MICRO START — ELCTRONIC SOFT-STARTER

Analog Process Perfected by Digital Technique

The complex process of starting an Induction Motor is intelligently controlled by JAYASHREE make, Micro Controller based Electronic Soft Starters. These Soft Starters are manufactured by JAYASHREE with technical know how from M/s. Fairdford Electronics Ltd. UK. (www.fairford.co.uk)

These Starters are much superior to conventional Motor Starting methods. With increasing shortage of power it is essential to use a intelligent Soft Starter unit for fixed speed motor drives applications to reduce the starting current burden on supply side & help to reduce energy consumption during partial loaded motor conditions.

Construction wise, Electronic Soft Starter comprises of 1) Main control card 2) Power Thyristor (SCR) 6 Nos. anti parallel SCR configuration mounted on suitable heat sinks. 3) Power Switchgear For complete soft starter panel, suitable MCB/MCCB/SFU/Fuses, overload, power contactor, indications & enclosure.

Our basic Electronic Unit (EU) / Open Chassis (OC), is suitable for panel inside mounting & comes with Electronic card, 6 Nos SCRs mounted on suitable heat sinks, Control & Power termination & suitable enclosure with grade of protection IP- 00/ 30.

Special functions for specific loads/ applications like- kick-start, Soft Stop, Shear pin protection, Bypass arrangement, Special motor protection relay, Other external protections, Local / remote Start / Stop facility, Auto/ Manual facility, Communication, can also be configured with the special models of soft starter panels.

Protections- All the Soft Starter model are built with protections like MOV's for voltage surges, RC Snubber for protecting SCR against dv/dt , Open / short SCR & Single phase protection on line side/ Motor side. Advanced Protections are also available with some of the Models.

Special feature for Water Pumps Electronic Soft Starters provides Soft Stop option, which helps to reduce water hammer effect & enhances the pump system life.

Applicable Standard IEC 947-4-2.

HFSR — REACTOR SOFT-STARTER

Traditional Method of Reliable Motor Starting

The complex process of starting an Induction Motor is intelligently controlled by JAYASHREE make, Harmonics Free Series Reactor (HFSR) Soft Starters, which falls in the category of series impedance type of starters.

The Reactors in the soft starter, acts as impedance in series with motor winding & allows only a part of the line voltage to be applied at the motor terminals & finally gets bypassed after starting process is completed. This result in, reduced starting current coupled with reduced starting torque as compared with the DOL starters.

Construction wise, Reactor type Soft Starter comprises of- 1) Reactor modules with core less design, 2) Reactor Bypassing contactor suitable for rated voltage & current 3) Power Switchgear (for LT soft starter panel)- suitable MCB / MCCB / SFU / Fuses, overload, power contactor, indications, CSR protection & enclosure.

HT Reactor type Soft Starter comprises of - 1) Reactor modules with core less design, 2) Reactor Bypassing contactor suitable for rated voltage & current 3) Control logic with Reactor protection with current sensing relay (CSR) & bypass contactor opening during running.

Special functions for specific loads / applications like- kick-start, Special motor protection relay, Other external protections, Local/ remote Start/ Stop facility, Auto/ Manual facility, interlocks with the Main VCB / VC Panel can also be configured with the special models of soft starter panels as per customer requirements.

Reactor type Soft Starter with its simple, rugged & elegant construction makes it the most reliable, economical & convenient device for starting of cage induction motors, particularly drives such as Pumps & Compressors whose load characteristics are parabolic permitting low starting torque & involve moderate inertia.

These soft starters being complete electrical, do not need expert man power for maintenance & hence most suitable for remote Pumping stations.

Applicable Standard IS 3914.

JAYASHREE ELECTRON PVT. LTD.

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JAYASHREE ELECTRON UNIT 1


JAYASHREE ELECTRON UNIT 2

JERLSS V1 1000 04/08

JAYASHREE

Masters In Soft-Starter Technology For Asynchronous Motors- (Squirrel Cage Induction Motors, Slip Ring Induction Motors) & Synchronous Motors.

PUMPS

CRUSHERS

COMPRESSORS

MAJOR APPLICATIONS SOFT-STARTED SUCCESSFULLY BY JAYASHREE

- Small / Large Capacity Pumps
- Low / High Inertia Fans
- Compressors- (Reciprocating, Screw, Rotary)
- Crushers
- Grinders
- Conveyors
- Pulp, Paper & Packing
- Agitators
- Press
- Mixers

INTRODUCTION

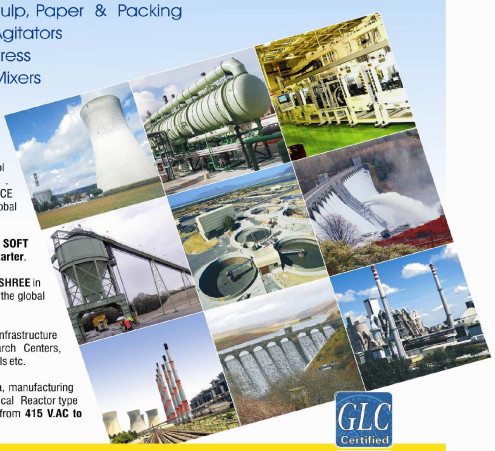
'**JAYASHREE**' an ISO 9001-2000 company, established in **1972**, engaged in Designing & Manufacturing of Control ,Electrical, Power Electronics Products, like **LT/HT Soft Starters,** Electronic Non Contact Speed Switches, Proximity Switches, & other control equipments. The products now stand on very High Quality Rating with CSA / UL & CE approvals for some of the products & exposed to Indigenous & Global Market.

Since 1978, we have been Manufacturing, HT/LT Reactor type **SOFT STARTERS,** Operating on Principle of **Series Impedance Type Soft starter**.

With the need of 'energy saving' and intelligent Soft Starters, **JAYASHREE** in 1990 entered in an association with **Fairford Electronics,** who are the global leaders in **Micro processor based Soft Starters.**

We have been catering needs of the Industry, mainly for Major Infrastructure Pumping Projects, Power Plants (NTPC etc.), Atomic Research Centers, Chemicals, Sugar, Heavy Electrical, Steel & Mining, and Machine Tools etc.

We proudly mention that, '**JAYASHREE**' is a only company in India, manufacturing advanced Micro Controller based Electronic Soft Starters & Electrical Reactor type Soft Starters **(HFSR)** under one roof for supply voltage ranging from **415 V.AC to 11,000 V.AC** & Motor rating ranging from **1 KW to 25,000 KW**.



GLC Certified ISO 9001

JAYASHREE — MICRO START — HFSR

Masters In Soft-Starter Technology

Parameters	ES / CS- 960 EU	Electronic Unit MS960-EU / DS960-EU	Open Chassis MS960-OC / DS960-OC	Electronic soft starter complete panel- MS960-CP/ DS960-CP	Reactor soft starter L.T. HFSR 201-LS	Reactor soft starter H.T. HFSR 201-LS
Principle of Operation	Micro Controller Based Electronic	Micro Controller Based Electronic	Micro Controller Based Electronic	Micro Controller Based Electronic	Series Reactor Type	Series Reactor Type
Kilowatt Rating	11 – 280 KW	5.5 – 45 KW	55 – 45 KW	45 – 750 KW	1 –750 KW	150 – 25,000 KW
Rated Normal Supply Voltage	415 / 690 V. AC	415 / 690 V.AC	415 / 690 V. AC	415 / 690 V. AC	415 / 690 V. AC	3.3 kV / 6.6 kV / 11kV
Rated Frequency	50 Hz. 60 Hz (Optional)	50 Hz. 60 Hz (Optional)	50 Hz. 60 Hz (Optional)	50 Hz. 60 Hz (Optional)	50 Hz. 60 Hz (Optional)	50 Hz. 60 Hz (Optional)
Rated Control Supply	240 VAC, 50 Hz./ 110 DC, (optional)	240 V.AC, 50 Hz. 110 DC (optional)	240 V.AC, 50Hz. 110 DC(optional)	240 VAC, 50Hz. 110 DC (optional)	240 VAC, 50 Hz. / 110 DC	240 VAC, 50 Hz. / 110 DC
Rated Aux. Supply	240 V.AC, 50 Hz.	240 V.AC, 50 Hz.	240 V.AC, 50Hz.	240 V.AC, 50 Hz.	240 V.AC, 50 Hz.	240 V.AC, 50 Hz.
Pedestal Voltage	30-100 % Adjustable	MS- 40 % fixed DS- 10-60 % (adj.)	MS- 40 % fixed DS- 10-60 % (adj.)	MS- 40 % fixed DS- 10-60 % (adj.)	40-80 % (factory Set) *	40-80 % (factory Set) *
Starting Ramp Time	0 – 25 Secs.	MS- 0.5– 60 Secs. DS- 1-255 Secs. (adj.)	MS- 0.5- 60 Secs. DS- 1-255 Secs. (adj.)	MS- 0.5– 60 Secs. DS- 1-255 Secs. (adj.)	1-60 Secs. (adj.)	1-60 Secs. (adj.)
Starting Current Limit	1.5 – 6 times motor FLC. **	1.5 – 4.5 times motor FLC. **	1.5 – 4.5 times motor FLC. **	1.5 – 4.5 times motor FLC. **	2.0 – 4.5 times motor FLC. **	2.0 – 4.5 times motor FLC. **
Ramp down time	0 – 25 Secs.	MS-1–120 Secs. DS- 0-255 Secs. (adj.)	MS- 1–120 Secs. DS- 0-255 Secs. (adj.)	MS-1– 120Secs. DS- 0-255 Secs. (adj.)	N.A.	N.A.
Soft Stop	Available	Available	Available	Available	Not Available	Not Available
Energy Saving	----	1.5 to 10% ***	1.5 to 10% ***	1.5 to 10% ***	N.A.	N.A.
Parameter Display	MS- Not available	MS- Not available DS- With LCD	MS- Not available DS- With LCD	MS- Not available DS- With LCD	N.A.	N.A.
Operation Interface	With hard wires	MS- With hard wires. DS- MODBUS RTU Protocol	MS- With hard wires. DS- MODBUS RTU Protocol	MS- With hard wires. DS- MODBUS RTU Protocol	With hard wires / RS 485	With hard wires / RS 485
Out put Relay	Fault, Run Contacts at 4 A @ 250 V.AC.	Fault, Run Contacts at 4 A @ 250 V.AC.	Fault, Run Contacts at 4 A @ 250 V.AC.	Fault, Run Contacts at 4 A @ 250 V.AC.	Fault, Run Contacts at 5 A @ 250 V.AC.	Fault, Run Contacts at 5 A @ 250 V.AC.
Enclosure	MS sheet	MS sheet	MS sheet	MS sheet	MS sheet	MS sheet
Protection Grade.	IP 30	IP 30	IP 30	IP 41 / 55	IP 41 / 55	IP 41 / 55

Notes:- 1) * - Pedestal Voltage – Value designed & Set at factory according to application & 3 nos taps are provided for finer adjustments at site. 2) ** -Starting Current- Actual current setting depends on Motor/Load torque characteristics.3) *** -Energy Saving -Depends upon load/ no-load cycle, Motor KW & Motor efficiency & it is in the tune of 1.5- 10%.

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