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Himel



SOFT STARTERS

www.himel.com

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Himel Soft Starters

Himel Basic (HASBS) is a full-digital intelligent soft-starter for asynchronous motors to effectively control the starting current for asynchronous motors. It is a desired alternative to reduced-voltage motor starters like star-delta, resistance/reactance or auto transformer methods.



Himel Expert (HASXS) is an advanced soft-starter with a built-in bypass contactor that can control the starting inrush current of asynchronous motors. The integrated contactor reduces the total number of external components (wiring and contactor etc.)



Capacity Range (Motor capacity in kW)																			
11	15	19	22	30	37	45	55	75	90	110	132	160	200	250	320	400	450	500	600
HAS-XS-4T																			
HAS-BS-4T																			

Multiple start methods

- Current limit soft start
- Ramp voltage soft start
- Ramp voltage + current limit soft start

High robustness

- High anti-interference capability
- Compact design

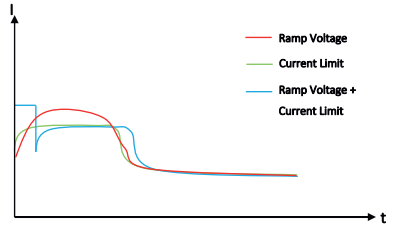
Motor protections

- Overcurrent, overload protection
- Phase-loss protection
- Over-heating protection
- 3-phase imbalance

Easy to use

- 24 hour monitoring
- Quick diagnosis

Highlights

	Features	Your benefits
Multiple start methods		
	◆ Current limit soft start ◆ Ramp voltage soft start ◆ Ramp voltage + current limit soft start	◆ Provides multiple starting methods to meet different application needs
High Robustness		
	◆ High anti-interference capability ◆ Compact design ◆ 3 sets of thyristors to control start/stop voltage	◆ Better electromagnetic immunity against signal noises ◆ Supports longer connection cables. ◆ Unique compact design with double-layer shell consisting of plastic upper layer and metal lower layer makes it durable and nice looking ◆ 3 sets of thyristors provides better performance, safety and reliability
Motor protections		
	◆ Overcurrent, overload protection ◆ Phase-loss protection ◆ Over-heating protection ◆ 3-phase imbalance	◆ Protect your motor against different abnormalities
Easy to use		
	◆ Easy tuning ◆ 24-hour monitoring ◆ Quick diagnosis	◆ 8 segment LED display to monitor different parameters and troubleshooting. ◆ Easy to maintain

Himel Soft Starters

Range		HASBS	HASXS
Applications		Controlled acceleration/decelereation of simple and complex machines	
Design			
Power Range	Three Phase 380...440V	11...600kW	
Drive	Control Type	Current limit, voltage ramp, voltage ramp + current limit	
Functions	Bypass	Need to install externally	Integrated
	Operation control mode	Keypad/external terminals/RS485 Modbus communication	
	Start mode	Current limit/voltage limit/current + voltage limit	
	Adjustable Acceleration/Decceleration time	√	√
	Start delay	√	√
	Emergency stop	√	√
	Current Limit function	√	√
	Initial voltage setting	√	√
	No/Light load detection	Protects against accidents such as belt tripping	
	Auto-restart	√	√
	Fault signal	Relay output - AC 250V 5A, DC 30V 5A	
	Multifunction relay output	Start delay, start, running, stop, complete stop,restart	
	Analog output	0~20mA / 4~20mA, optional	
	Protections	Overcurrent, overload, overheat, phase imbalance, phase-loss, light load, external fault	
	Alarms	Emergency shutdown, light load and restart	
Keypad		Pluggable	
Working Conditions	Rated insulation voltage	660V	
	Rated impulse withstand voltage	4kV	
IP rating	IP20	11 to 55kW	-
	IP00	75 to 600kW	11 to 600kW
Environment	Operation frequency	≤ 12 times/h	
	Ambient temperature	-10°C~ 40°C(Derating above 40°C)	
	Storage temperature	-20 °C ~ 65 °C	
	Ambient humidity	Max. 90 % RH (no condensation)	
	Altitude	< 1,000 m (Deration above 1,000 m)	
	Vibration	< 5.9m/s² (=0.6g)	
	Type	No corrosive/inflammable gas, oil mist, dust or others	
Cooling Method	Natural air cooling	11 to 600kW	11 to 75kW
	Forced air cooling	-	93 to 600kW

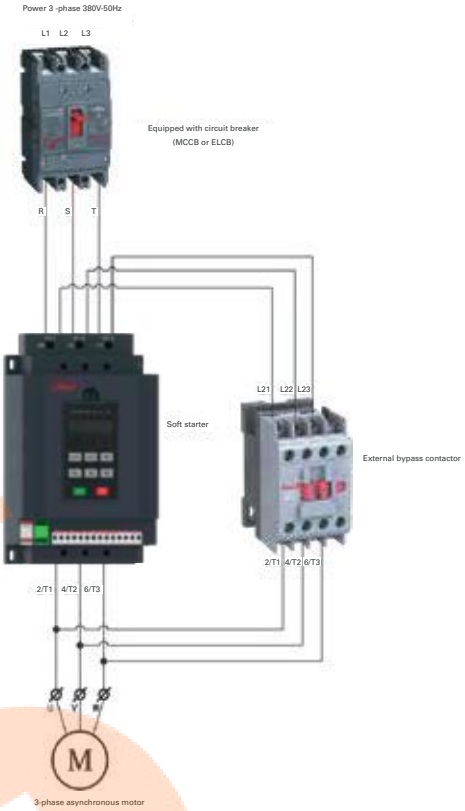
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BASIC Series (HASBS)

Presentation

Himel BASIC soft-starter(HASBS) is an intelligent soft-starter featuring latest electronic, micro-processing and control technology. It offers effective control for the starting current of asynchronous motors via voltage control. It is an ideal alternative to the reduced voltage starters like star-delta, resistance/reactance or auto-transformer methods.

It can cover motors from 11kW to 600kW.



Connection diagram

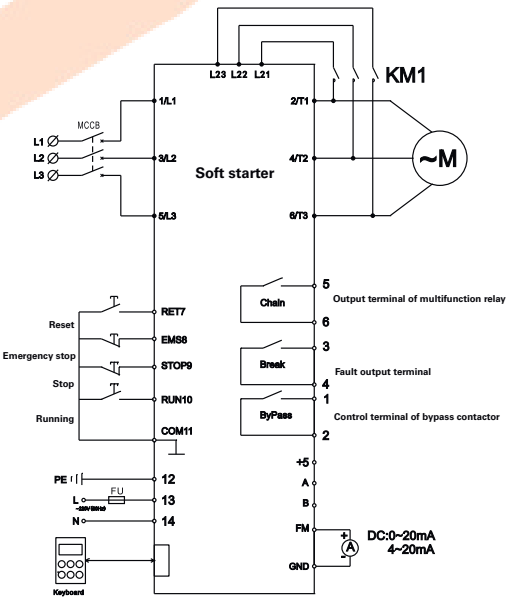
Applications

With its unique, compact design it can be used in harsh environments with the focus on human and other equipment safety. It can be used in typical building or industrial applications:

- Pumps
- Fans
- Compressors
- Conveyers
- Complex and advanced machines

Features

- HASBS has 3 starting modes: current-limit, voltage ramp and current limit + voltage ramp.
- Built-in protections include overcurrent, phase loss, short circuit and overheat.
- Multiple control ways like keypad, I/O terminals and Modbus communication.
- Multifunctional output relays provide different signals based on application requirements.



Wiring diagram

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EXPERT Series (HASXS)

Presentation

Himel Expert Soft-starter(HASXS) is an advance soft-starter to control the starting and stopping of asynchronous motors via voltage control. It can cover motors from 11kW to 600kW. HASXS comes with a built-in bypass contactor hence reducing the total number of external components required by the system.

The starting inrush current to the motor is controlled by managing the voltage to the motor. Silicon-controlled rectifiers (SCRs) are used to control the voltage. These SCRs are bypassed at the end of starting phase using built-in contactor.

Integrated keypad allows user to program the soft-starter and monitor different parameters according to the customer requirements.



Connection diagram

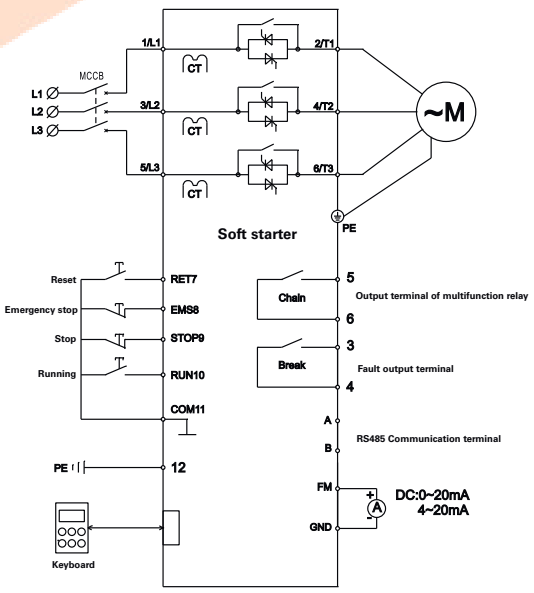
Applications

Himel Expert soft-starter (HASXS) is designed for rugged applications with the focus on safety and reduced commissioning times. It can be used in typical building or industrial applications:

- Pumps
- Fans
- Compressors
- Conveyers
- Complex and advanced machines

Features

- Integrated bypass contactor.
- HASXS has 3 starting modes: current-limit, voltage ramp and current limit + voltage ramp.
- High performance microprocessor makes it highly reliable.
- Opto-electronic isolation provides high anti-interference performance.
- New optimized and compact design
- Built-in protections include overcurrent, phase loss, short circuit and overheat.
- User can monitor different system parameters hence making it easy to maintain



Wiring diagram

Reference rules

Range name	Series Name	Input	Adaptation	Type
HAS	**BS**	**4T**	**0015**	**G**
HA: Himel Automation	**BS:** Basic **XS:** Expert	**4:** 380V – 440V	**0110:** 11kW **0185:** 18.5kW **1100:** 110kW	**P:** Normal-Duty **G:** Heavy Duty
S: Soft Starter		**T:** Three-phase		

References and Dimensions

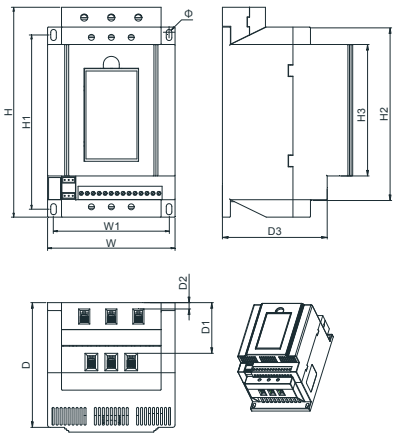
Range	Input Voltage	Himel reference	Motor Power (kW)	Motor Power (HP)	Rated Output Current (A)	Dimensions(mm)			Mounting Dimensions (mm)					Mounting Hole Diameter (mm)	CAD Diagram
						W	H	D	W1	H1	D1	D2	D3	Ø	
HASBS	380-440V Three Phase	HASBS4T0110G	11	15	25	160	265	164	145	220	67	10	111	8	(a)
		HASBS4T0150G	15	20	32	160	265	164	145	220	67	10	111	8	
		HASBS4T0185G	18.5	25	37	160	265	164	145	220	67	10	111	8	
		HASBS4T0220G	22	30	45	160	265	164	145	220	67	10	111	8	
		HASBS4T0300G	30	41	60	160	265	164	145	220	67	10	111	8	
		HASBS4T0370G	37	50	75	160	265	164	145	220	67	10	111	8	
		HASBS4T0450G	45	61	90	160	265	164	145	220	67	10	111	8	
		HASBS4T0550G	55	75	110	160	265	164	145	220	67	10	111	8	
		HASBS4T0750G	75	102	152	280	534	255	230	430	98	44	180	10	(b)
		HASBS4T0900G	93	127	176	280	534	255	230	430	98	44	180	10	
		HASBS4T1100G	110	150	210	280	534	255	230	430	98	44	180	10	
		HASBS4T1320G	132	180	253	280	534	255	230	430	98	44	180	10	
		HASBS4T1600G	160	218	300	280	534	255	230	430	98	44	180	10	
		HASBS4T2000G	200	272	380	310	594	255	265	475	98	44	180	10	
		HASBS4T2500G	250	340	480	310	594	255	265	475	98	44	180	10	
		HASBS4T3200G	320	435	600	310	594	255	265	475	98	44	180	10	
		HASBS4T4000G	400	544	750	416	740	275	375	555	106	44	200	10	
		HASBS4T4500G	450	612	892	416	740	275	375	555	106	44	200	10	
		HASBS4T5000G	500	680	930	416	740	275	375	555	106	44	200	10	
		HASBS4T6000G	600	816	1100	416	740	275	375	555	106	44	200	10	

References and Dimensions

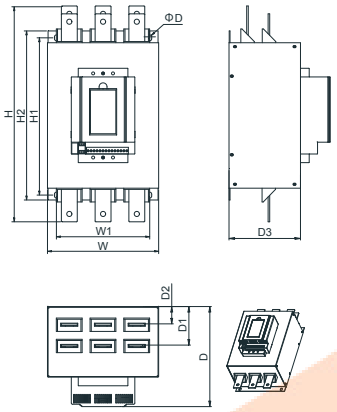
Range	Input Voltage	Himel reference	Motor Power (kW)	Motor Power (HP)	Rated Output Current (A)	Dimensions(mm)			Mounting Dimensions (mm)					Mounting Hole Diameter (mm)	CAD Diagram
						W	H	D	W1	H1	D1	D2	D3	Ø	
HASXS	380-440V Three Phase	HASXS4T0110G	11	15	25	150	264	170	128	262	242	96	96	7	(c)
		HASXS4T0150G	15	20	32	150	264	170	128	262	242	96	96	7	
		HASXS4T0185G	18.5	25	37	150	264	170	128	262	242	96	96	7	
		HASXS4T0220G	22	30	45	150	264	170	128	262	242	96	96	7	
		HASXS4T0300G	30	41	60	150	264	170	128	262	242	96	96	7	
		HASXS4T0370G	37	50	75	150	264	170	128	262	242	96	96	7	
		HASXS4T0450G	45	61	90	150	264	170	128	262	242	96	96	7	
		HASXS4T0550G	55	75	110	200	384	226	165	345	360	137.5	137.5	7	
		HASXS4T0750G	75	102	152	200	384	226	165	345	360	137.5	137.5	7	(d)
		HASXS4T0900G	93	127	176	255	579	230	180	520	545	160	151	9	
		HASXS4T1100G	110	150	210	255	579	230	180	520	545	160	151	9	
		HASXS4T1320G	132	180	253	255	579	230	180	520	545	160	151	9	
		HASXS4T1600G	160	218	300	255	579	230	180	520	545	160	151	9	
		HASXS4T2000G	200	272	380	300	684	235	235	620	650	159	154	9	
		HASXS4T2500G	250	340	480	300	684	235	235	620	650	159	154	9	
		HASXS4T3200G	320	435	600	300	684	235	235	620	650	159	154	9	
		HASXS4T4000G	400	544	750	520	810	240	400	715	740	166	163	9	(e)
		HASXS4T4500G	450	612	892	520	810	240	400	715	740	166	163	9	
		HASXS4T5000G	500	680	930	520	810	240	400	715	740	166	163	9	
		HASXS4T6000G	600	816	1100	520	810	240	400	715	740	166	163	9	

CAD Diagrams

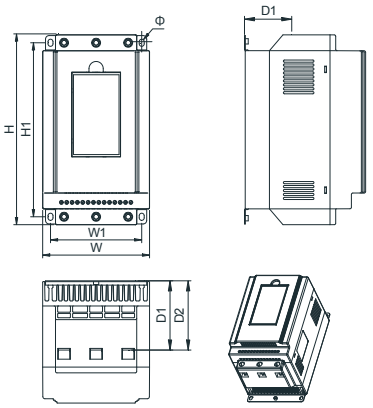
(a)



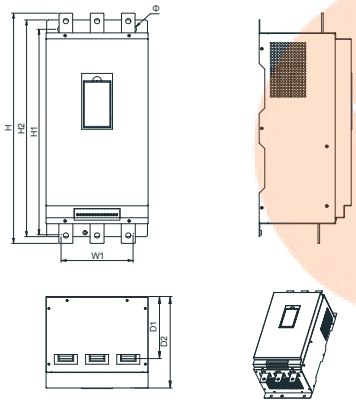
(b)



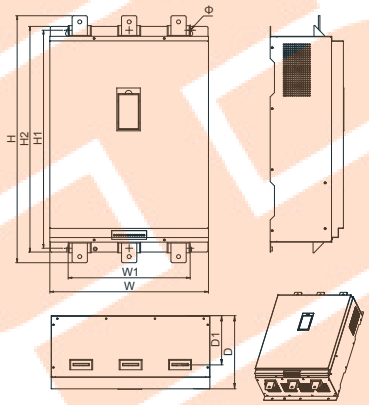
(c)



(d)



(e)



Selection Reference

Machine Type	Load Type	Start Mode			Value Setting		Start Time
		Voltage	Current	Heavy Load	Voltage (%)	Current (%)	
Centrifugal pump	Standard load(ND)		√	√		250	5
Fan	Standard load(ND)		√			250	5
Compressor (pistol)	Standard load(ND)		√			300	10
Compressor (centrifugal)	Standard load(ND)	√			30		20
Conveyor	Standard load(ND)		√	√		250	10
Mixer	Standard load(ND)		√	√		350	5
Ball mill	Heavy load(HD)		√		70	400	50
Crusher	Heavy load(HD)	√			60		45