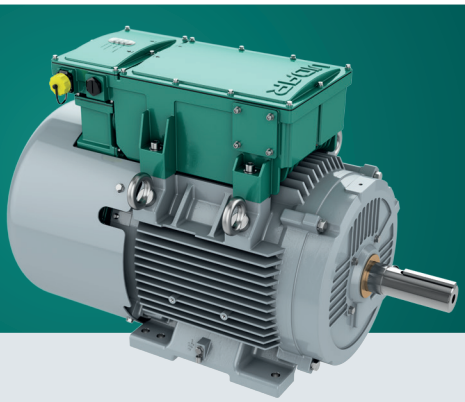
VIDAR
An ITT Company

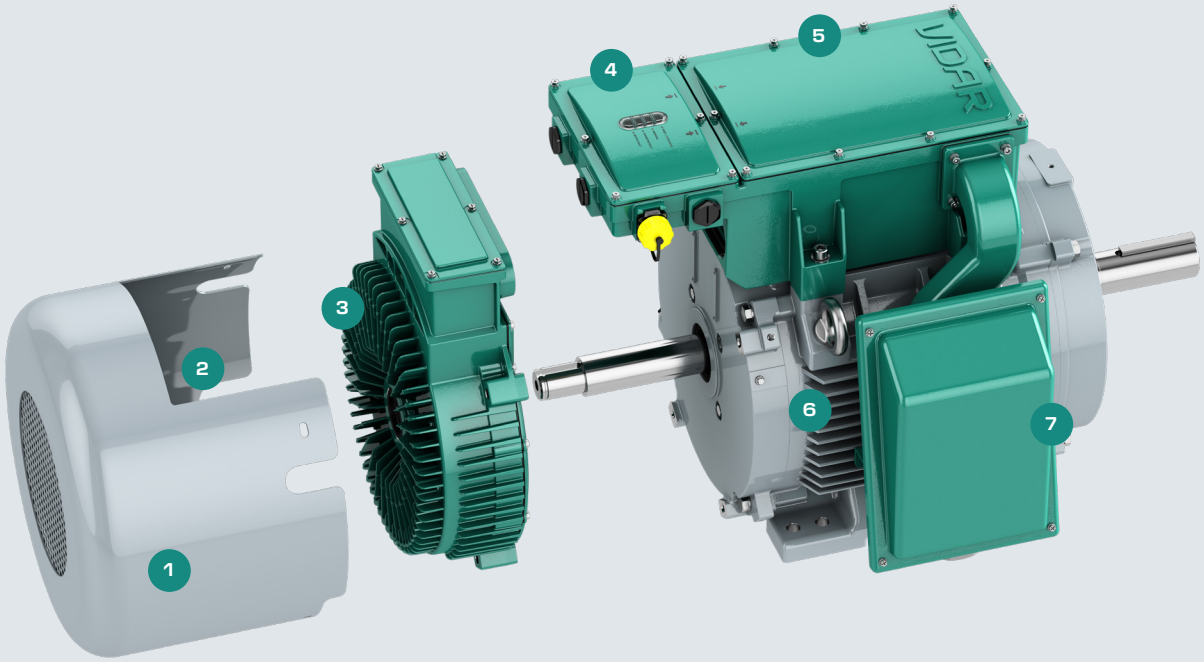
Technical Data



Description

VIDAR is a new type of motor that embeds variable-speed intelligence directly into the motor to achieve new levels of performance, reliability, and simplicity in industrial applications involving pumps, fans, and fluid process systems. VIDAR's patented AC-Link technology uses a streamlined AC-to-AC power conversion approach, combined with a Synchronous Reluctance Magnet-Assisted (SRMA) motor, to create a compact, high-efficiency, all-in-one solution.

Key components



1. Fan Cowling
2. Fan
3. AC-Link Power Converter
4. Control Terminal Box
5. Input Power Terminal Box
6. SRMA Motor
7. F1 or F2 Conduit Box (optional)

VIDAR
An ITT Company

Ratings

OUTPUT	BASE SPEED	MAX. SPEED	FRAME	PRODUCTNUMBER	'C' DIM.	INPUT CURRENT	INPUT THDI	MOTOR EFF.	PDS* EFF.	POWER FACTOR	WEIGHT
HP	RPM	RPM	NEMA		IN.	AMPS	%	%	%		lbs
20	3600	4500	254/6T	EMDX020H36EXA3ABAA	28.32	20.1	< 5%	93.6%	90.6%	0.99	364
20 / 10	1800 / 1200	2500	254/6T	EMDX020H18EXA3ABAA	28.32	20.3 / 10.4	< 5%	93.8%	90.8%	0.99	321
25	3600	4500	284/6TS	EMDX025H36EXA3ABAA	30.30	25.2	< 5%	94.3%	91.1%	0.99	459
25 / 15	1800 / 1200	2500	284/6T	EMDX025H18EXA3ABAA	31.67	25.1 / 15.6	< 5%	94.8%	91.9%	0.99	507
30	3600	4500	284/6TS	EMDX030H36EXA3ABAA	30.30	30.3	< 5%	94.4%	91.2%	0.99	507
30 / 20	1800 / 1200	2500	284/6T	EMDX030H18EXA3ABAA	31.67	30.1 / 20.8	< 5%	94.9%	92.0%	0.99	551
40	3600	4500	324/6TS	EMDX040H36EXA3ABAA	33.74	40.2	< 5%	95.5%	92.2%	0.99	551
40 / 25	1800 / 1200	2500	324/6T	EMDX040H18EXA3ABAA	35.24	40.1 / 26.0	< 5%	95.8%	92.6%	0.99	635
50	3600	4500	324/6TS	EMDX050H36EXA3ABAA	33.74	50.2	< 5%	95.7%	92.4%	0.99	633
50 / 30	1800 / 1200	2500	324/6T	EMDX050H18EXA3ABAA	35.24	50.1 / 31.2	< 5%	96.0%	92.8%	0.99	716
60	3600	4500	364/5TS	EMDX060H36EXA3ABAA	36.25	60.6	< 5%	96.1%	92.6%	0.99	800
60 / 40	1800 / 1200	2500	364/5T	EMDX060H18EXA3ABAA	38.37	60.3 / 41.6	< 5%	95.8%	93.3%	0.99	890
75	3600	4500	364/5TS	EMDX075H36EXA3ABAA	36.25	75.5	< 5%	96.2%	93.1%	0.99	888
75 / 50	1800 / 1200	2500	364/5T	EMDX075H18EXA3ABAA	38.37	75.4 / 51.5	< 5%	95.9%	93.4%	0.99	981

Notes

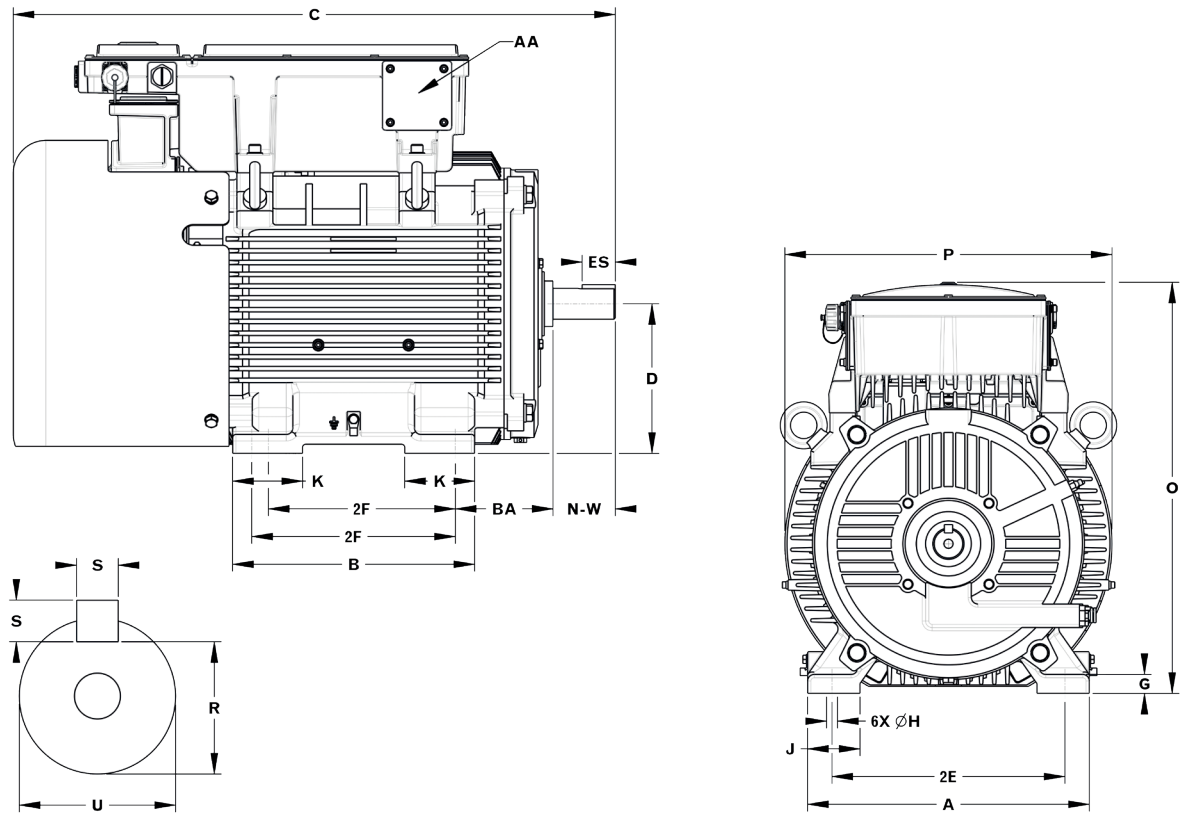
1. PDS Eff. - Power Drive System Efficiency is the combined motor and converter efficiency as defined by IEC 61800-9.
2. Values are preliminary averages subject to tolerances.
3. Approximate weight subject to change after manufacturing.

Dimensions

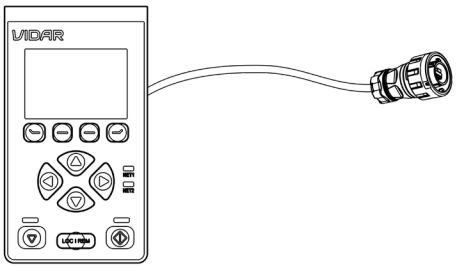
FRAME	2E	2F	H	BA	A	B	C	D	G	J	O	K	P	S	R	ES	N-W	U
254/6T	10.000	8.250 / 10.000	0.530	4.250	12.130	11.810	28.320	6.250	0.740	2.360	18.400	3.740	13.780	0.380	1.416	2.910	4.000	1.625
284/6T	11.000	9.500 / 11.000	0.530	4.750	12.760	12.600	31.670	7.000	0.740	2.360	20.170	3.740	15.590	0.500	1.591	3.280	4.625	1.875
284/6TS	11.000	9.500 / 11.000	0.530	4.750	12.760	12.600	30.030	7.000	0.740	2.360	20.170	3.740	15.590	0.380	1.416	1.910	3.250	1.625
324/6T	12.500	10.500 / 12.000	0.660	5.250	14.880	13.780	35.220	8.000	1.110	2.760	22.870	4.330	17.650	0.500	1.845	3.910	5.250	2.125
324/6TS	12.500	10.500 / 12.000	0.660	5.250	14.880	13.780	33.720	8.000	1.110	2.760	22.870	4.330	17.650	0.500	1.591	2.030	3.750	1.875
364/5T	14.000	11.250 / 12.250	0.660	5.880	16.930	14.570	38.370	9.000	1.140	3.150	24.730	4.210	19.660	0.625	2.020	4.280	5.880	2.375
364/5TS	14.000	11.250 / 12.250	0.660	5.880	16.930	14.570	36.240	9.000	1.140	3.150	24.730	4.210	19.660	0.500	1.591	2.030	3.750	1.875

Notes

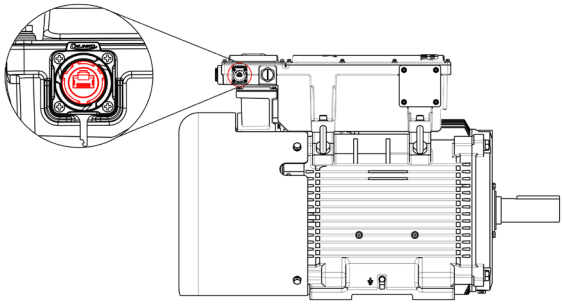
1. Shaft key provided with motor.
2. F1 and F2 conduit box is not shown in drawing and available on request.



Universal keypad (Sold separately)



Part number: EMD-KT-KPCC01

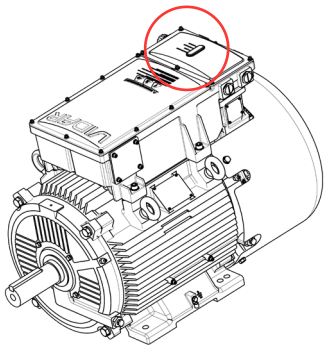


External IP66 keypad connector port

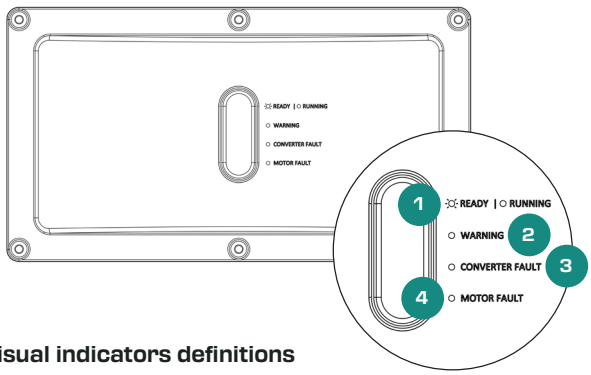
Notes

1. Communication protocol: RS-485, RJ45 (socket) .
2. Standard cable length: 5M / 16FT
3. Remote mounting available up to 300M / 1000FT (RJ45 cable supplied by customer)
4. Area classification: Class I Division II Groups A,B,C,D T4

Visual indicators



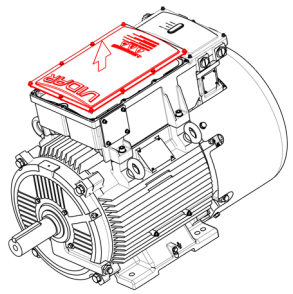
LED visual indicator



Visual indicators definitions

1. Ready - Green blinking | running - Green solid
2. Warning - Yellow solid
3. Motor fault - Red solid
4. Converter fault - Red solid

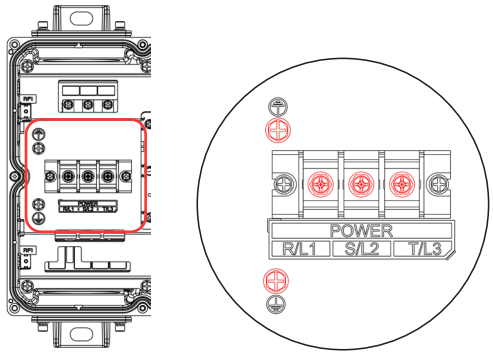
Input power wiring



Input power terminal box

Input power cable requirements

FRAME	CONDUIT ENTRY	MAX. WIRE GAUGE
254/6	2 x 1.50 in. NPT	12 AWG
284/6	2 x 1.50 in. NPT	8 AWG
324/6	2 x 2.00 in. NPT	4 AWG
364/5	2 x 3.00 in. NPT	2 AWG

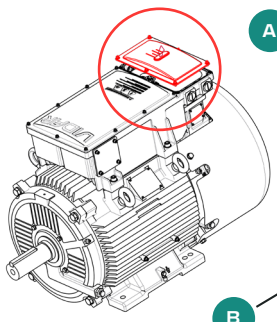


Input power terminals

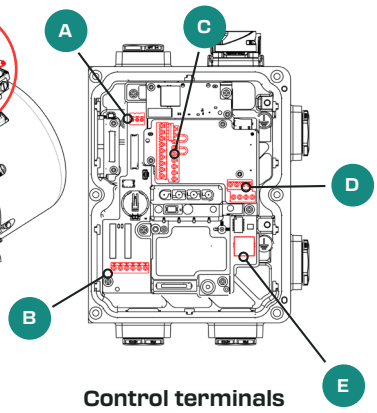
Notes

1. Motor can be either wye or delta connected.
2. For an ungrounded/floating delta or high resistance ground wye connection refer to the user manual to disconnect the EMI filter.
3. The motor will rotate counterclockwise (viewed from the shaft end) in the forward direction. To change the motor direction, refer to the user manual to reverse the direction through the keypad or to permanently reverse the forward direction, switch two of the motor phases U/T1, V/T2, W/T3.

Application control wiring



Application control terminal box



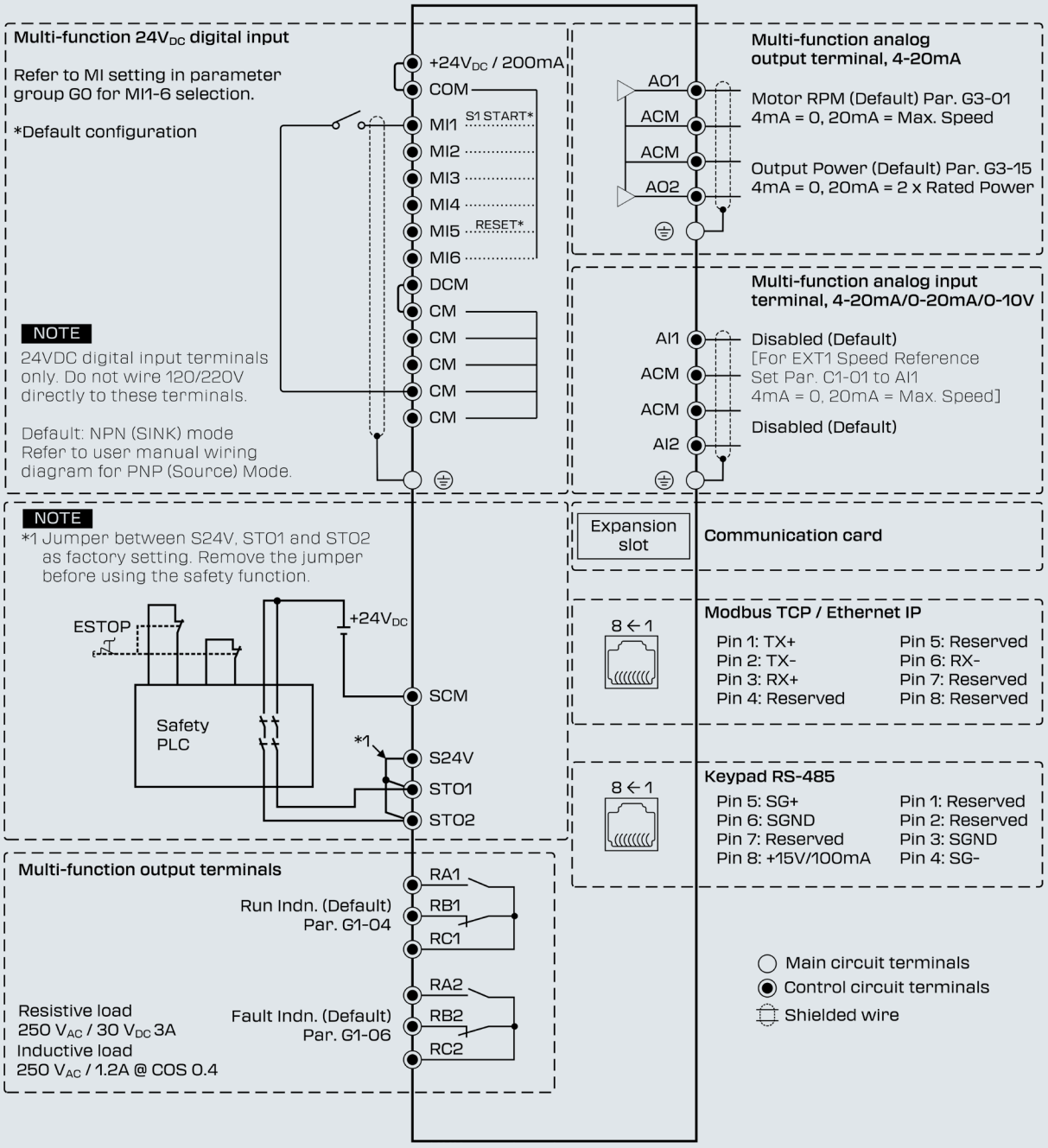
Control terminals

Control cable requirements

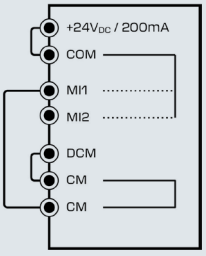
TERMINAL NAME	GROUP	CON-DUCTOR	STIPPING LENGTH	MAX. WIRE GAUGE	MIN. WIRE GAUGE
RTD Terminal	A	Solid / Strand	0.25 in.	20 AWG	24 AWG
Relay Terminals	B	Solid / Strand	0.25 in.	16 AWG	24 AWG
Digital Terminals	C	Solid / Strand	0.25 in.	18 AWG	24 AWG
Analog Terminals	D	Solid / Strand	0.25 in.	18 AWG	24 AWG
Ethernet IP/TCP	E	RJ45 CAT6	N/A	N/A	N/A

VIDAR
An ITT Company

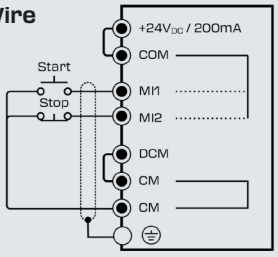
Application control wiring diagram



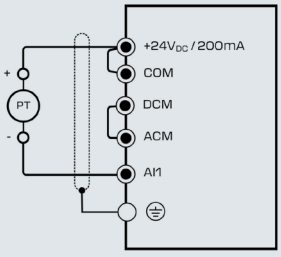
Remote Start/Stop on Input Power On/Off



Remote 3-Wire Momentary Start/Stop



4-20mA Loop Power Transmitter



Copyright protected

VIDAR
An ITT Company

Specifications

Load Type:	**Variable Torque**
Applications:	**Pumps, Fans, Blowers, Compressors**
Input Voltage:	**460V +10% / -5%**
Input Harmonic Distortion:	**THDi < 3% @ 100% Load**
Voltage Imbalance:	**±3% phase to phase**
Input Frequency:	**47-63 Hz**
Service Factor:	**1,00**
Overload:	**120% @ 60s / 150% @ 3s**
Motor Efficiency:	**> NEMA Premium / IE4**
PDS Efficiecny:	**> IES2**
Maximum Speed:	**2500 RPM / 4500RPM**
Minimum Turndown:	**10:1**
Warranty:	**3-years**

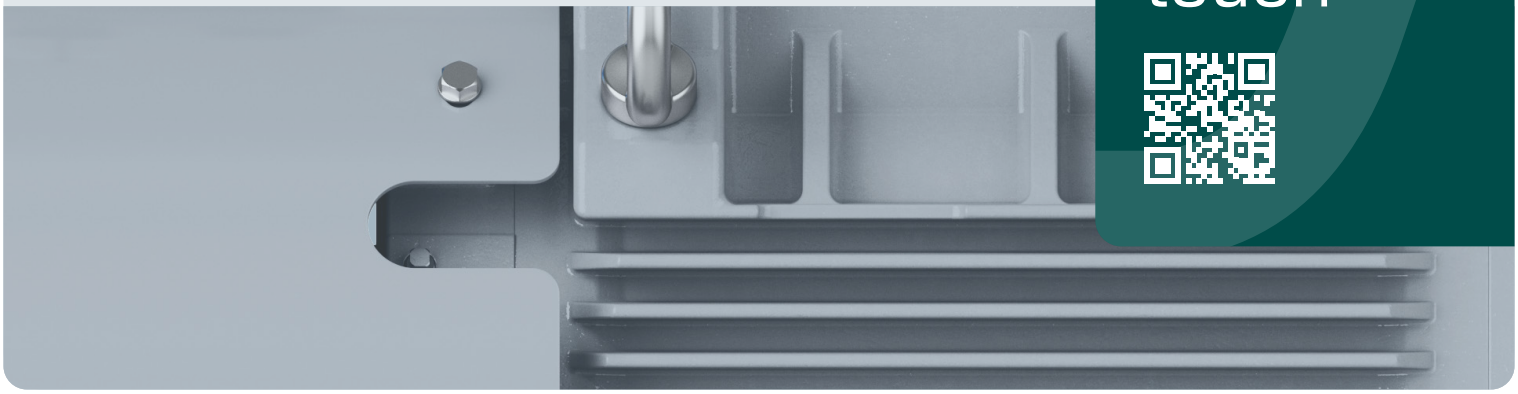
Operating Temperature:	**-25 to 40°C (up to 50°C with derating)**
Storage Temperature:	**-25 to 65°C**
Max Elevation:	**1000m (up to 2000m with derating)**
Vibration:	**IEC 60721-3-3 (2019) 3M11**
Motor Frame Material:	**Cast Iron**
Motor IP Rating:	**TEFC - IP55**
Terminal Box /. VFD Material:	**Aluminum**
Terminal Box/VFD IP Rating:	**IP66**
Area Classification:	**Class I Division II Groups A,B,C,D T4**
EMC Level:	**EN55011 (CISPER 11): Class A (industrial): C3**
Safety Integrity Level:	**IEC61508 SIL2, ISO13849-1 Category 3PL d**
Corrosion Testing:	**ASTM B-117 Salt Spray, B-845 Meth. K Mixed Gas Corrosion**
Standards & Certifications	**UL, CSA, CE**

Others

Starting Method: **Integral Soft Start/Stop**
Anti-Condensation: **Integral w/ 460V mains**
Speed Feedback Device: **Sensorless**
Keypad Interface: **External**

Thermal Device - Winding: **2xKTY84 (1 Primary / 1 Back-Up)**
Thermal Device - Converter: **Built-in Temperature Sensor**

Analog Inputs: **2 Inputs (0-10Vdc, 0-20mA, 4-20mA)**
Analog Outputs: **2 Outputs (0-20mA, 4-20mA)**
Digital Inputs: **6 - 24Vdc**
Relay Outputs: **2 - 250VAC/30Vdc 3A**
Ethernet Comms.: **Modbus TCP / Ethernet IP**

For more information email us at **vidar@itt.com** or call **+1 315 234 1973**

Get in touch