Voltage Regulation & Power Quality

Servo Controllers

Control cards that sense voltage and drive the servo motor in a stabilizer.

Rating band: For stabilizers up to 500 kVA

Document servo-controllers / Revision 2.0 / 19 October 2026

A servo controller compares the stabilizer output with its set point and commands the servo motor to raise or lower the variable transformer. It also carries the voltage trips and time delays that protect the load. Invitrona supplies single-phase and three-phase controller cards for mounting inside a host stabilizer enclosure, with the sensing range and motor drive matched to the host equipment.

Class summary

Typical values for the class

Rating range
For stabilizers up to 500 kVA

Sensing
Single or three phase

Motor drive
Raise / lower output

Format
Card for a host enclosure

Typical specification

Parameter	Value or range	Conditions and basis
Rating range	For host stabilizers up to 500 kVA	The card rating follows the motor and sensing interface, not the stabilizer kVA
Auxiliary supply	230 V AC, typically 180–260 V AC	Taken from the stabilizer output or a control transformer
Sensing range	Typically 300–480 V AC three phase or 150–270 V AC single phase	Phase-to-phase or phase-to-neutral as specified
Set point adjustment	Typically ±10% of nominal output	Adjusted at commissioning
Regulation accuracy	Typically ±1% of set point	With a correctly sized stabilizer and servo drive
Dead band	Adjustable, typically 1–3% of set point	Set to avoid motor hunting
Motor drive output	Raise and lower relay or solid-state outputs for 230 V AC or 24 V DC servo motors	Contact rating stated for each card
Protection functions	Under-voltage and over-voltage trip with time delay; single-phasing trip; motor limit inputs	Thresholds adjustable; relay output to the stabilizer contactor
Indication	LED status for supply, raise, lower and trip	Digital display by assessment
Ambient temperature	0–50 °C	Inside a ventilated host enclosure
Mounting	Open card on stand-offs inside the host enclosure	Conformal coating by assessment
Connections	Plug-in or screw terminal blocks	Terminal assignment documented with the host wiring

Figures are typical values for the class and rating band; the quotation states the values for a specific unit.

Selection and application

Features

Feature	What it means in use
Sensing and drive on one card	The card measures the output, compares it with the set point and drives the servo motor in one assembly.
Adjustable set point and dead band	Set point, dead band and time delays are adjusted at commissioning to suit the stabilizer and its motor.
Load protection trips	Under-voltage, over-voltage and single-phasing trips open the stabilizer output contactor through a relay output.
Matched to the host	Sensing range, motor drive and terminal assignment are documented against the host stabilizer before supply.

Selection questions

Question	Answer
Can a servo controller replace the card in an existing stabilizer?	Often, provided the sensing range, motor type and terminal assignment match. Share the stabilizer rating, the motor details and a photograph of the existing wiring for review.
Is the servo controller sold as a complete stabilizer?	No. The controller is a card that mounts inside a host stabilizer. Complete units are listed under Servo Voltage Stabilizers.
Why does the dead band matter?	If the dead band is too narrow the motor hunts back and forth; if it is too wide the output drifts further before correction. It is set at commissioning for the host stabilizer.
Which motor types can the card drive?	Cards are configured for the servo motor fitted to the host stabilizer, typically a 230 V AC or 24 V DC motor. The motor details are confirmed before supply.

Typical applications

Application context
New servo voltage stabilizer assemblies
Replacement controllers for installed stabilizers
Stabilizer manufacturers and panel builders
Service and refurbishment of regulation equipment

Where the class fits

	Duty or project context
01	Voltage-regulation assemblies
02	Industrial control and replacement requirements
03	OEM or application-specific control integration

Documents for an agreed scope

	Document
01	Interface and terminal assignment description
02	Settings record for the agreed configuration
03	Connection and adjustment instructions
04	Functional check records when included in scope

Figures are typical values for the class and rating band; the quotation states the values for a specific unit.

Information needed for selection

	Input
01	Host stabilizer rating, phases and control arrangement
02	Servo motor type, supply and limit-switch arrangement
03	Sensing range, protection thresholds and indication needs
04	Integration, validation and change-control responsibilities

How a requirement is handled

	Activity
01	Establish the host stabilizer and the interface boundary
02	Confirm sensing, motor drive and protection settings
03	Agree the terminal assignment and functional check
04	Supply the card with its settings record

Document control

Field	Entry	Field	Entry
Document ID	servo-controllers	Revision	2.0
Document type	Technical data sheet	Date	19 October 2026
Product class	Servo Controllers	Owner	Invitrona Engineering
Product family	Voltage Regulation & Power Quality	Change	Issued with typical values for the product class and rating band.
Issued by	INVITRONA ELECTRICALS LIMITED, A-56, Naraina Industrial Area, Phase 1, New Delhi 110028, India		

Figures are typical values for the class and rating band; the quotation states the values for a specific unit.