

## Digital Servo Amplifier / Controller

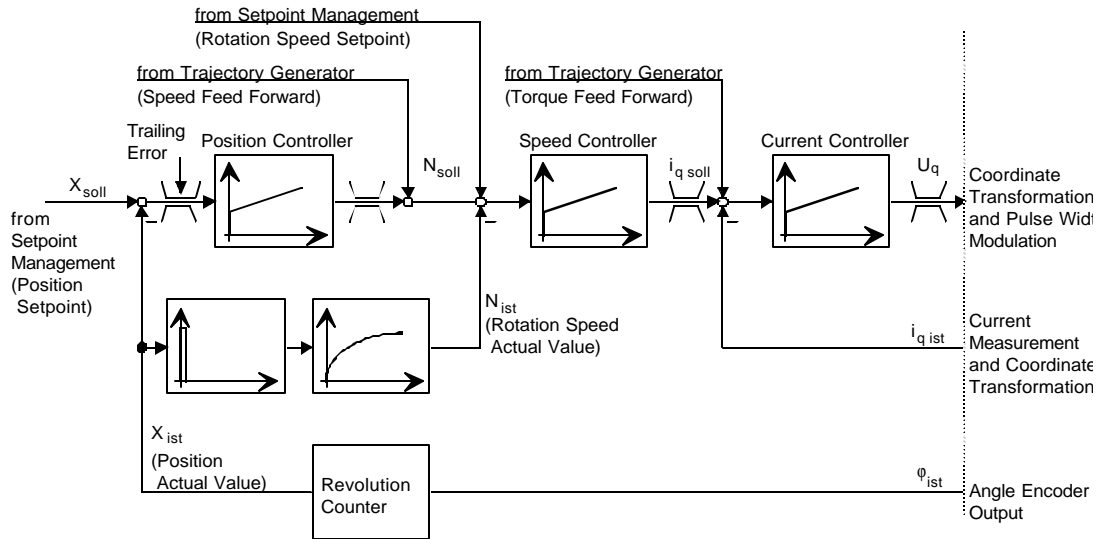
(For 3 Phase Brushless Motors)



- 5 to 40 Amp rated output current
- 10 to 75 Amp peak output current
- Built in power supply
- 110, 220, 400 V AC Input
- Encoder or resolver feedback,
- Sinusoidal commutation
- CAN-Bus, Profibus, RS 232 interface
- 15 Preset motion profiles
- Input for 2nd Encoder (synchronization)
- Windows® based Installation software incorporates automatic parameter setting, with built in oscilloscope

Innovation in Linear Motion

# Control Loop Configuration



1. Torque Control
  - Ramp (adjustable), limiting the increase of torque. Optimal adjustment adapts the capabilities of the drive, thus eliminating overshoot.
2. Velocity Control
  - Filter for command value (adjustable)
  - Acceleration profile: trapezoidal or s-curve (adjustable)
  - Velocity–torque control combination by second command value
3. Position Control
  - **Homing procedure** using limit switch or limit switch in combination with index of encoder or current rise due to driving to mechanical limits. An offset can be set for zero position.
  - **Brake signal** is generated after delay and remains in a position window (adjustable).
  - **16 positions** being selected via 4 digital input signals (model IMD: 8 positions); positioning is initiated by digital input signal or from terminal
  - Set command position as actual position by digital input signal
  - **Output signals:** positioning completed, homing active, position distance or time required to travel to position
  - **Position definition** in absolute, relative and relative to actual position (shift to absolute positioning is always available)
  - **Change in position while travelling:** ignore / subsequent / immediate
  - Speed at destination position can deviate from zero (smooths motion from point to point)
  - Torque increment to compensate stick slip effect (adjustable), enhances dynamics for positioning
4. Synchronization
  - Velocity
  - Position (for enhanced dynamic simultaneous feedback of velocity and position)
  - Combination of positioning and synchronization (i.e. cutting of constant flowing material)
5. Stepper motor control interface: command by pulse and direction signals
6. Sinusoidal commutation capabilities with encoder and hall sensors as feedback devices

Model	IMD-310/5F	IMD-310/10F	ARS-360/2,5E
Supply voltage	230 VAC, 1Φ	230 VAC, 3Φ	230 VAC, 1Φ
Rated / Peak current	5A / 10A	10A / 20A	2,5A / 5A
Output power	1,5 kVA*	3 kVA**	0,9 kVA
Dimensions /mm (excluding plug)	19" Rack 3HU, 14DU	19" Rack 3HU, 21DU	H: 200, W: 54, D: 200

\*) forced air cooling, additional bus capacitor    \*\*) forced air cooling

Model	ARS-310/5	ARS-310/10	ARS-560/2.5	ARS-560/5
Supply voltage	230 VAC, 1Φ	230 VAC, 3Φ	400 VAC, 3Φ	400 VAC, 3Φ
Rated / Peak current	5A / 10A	10A / 20A	2,5A / 7A	5A / 11A
Output power	1 kVA	2,5 kVA	1,5 kVA	3 kVA
Dimensions /mm	H: 200, W: 70, D: 210			

Model	ARS-560/8	ARS-560/12K	ARS-560/20K	ARS-560/40K
Supply voltage	400 VAC, 3Φ			
Rated / Peak current	8A / 16A	12A / 20A	20A / 36A	40A / 75A
Output power	4,5 kVA	6,5 kVA	12 kVA	24 kVA
Dimensions /mm	H: 200, W: 90, D: 210	H: 330, W:85, D: 258		H:330 W:165 D:258

Auxiliary Logic Supply voltage (required for all models) : 24 VDC (0,5A)

#### Mains filter

- Models up to 12A: Integrated EMV-Filter  
Model ARS-360/2,5-E: integrated EMV-Filter and PFC (EN 61000-3-2)
- Connector for DC bus voltage
- Regeneration resistor incorporated

- Two monitor output +/- 10V  
8 Bit resolution for command and actual value
- Serial interface RS232
- CAN-Open
- Profibus DP (incl. macro for Siemens SPS)

#### Protection functions

- Current I<sup>2</sup>t
- PTC motor temperature
- Motor windings and isolation
- Feedback device check
- Supply voltage and controller

#### Functionality

- Set control parameters online
- Read / write analogue values
- Cam profile function
- Synchronization as Master or Slave
- 8 digital inputs and 4 digital outputs
- Teaching
- Supplement output 2A load capacity (i.e. for operating motor brake; Model IMD, ARS2,5: 0,5 A)

#### Feedback sensor

- Resolver, emulation of encoder signals, programmable, resolution 16 Bit
- Encoder RS422 or Sin/Cos
- EnDat (Heidenhain ECN 1313)
- Absolute encoder: Hyperface (Stegmann) including serial interface RS485 for transmitting the actual position
- Second encoder input (i.e. synchronization)

#### Operating e

- Running under MS Windows®
- Simplified set up with automatic parameter setting and motor phase recognition
- Oscilloscope and generator integrated for fine tuning
- Handling of parameter files
- Creating of customized programs (optional)

#### Interface

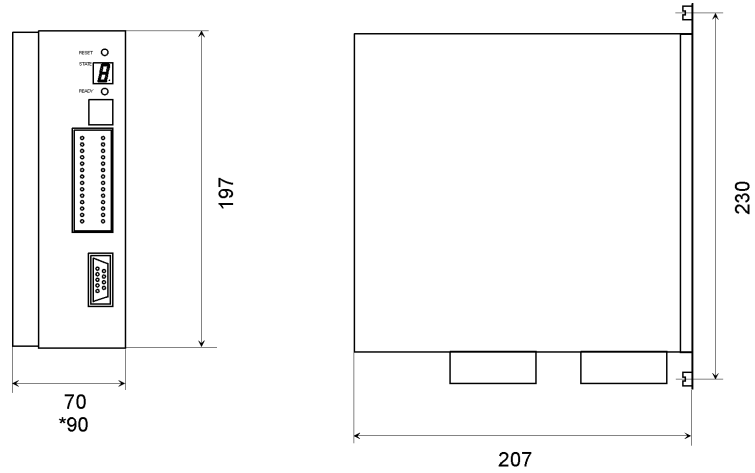
- Two analogue input +/- 10 V  
10 bit resolution, (16 bit option)

#### Model IMD-310

no filter, max. 8 positions, one monitor interface

# Dimension (mm)

**Model ARS-310 / 5 ... 10 and ARS-560 / 2,5 ... 5**  
**Model ARS-560 / 8 \***



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**Model ARS-560/12... 20K**  
**Model ARS-560/40K \***

