TAS - Taco Advanced Starter

with SMARTSTART®

Power metering, BACnet Communications, underload (dry run) detection and many other features are brought together by an intuitive interface on the Taco Advanced Starter (TAS). The TAS is the perfect solution to protect and control your pump when integration to an automation system is necessary.

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Taco®
Do your best work.®

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Features & Benefits

Taco Advanced Starter Benefits

Power metering

- 1% ANSI grade metering
- Pulse/analog output for accurate measurements (optional)
- kW and kWh data available on LCD display

Superior pump protection

- SMARTSTART® Protection
  - 1-95A Electronic Overload
  - Locked rotor
  - Cycle fault
  - Max time to start
  - Out of calibration *(detects incorrect FLA setting)*
- Selectable trip class 5-30
- Current and voltage phase unbalance
- Over/under power (new standard feature!)
  - Prevents dry run pump damage
- Over/under voltage
- Reverse phase

Proof of flow verification

- True power measure detects belt loss and alerts automation system
- Eliminates costly current sensors

Voltage & dry contact inputs for auto run command

- Wire directly from the automation system to the starter, no interposing relays necessary
- Save on installation costs and increase reliability.

Valve control

- Provides a 24VAC (or optional 120VAC) output for powering amotorized valve actuator
- Interlocks valve with starter ensuring proper sequence of operation
- Prevents damage to pipes, saves energy from heat loss
- Saves on automation panel points, reduces wiring, saves on installation costs

HOA keypad with LCD display

- Plain English operation – easy to set up and simple to operate
- LEDs indicate Hand/Off/Auto modes, run and fault conditions

Flexible control transformer (CPT)

- Multi-tap CPT input accepts all common motor voltages
- Integrated secondary protection – *no fuses required*

OPTIONS

Combination versions include disconnect

- Motor circuit protection disconnect provides short circuit protection
- High interrupting ratings for maximum electrical system compatibility
- No fuses required – save time and money
- Lockable handle for safety

BACnet or Modbus Communications with power metering for energy savings

- Ideal for LEED projects (Measurement & Verification credit), tenant sub-metering cost allocation, load shedding and performance contracting
- Native RS-485 76800 BPS for high performance

Comprehensive point list including HOA status, overload faults, and all metering attributes (kW, kWh, kVar, V, A, etc. aggregate and per phase).

- Additional programmable digital input. Additional analog input, selectable between 0-10V, 4-20 mA, or 10K thermistor
- Includes power metering display with programmable parameters
- Tested to BTL standards

Ethernet Fault Logging (Time & Date Stamped)

- Records up to 100 faults and alarms (e.g. underpower, overload, etc.)
- Data easily is easily displayed & saved on any web browser using an Ethernet connection. Starter incorporates internal web server. No programming required.

Ground Fault Protection

- Protects motors from damage due to ground current conditions
- UL 1053 Certified

TAS Sizing

Ordering and Sizing Information (120~575 VAC)

UL Type 1 Enclosed

TACO Advanced Starter - 1 & 3-Phase, 50/60 Hz, 120~575 VAC
UL Type 1 Enclosed - Combination Starter, **SCM** Electronic Overload
Includes MCP Disconnect

	Part Number	UL HP Ratings						SCIC KAIC @		Contactor NEMA Size
		1Ø		3Ø						
		120V	230V	208V	230V	460V	575V	240V	460V	
Combination	**TAS19JG1.6**	-	1/10	-	-	3/4	3/4	100	65	00
	TAS19JG2.5	-	1/6	1/2	1/2	1	1.5	100	65	
	TAS19JG4	1/8	1/3	3/4	3/4	2	3	100	65	
	TAS19JG6	1/4	1/2	1	1.5	3	5	100	65	
	TAS19JG8	1/3	1	2	2	5	5	100	65	
	TAS118JG10	1/2	1.5	2	3	5	7.5	100	65	0
	TAS118JG13	1/2	2	3	3	7.5	10	100	65	
	TAS118JG17	1	3	3	5	10	15	100	30	
	TAS132JG22	1.5	3	5	7.5	15	20	100	30	1
	TAS132JG26	2	3	7.5	7.5	15	20	100	30	
	TAS132JG32	2	5	7.5	10	20	30	100	30	
	TAS150JG40	3	7.5	10	10	30	30	100	50	2
	TAS150JG50	3	10	15	15	30	40	100	50	
	TAS185JG63	5	10	20	20	40	50	100	50	3
	TAS185JG75	5	15	20	25	50	60	100	50	
	TAS185JG90	7.5	20	25	30	60	75	100	50	
	TAS1150JG250	10	25	40	40	100	100	50	35	4

**For NEMA Size 3, 575V applications, please consult factory*

TACO Advanced Starter- 1 & 3-Phase, 50/60 Hz, 120~575 VAC
UL Type 1 Enclosed - Standard Starter, **SCM** Electronic Overload
Disconnect Not Included

	Part Number	UL HP Ratings						SCIC KAIC @		Contactor NEMA Size
		1Ø		3Ø						
		120V	230V	208V	230V	460V	575V	240V	460V	
Standard	**TAS19J9**	1/3	1	2	2	5	7.5	5	5	00
	TAS118J18	1	3	5	5	10	15	5	5	0
	TAS132J32	2	5	7.5	10	20	25	5	5	1
	TAS150J50	3	10	15	15	30	40	5	5	2
	TAS185J85	7.5	15	25	30	60	75	10	10	3
	TAS1150J150	10	25	40	40	100	100	50	35	4

**For NEMA Size 3, 575V applications, please consult factory*

NEMA 1 Factory Installable Options

Part Number	Description
TASBNCOM	BACnet communications card with power metering

TAS Sizing

Ordering and Sizing Information (120~575 VAC)

UL Type 3R Enclosed

TACO Advanced Starter - 1 & 3-Phase, 50/60 Hz, 120~575 VAC
UL Type 3R Enclosed - Combination Starter, **SCM** Electronic Overload
Includes MCP Disconnect

	Part Number	UL HP Ratings						SCIC KAIC @		Contactor NEMA Size
		1Ø		3Ø						
		120V	230V	208V	230V	460V	575V	240V	460V	
Combination	TAS3R9JG1.6	-	1/10	-	-	3/4	3/4	100	65	00
	TAS3R9JG2.5	-	1/6	1/2	1/2	1	1.5	100	65	
	TAS3R9JG4	1/8	1/3	3/4	3/4	2	3	100	65	
	TAS3R9JG6	1/4	1/2	1	1.5	3	5	100	65	
	TAS3R9JG8	1/3	1	2	2	5	5	100	65	
	TAS3R18JG10	1/2	1.5	2	3	5	7.5	100	65	0
	TAS3R18JG13	1/2	2	3	3	7.5	10	100	65	
	TAS3R18JG17	1	3	3	5	10	15	100	30	
	TAS3R32JG22	1.5	3	5	7.5	15	20	100	30	1
	TAS3R32JG26	2	3	7.5	7.5	15	20	100	30	
	TAS3R32JG32	2	5	7.5	10	20	30	100	30	
	TAS3R50JG40	3	7.5	10	10	30	30	100	50	2
	TAS3R50JG50	3	10	15	15	30	40	100	50	
	TAS3R85JG63	5	10	20	20	40	50	100	50	3
	TAS3R85JG75	5	15	20	25	50	60	100	50	
	TAS3R85JG90	7.5	20	25	30	60	75	100	50	
	TAS3R150JG250	10	25	40	40	100	100	50	35	4

**For NEMA Size 3, 575V applications, please consult factory*

TACO Advanced Starter - 1 & 3-Phase, 50/60 Hz, 120~575 VAC
UL Type 3R Enclosed - Standard Starter, **SCM** Electronic Overload
Disconnect Not Included

	Part Number	UL HP Ratings						SCIC KAIC @		Contactor NEMA Size
		1Ø		3Ø						
		120V	230V	208V	230V	460V	575V	240V	460V	
Standard	TAS3R9J9	1/3	1	2	2	5	7.5	5	5	00
	TAS3R18J18	1	3	5	5	10	15	5	5	0
	TAS3R32J32	2	5	7.5	10	20	25	5	5	1
	TAS3R50J50	3	10	15	15	30	40	5	5	2
	TAS3R85/J85	7.5	15	25	30	60	75	10	10	3
	TAS3R150J250	10	25	40	40	100	100	50	35	4

**For NEMA Size 3, 575V applications, please consult factory*

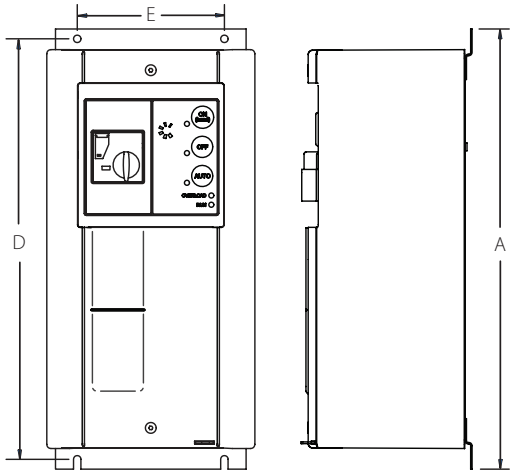
NEMA 3R Factory Installable Options

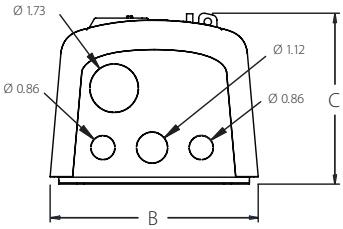
Part Number	Description
TASBNCOM3R	BACnet communications card with power metering

TAS Dimensions

UL TYPE 1 Dimensions

STANDARD & COMBINATION (FRAME SIZE 1)

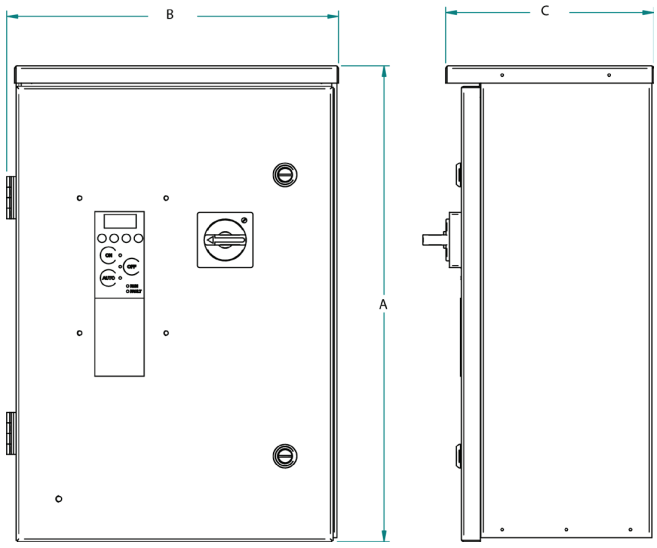




Enclosure Frame Size 1	A	B	C	D	E
TAS19 ~ TAS150 STANDARD	15.7	7.5	6.1	15	5.3
TAS19 ~ TAS132 COMBINATION					
Enclosure Frame Size 2	**A**	**B**	**C**	**D**	**E**
TAS185 STANDARD	14	12	6.5	13.3	9.5
Enclosure Frame Size 3	**A**	**B**	**C**	**D**	**E**
TAS150 ~ TAS185 COMBINATION	20	16	10	15.3	11.3

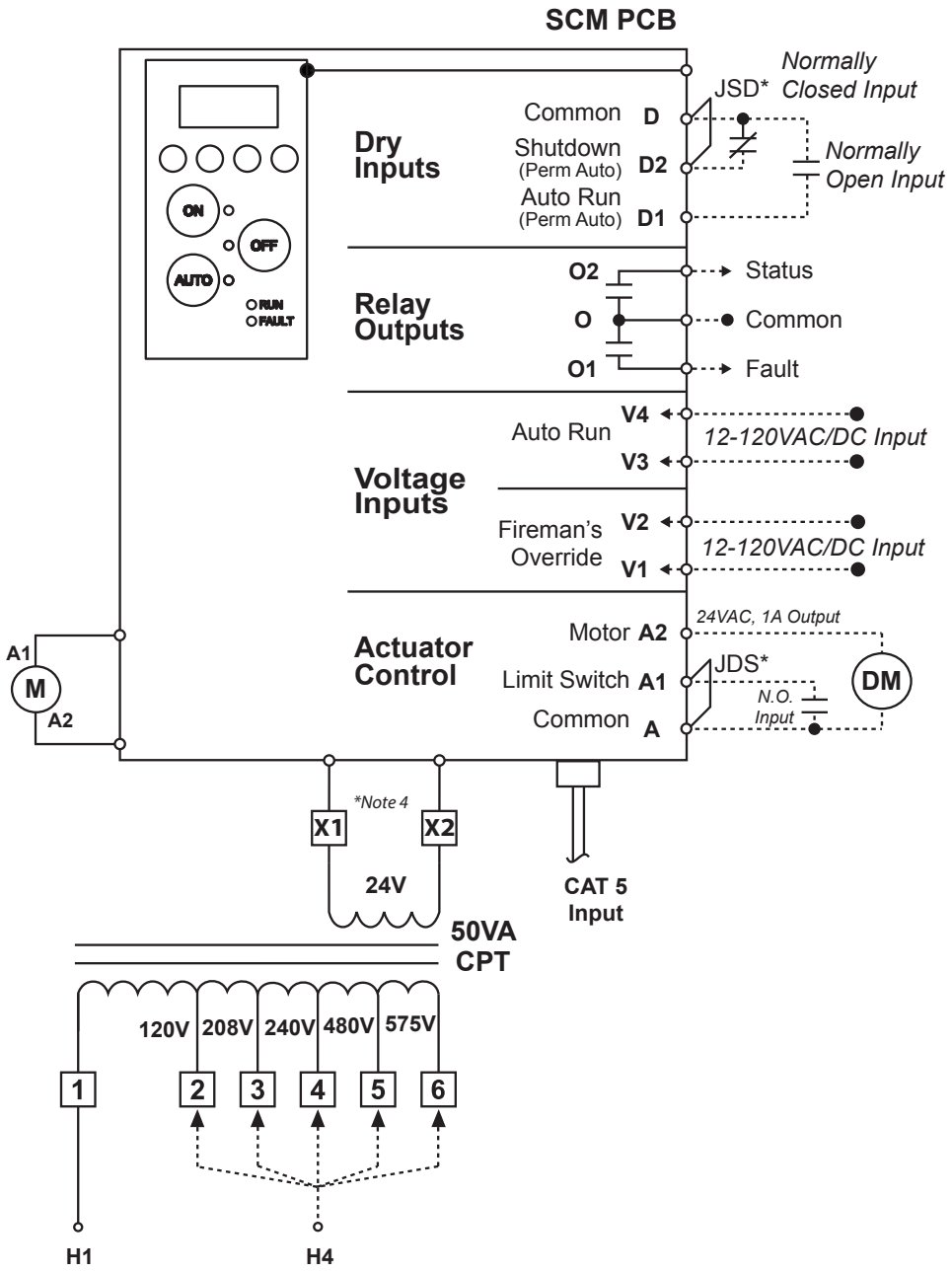
UL TYPE 3R Dimensions

STANDARD (FRAME SIZE 1-3)



Enclosure Frame Size 1	A	B	C
TAS3R9 ~ TAS3R85 STANDARD	16.3	12.5	7.7
Enclosure Frame Size 2	**A**	**B**	**C**
TAS3R9 ~ TAS3R50 COMBINATION	22.3	15.5	9.7
Enclosure Frame Size 3	**A**	**B**	**C**
TAS3R85 COMBINATION	32.3	15.5	9.7

TAS Wiring Diagram



TAS Specification

Starter Type		
TAS - Taco Advanced Starter		
120-600VAC, 1 & 3-Phase, 50/60Hz input, Across the line, full-voltage non-reversing		
NEMA Type 1 or 3R Enclosed		
User Interface		
Hand-Off-Auto		Door mounted Hand-Off-Auto keypad (water-tight-membrane)
Programming		Door mounted display with programming keys (LCD, back-lit, 16 character)
Mode Indication		Integrated LEDs, Hand-Off-Auto-Run-Fault indication
Standard Control Operations		
Inputs	Voltage Auto-Run	Accepts 12-130VAC/DC. Applying voltage will send a run command to the starter when in Auto mode.
	Dry Contact Auto-Run	Normally Open dry contact. When closed, the starter will be commanded to run when in Auto mode.
	Fireman's Override	Accepts 12-130VAC/DC. Applying voltage will command the motor to run in all modes and will supersede a Shutdown command. Hand/Off/Auto/Run/Fault LEDs flash
	Float Switches	2) Programmable Normally Open or Normally Closed dry contacts.
	Permissive Auto	Normally Open dry contact. When closed, the starter will not accept a run command when in Auto mode.
	Actuator Position Switch	Normally Open dry contact. To be used in series with customer provided actuator contacts which disable the motor starter until the actuator is in position. (ie. The contactor will not close unless this contact is closed)
Outputs	Status Relay	Normally Open relay contacts. Status Relay will close when the motor draws a user defined percentage of the FLA setting. Fault Relay will close in the event of a fault trip. Contact Ratings: 0.3A @ 125VAC, 1A @ 24VAC
	Fault Relay	
	Actuator Power	24VAC, 1A max. (Optional 120VAC, 0.25A max.)
Operational	Overload Type	Electronic, I^2t trip curve
	Power Fail Modes	Restart in last mode (Hand/Off/Auto) with no delay (default)
		Restart in Off mode
		Restart in Off mode if power failure lasts longer than 2 seconds. Restart in last mode if power failure is less than 2 seconds.
	On/Off Time Delay	On/Off, Adjustable: 0.1-99 seconds
	Fault Reset	Adjustable: Manual or Automatic
Environmental		
Ambient Operating Temp		-5° to 140° F (-20° to 60° C)
Ambient Storage Temp		-5° to 185° F (-20° to 85° C)
Relative Humidity		5% to 95% non-condensing

Motor Protection	Adjustment / Description	Default Setting
Overload Current Setting Range	Differs per model	Per FLA
Overload Trip Class	Adjustable: 5-30	10
Overload Service Factor	Adjustable: 0.00-2.00	1.15
Under Power	On/Off, Adjustable: 0-99% of measured electrical input	Off / 60%
Over Power	On/Off, Adjustable: 101-200% of measured electrical input	Off / 120%
Over / Under Voltage	On/Off, Adjustable ±5-25% over/under the nominal voltage setting	On / 10%
Voltage Phase Unbalance	On/Off, Adjustable: 1-20% voltage phase deviation	On / 3%
Voltage Phase Loss	Always On, Adjustable: 1-50% voltage phase deviation	5%
Voltage Phase Sequence Reversal	On/Off, Trips within 0.1 seconds upon voltage phase reversal detection	On
Ground Fault (Optional)	On/Off, Adjustable: 1.0-9.9A	Off / 1A
Cycle Fault	On/Off, Trips if contactor cycle rate exceeds 20 starts/minute	On
Warm Start Provision	On/Off, Delays motor restart after a fault trip, based on calculated motor temperature	On
SMARTSTART Protection	**Adjustment / Description**	**Default Setting**
Current Phase Unbalance	On/Off, Adjustable: 1-50% current phase unbalance	On / 20%
Locked Rotor / Stall	On/Off, Trips within 0.5 seconds	On
Out of Calibration	On/Off, Trips after 10 seconds if the FLA setting is incorrect (set above calculated FLA range), ie. Startcurrent is outside of an acceptable range. (fla setting * 5 < inrush < fla setting * 14).	On
Max Time to Start	On/Off, Regardless of FLA or I^2t curve, always trip at start if starting current is outside of an acceptable range (inrush / 5) and still decreasing after 10 seconds.	On

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