenerator. Armature Currents up to 12.2 Amp.



ER-3200i/-3600XRi Series Variable Speed Drives

The units employ closed loop control with both Armature Voltage feedback voltage and DC Tacho feedback to achieve precise control of the motor torque and speed. Armature Currents up to 48 Amp.



ER-PL/ER-PLX Series Variable Speed Drives

The digital DC drives ER-PL and ER-PLX are probably the most powerful on the market today. With an extensive range of standard software blocks, they can take control of the most demanding motion tasks. All models include a 40 character, alpha-numeric, back-lit display; full set of centre winding blocks, including diameter control and field weakener for extended speed range applications. Available in both 2-quadrant and 4-quadrant versions, the range comprises of 5 very compact chassis sizes. Armature Currents up to 1850 Amp.



Software

- **ER SDW Soft Starter Sizing Software:**
 - Selection of various Soft Starter applications with their specific characteristics.
 - Soft Starters will be sized based on specified start conditions and motor specifications, required options, etc.
- **ER Superdrive Software for AC Drives and Soft Starters:**
 - Parameter transfer from PC to the drive
 - Parameter transfer from drive to the PC enabling backup of configuration
- **SAVVY Software for ER-PL/ER-PLX, Digital, DC Drives:**
 - Easy, intuitive, Java based program
 - Automated software updates
- **ER-PL PILOT Software for ER-PL/ER-PLX, Digital, DC Drives:**
 - Cost effective and easy to use
 - Recipe creation and functionality



A range of software designed for the configuration or specification of the Eurotherm range of AC Drives, Soft Starters and DC Drives.

Control and Monitoring PARAMETERISATION Graphical Configuration



SDW Soft Starter Sizing Software

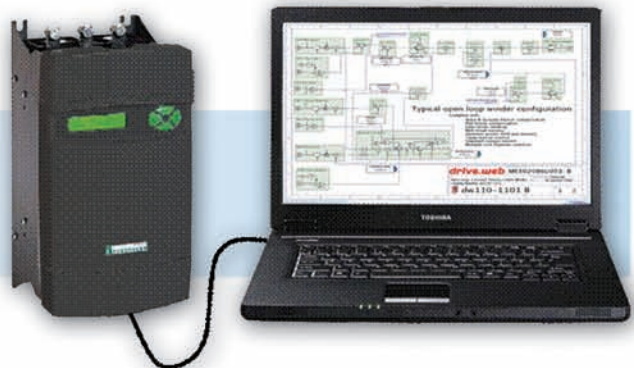
Software designed to help with the sizing and specification of the Eurotherm Soft Starters.

ER Superdrive Software

Software for Windows environment, enabling parameter setting, command and monitoring of drives (AC Drives and Soft Starters).

SAVVY Graphical Function Block Programming

The graphical Signal Flow Diagram (SFD) programming option adds powerful system design and documentation features with function blocks, user wiring, monitoring and trending. To be used with ER-PL/ER-PLX, Digital, DC Drives.



ER-PL PILOT Configuration & Diagnostic

Software which makes interconnecting the drive's application blocks a simple task and enables the user to tailor the drive's control strategy to exactly meet the demands of the process or application. To be used with ER-PL/ER-PLX, Digital, DC Drives.

Applications

Eurotherm is also offering Products and Solutions in chosen Vertical Markets where we are able to offer a complete solution to our customers. Technical expertise and detailed application knowledge are our trademark. Drives products from Eurotherm are commonly used in those Vertical Markets offering a seamless integration.

LIFE SCIENCES



- Fermentors
- Autoclaves
- Sterilizers
- Chillers
- Stirrers & Agitators
- BMS (HVAC) System

HEAT TREATMENT



- Fans and Pumps
- Rolling Mills
- Laminators
- Rotating Furnaces
- Slitters and Perforators

GLASS



- Coating line Speed Control
- Conveyors
- Cooling Fans
- Rollout Tables
- Top roller Speed Control (float bath)
- Mixers (batch house)

PLASTICS & RUBBER



- Extruders
- Chillers
- Gear Pumps
- Winders/Unwinders
- Mixers
- Calenders

WATER/WASTE WATER



- Pumps (Speed Control)
- Pumps (Soft Starter Control)
- Regenerative System

RENEWABLE ENERGY AND ENERGY EFFICIENCY



- Reducing peak Power by Soft Starter control of Fans and Pumps
- Energy saving using VFD's to control Fans and Pumps
- Regenerative System

The ERCFW11 Frequency Inverter can be used in both simple and sophisticated applications, due to its broad range of functions and easy configuration, installation and operation. The ERCFW11, through its Vectrue Inverter™ technology, presents excellent static and dynamic performance, precise torque and speed control, dynamic response, positioning precision, and high overload capacity.

The ERCFW11 is also developed for applications where the decisive factor is safety, through several built-in protections and alarms as well as through the Safety Stop function in accordance with EN 954-1, category III.

A Soft PLC is standard for advanced calculations, PLC functions, function block programming and pre defined application programs.

On these pages you will see a number of applications where the Eurotherm Inverters have been delivered.

MULTI-PUMP CONTROL

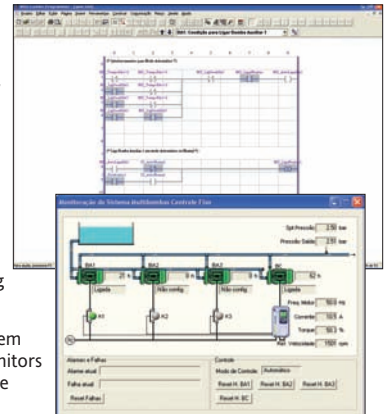
The ERCFW-11 permits the system to maintain the line pressure of a pipe constant, regardless of flow demand fluctuations.

This allows the system to use only the necessary number of pumps to supply its demand. It controls the speed of one of the pumps, turning the others on and off according to demand.

Besides controlling the system output pressure, it also monitors the suction pressure and the captation tank level.

The ERCFW-11 automatically alternates the pump that is running according to the number of hours each one has been operating, as to ensure uniform use.

This Multi-Pump Control is available free of charge through a SoftPLC function application software available on the Eurotherm site.



COMPRESSORS

- Optimisation of system pressurisation control with energy savings and improvement of compressor efficiency
- Reduction of motor startup current minimising the wear and tear of the mechanical system permitting a reduction of maintenance
- Possibility of safety and maintenance signaling and alarms of pressurisation system
- Provides startup system control of other compressor units with an increased efficiency of the pressurisation system



PAPER AND CELLULOSE / WOOD

- Display with three parameters visualised at the same time. USB communication in the front of the inverter for data gathering and programming
- Elevated degree of compactness, permitting the assembly of several inverters in reduced space. Modular inverters for large powers, providing an excellent power vs. volume ratio
- Flexible hardware programming and configuration, facilitating applications using synchronisation
- Highly precise speed and torque control
- Network communication with main market protocols
- Quick and simplified programming
- Highly reliable and robust



CHEMICAL AND PETROCHEMICAL

- Highly reliable and robust.
- Elevated degree of compactness, permitting the assembly of several inverters in reduced space. Modular inverters for large powers, providing an excellent power vs. volume ratio
- Plug-and-play system for additional modules, ensuring increased flexibility in adapting to existing systems
- Network communication, with the most used and renowned market protocols



CEMENT AND MINING

- Robust hardware and large overload capacity (models dimensioned in HD)
- Elevated degree of compactness, permitting the assembly of several inverters in reduced space. Modular inverters for large powers, providing an excellent power vs. volume ratio
- Network communication, with the main protocols available on the market



HOIST AND CRANES

- SoftPLC function
- Three modes of vector control
- Highly compact.
- Intelligent control of ventilation system



SUGAR AND ALCOHOL

- Modular and compact
- 12-pulse rectifier for reduction of harmonics
- Regenerative rectifier for centrifuges
- Highly robust and durable



REFRIGERATION

- SoftPLC function built into the standard product enabling the use of two controllers simultaneously. This characteristic is for HVAC applications
- Display of three parameters visualised at the same time
- USB communication in the front of the inverter for data gathering and programming



PUMPS AND FANS

- Precise control of process variables (pressure, flow, temperature, etc.) through a PID controller added to the speed control loop
- Optimisation of power consumption through speed control with an adjustable V/f curve
- Possibility of safety and maintenance signaling and alarms of pumps and fans
- Availability of PID controllers to control other process variables like valves, dampers, other frequency inverters, etc



PROCESS MACHINES

- Built-in PLC and Real Time Clock
- High connectivity
- Fieldbus
- Highly precise speed and torque at all speed ranges
- User friendly interface and programming







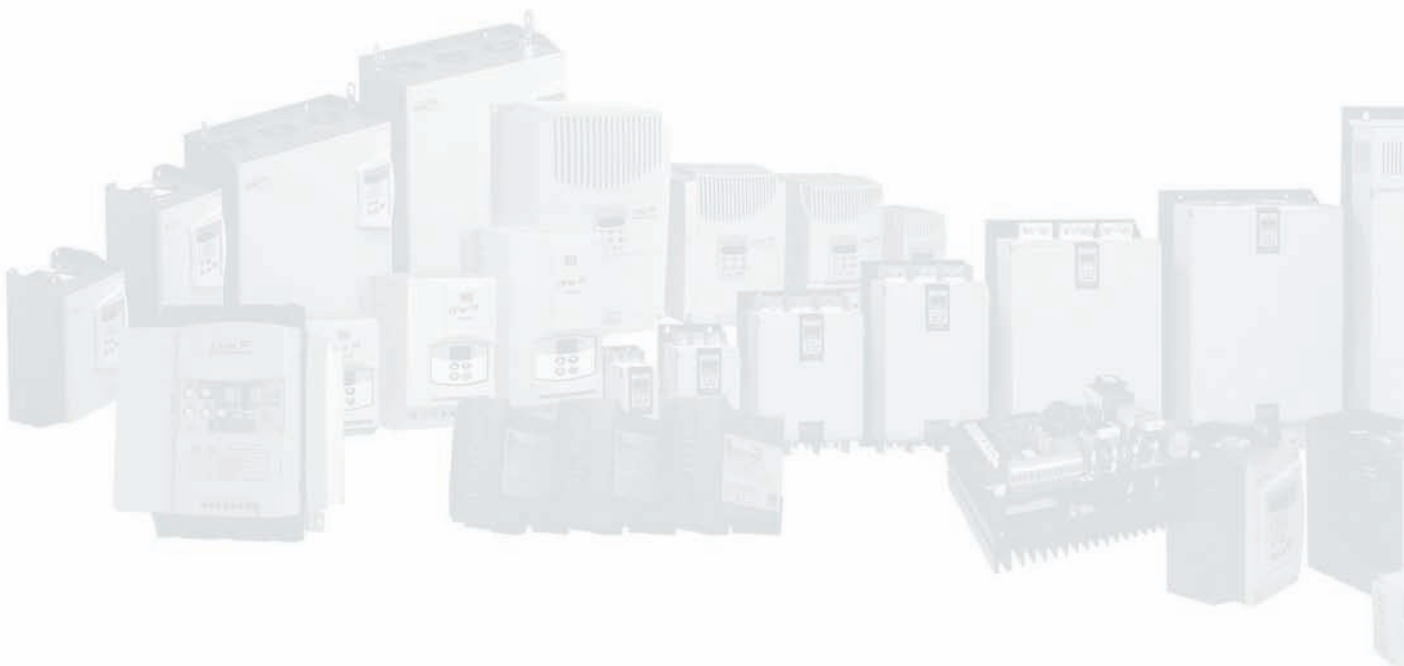
STEEL INDUSTRY

- Highly precise speed and torque control
- Large overload capacity (models dimensioned in HD)
- Flexible hardware programming and configuration, facilitating applications needing synchronisation
- Network communication with the main market protocols
- Elevated degree of compactness, permitting the assembly of several inverters in reduced space. Modular inverters for large powers, providing an excellent power vs. volume ratio



Selection guide and technical specifications

	AC Drives			
	 ERCFW08	 ERCFW09	 ERCFW10	 ERCFW11 ERCFW11M
Power Rating	0.18-15kW/ 0.25-20HP	0.1-1100kW/ 1.5-1500HP	0.18-2.2kW/ 1.5-3.0HP	1.1-2100kW/ 1.5-2800HP
Supply Voltage	200-240V, 1-Phase and 3-Phase, 380-480V, 3-Phase	220-690V	110-240V	200-240V, 1-Phase and 3-Phase, 380-480V, 3-Phase and 690V, 3-Phase
Display	Integral/Remote	Integral/Detachable	Integral	Integral/Remote
Phases	1-Phase or 3-Phase	1- Phase or 3-Phase	1-Phase	1-Phase or 3-Phase
Control Mode	V/Hz, Sensorless Vector	V/Hz, Sensorless Vector, Closed Loop Vector	V/Hz	V/Hz, Sensorless Vector, Closed Loop Vector
Communication	DeviceNet	Profibus DP, DeviceNet, Modbus RTU	—	Profibus DP, DeviceNet, Modbus RTU
Armature Current	—	—	—	—
Software	Configuration – ER Superdrive	Configuration – ER Superdrive	—	Configuration ER G2 Superdrive

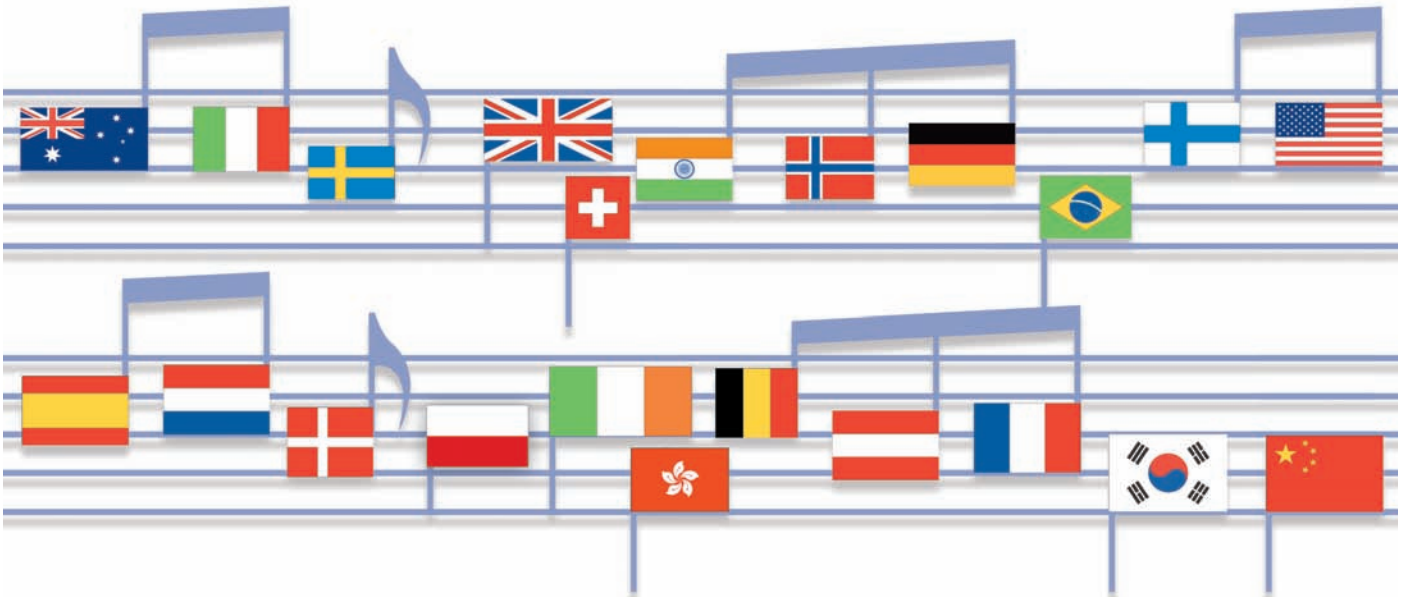


Soft Starters			DC Drives		
					
ERSSW05	ERSSW06	ERSSW07	ER-340 ER-680 ER-1220	ER-3200i ER-3600Xri	ER-PL ER-PLX
0.55-55kW/ 0.74-75HP	55-1850kW/ 75-2500HP	7.5-150kW/ 10-200HP	0.55-1.8kW (at 180V armature voltage)	2.2-11kW (at 320V armature voltage)	15-800kW/ (at 460V dc armature voltage)
220-575V	220-575V	220-575V	110/240V, 30/60V	240/415V, 30/60V	100-480V, 100-690V
Remote	Integral/Remote	Integral/Remote	—	—	—
3-Phase	3-Phase	3-Phase	1-Phase	1-Phase	3-Phase
—	—	—	1- & 4- Quadrant	1- & 4- Quadrant	1- & 4- Quadrant
RS232	Profibus DP, DeviceNet, Modbus RTU	Profibus DP, DeviceNet, Modbus RTU	—	—	Profibus, DeviceNet CANopen, Modbus RTU
—	—	—	3.4-12.2A	4-48A	36-1850A
Configuration ER Superdrive	Configuration ER G2 Superdrive	Configuration ER G2 Superdrive	—	—	Configuration ER-PL Pilot and SAVVY



Eurotherm: International sales and service

Understanding and providing local support is a key part of Eurotherm business. Complementing worldwide Eurotherm offices are a whole range of partners and a comprehensive technical support team, to ensure you get a service you will want to go back to.



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