



## Panel Mount Drives

AC Tech's SC Series & TC Series drives are among the smallest and most functional sub-micro drives in the world. Designed for the global marketplace in IP20 enclosures, they are intended for panel mounting within a suitable enclosure. A "through-hole" mounting option allows for extending an anodized heatsink to the exterior of the enclosure.

**The SCL and SCM Series** For most general purpose applications, the SCL Series (up to 3 Hp/2.2 kW) and SCM Series (up to 15 Hp/11 kW) offer 11 control terminals, including a programmable Form A relay for status indication. The SCL includes a built-in filter to meet the European CE standards.

**The SCF Series** Offers a wide power range (up to 30 Hp/22 kW) and input voltage capability (208 VAC 1 $\phi$  to 590 VAC 3 $\phi$ ). It's 18 control terminals provide many advanced functions including RS485 serial communications over Modbus RTU.

**The SCD Series** A full-featured drive similar in functionality to the SCF Series with DeviceNET built in! One of the many benefits of this drive is that it retains its LED display when using the DeviceNet interface.

**The TCF Series** Includes Sensorless Vector control algorithms that produce 100% Torque down to 1Hz output frequency to the motor. With all of the control flexibility of the SCF, the TCF provides improved speed regulation and over-torque capability.

## Enclosed Drives

MC Series micro-drives are compact, low cost drives available in steel enclosures rated from NEMA 1 to stainless NEMA 4X (IP21 to IP65). Featuring "plain English" displays and programming, the MC Series is the drive that speaks your language.

**The MC1000 and MC3000 Series** drives are rated for constant torque applications. The MC1000 can be used for bi-directional applications, while the MC3000 is ready for applications that require set-point control using the built-in PID feature.

**The MCH Series** is a variable torque drive for HVAC applications and is available with options such as bypass, line reactor, and input disconnect or circuit breaker. The MCH also includes PID Setpoint Control as a standard feature.



## Standard Features on all AC Tech Drives

**Agency Approvals:** UL, cUL

**Electrical/Environmental Specs:**

- Input Voltage Tolerance: +10/-15%
- Input Frequency Tolerance:  
48 to 62 Hz
- Storage Temperature: -20 to 70 C
- Humidity (non-condensing): 95%
- Altitude (without derating):  
1000m (3300 feet)
- Efficiency: 97% or better
- Power Factor (displacement): 0.96

**Interface Features**

- Front Mounted Keypad/Display
- Customer Terminal Strip
- TechLink Compatible

**Parameters/Functions**

- Independent Accel/Decel
- Coast or Ramp to Stop
- Automatic Restart
- V/Hz Adjustment
- DC Braking with Adjustable  
Voltage and Time
- Critical Frequency Lockout
- Current (Torque) Limit
- Carrier Frequency Adjustment
- Voltage Boost
- Jog
- Preset Speeds
- Min and Max Frequency limits

**Protection Features:**

- Input Phase Insensitive
- Over and Under voltage
- Line Surge/Transient
- Output Short Circuit
- Output Ground Fault
- Overtemperature
- Motor Overload
- External Fault input
- Password for Parameters
- Fault History/Diagnostics

## SC and TC Series Product Feature Directory

FEATURE DESCRIPTION	SCL / SCM	SCF / SCD	TCF
GENERAL DESIGN FEATURES			
<b>RATINGS &amp; SPECIFICATIONS</b> INPUT VOLTAGE / HP RANGE      120 Vac 208/240 Vac 400/480 Vac 480/590 Vac  OUTPUT FREQUENCY  OVERLOAD CAPACITY (1 MINUTE) TORQUE RATING DRIVE TYPE AMBIENT TEMPERATURE  <b>ENCLOSURE TYPES</b> IP20 (CHASSIS) THRU-HOLE MOUNTING	<b>0.33 - 1.5 Hp (0.25 - 1.1 kW)**</b> 0.33 - 15 Hp (0.25 - 11 kW) 0.5 - 15 Hp (0.37 - 11 kW)** N/A  0 - 240 Hz  150% CONSTANT V/Hz 0 to 40 C  STANDARD OPTION	N/A 0.25 - 20 Hp (0.18 - 15 kW) 0.5 - 30 Hp (0.37 - 22 kW) 1 - 25 Hp (0.75 - 18.5 kW)  0-240 Hz <b>(SCF: 1000 Hz option)</b> 150% CONSTANT V/Hz 0 to 50 C  STANDARD OPTION	N/A 0.5 - 10 Hp (0.37 - 7.5 kW) 0.5 - 10 Hp (0.37 - 7.5 kW) 0.5 - 10 Hp (0.37 - 7.5 kW)  0 - 240 Hz  150% CONSTANT <b>VECTOR</b> (sensorless) 0 to 50 C  STANDARD OPTION
PERFORMANCE FEATURES			
PI SETPOINT CONTROL SLIP COMPENSATION REVERSE ROTATION DYNAMIC BRAKING  2nd ADJUSTABLE ACCEL/DECEL 2nd STOP COMMAND (eg. FAST STOP) RE-START INTO SPINNING MOTOR EMI/RFI FILTER	N/A STANDARD STANDARD OPTION  STANDARD STANDARD STANDARD <b>SCL: STANDARD</b> / SCM: OPTION	<b>SCF: OPTION</b> / SCD: N/A STANDARD STANDARD OPTION  STANDARD STANDARD STANDARD OPTION (FOOTPRINT)	N/A STANDARD STANDARD OPTION  STANDARD STANDARD STANDARD OPTION (FOOTPRINT)
INPUT/OUTPUT INTERFACE FEATURES			
<b>SPEED REFERENCE INPUTS</b> KEYPAD POTENTIOMETER 4-20 mA 0-10 VDC MOTOR OPERATED POT (MOP) PRESET SPEEDS  <b>ANALOG OUTPUTS</b> 0-10 VDC: SPEED or LOAD 2-10 VDC: SPEED or LOAD*  <b>DIGITAL OUTPUTS</b> PROGRAMMABLE STATUS INDICATIONS (eg. RUN, FAULT, AT SPEED, etc) FORM C RELAY OUTPUTS OPEN-COLLECTOR OUTPUTS 12 VDC POWER SUPPLY FOR AUX. RELAY  <b>KEYPAD &amp; DISPLAY FUNCTIONS</b> DISPLAY TYPE FREQUENCY (SPEED) DISPLAY MOTOR LOAD DISPLAY MOTOR VOLTAGE DISPLAY DC BUS VOLTAGE DISPLAY  <b>SERIAL COMMUNICATIONS</b> RS-232 RS-485 MODBUS PROTOCOL METASYS PROTOCOL DEVICENET PROTOCOL  REMOTE KEYPAD (NEMA 4X)  EPM PROGRAMMER COMPATIBLE	STANDARD STANDARD STANDARD STANDARD STANDARD 7  N/A N/A  STANDARD  <b>1 (Form A)</b> 1 STANDARD  3 DIGIT LED STANDARD STANDARD STANDARD STANDARD  N/A N/A N/A N/A N/A  OPTION  STANDARD	STANDARD STANDARD STANDARD STANDARD STANDARD 7  STANDARD STANDARD  STANDARD  N/A 2 STANDARD  3 DIGIT LED STANDARD STANDARD STANDARD STANDARD  N/A STANDARD SCF: STANDARD / SCD: N/A N/A SCF: N/A / <b>SCD: STANDARD</b>  SCF: OPTION / SCD: N/A  STANDARD	STANDARD STANDARD STANDARD STANDARD STANDARD 7  STANDARD STANDARD  STANDARD  N/A 2 STANDARD  3 DIGIT LED STANDARD STANDARD STANDARD STANDARD  N/A STANDARD STANDARD N/A N/A  OPTION  STANDARD

\* 2-10 VDC signals can be converted to 4-20 mA by adding series resistance such that the total circuit resistance is 500 ohms.

Items in **RED** indicate key product differences.

\*\* SCM Series Only

## MC and MCH Series Product Feature Directory

FEATURE DESCRIPTION	MC1000	MC3000	MCH
<b>GENERAL DESIGN FEATURES</b>			
<b>RATINGS &amp; SPECIFICATIONS</b>			
INPUT VOLTAGE / HP RANGE	0.25 - 1.5 Hp (0.18 - 1.1 Kw) 200/240 Vac 400/480 Vac 480/590 Vac	0.25 - 1.5 Hp (0.18 - 1.1 Kw) 0.5 - 30 Hp (0.37 - 22 kW) 1 - 60 Hp (0.75 - 45 kW) 1 - 60 Hp (0.75 - 45 kW)	N/A <b>1 - 60 Hp (0.75 - 45 kW)</b> <b>1 - 250 Hp (0.75 - 185 kW)</b> <b>1 - 150 Hp (0.75 - 110 kW)</b>
OUTPUT FREQUENCY	0-120 Hz ( <b>1000 Hz option</b> )	0-120 Hz	0-120 Hz
OVERLOAD CAPACITY (1 MINUTE)	150%	150%	<b>120%</b>
TORQUE RATING	CONSTANT	CONSTANT	<b>VARIABLE</b>
AMBIENT TEMPERATURE	-10 to 55 C	-10 to 55 C	-10 to 45 C
CHASSIS (IP00)	-10 to 50 C	-10 to 50 C	-10 to 40 C
NEMA 1 (IP21)	-10 to 40 C	-10 to 40 C	-10 to 40 C
NEMA 12/4/4X (IP54/65/65)			
ENCLOSURE TYPES			
CHASSIS (IP00)	OPTION	OPTION	OPTION
NEMA 1 (IP21)	STANDARD	STANDARD	STANDARD
NEMA 12/4/4X (IP54/65/65)	OPTION	OPTION	OPTION
BYPASS (3 CONTACTOR)	N/A	N/A	<b>OPTION</b>
<b>PERFORMANCE FEATURES</b>			
PID SETPOINT CONTROL	N/A	<b>STANDARD</b>	<b>STANDARD</b>
SLIP COMPENSATION	STANDARD	N/A	N/A
REVERSE ROTATION	STANDARD	STANDARD	STANDARD
DYNAMIC BRAKING	OPTION	OPTION	OPTION
RE-START INTO SPINNING MOTOR	N/A	STANDARD	STANDARD
<b>INPUT/OUTPUT INTERFACE FEATURES</b>			
<b>SPEED REFERENCE INPUTS</b>			
KEYPAD	STANDARD	STANDARD	STANDARD
4-20 mA	STANDARD	STANDARD	STANDARD
0-10 VDC	STANDARD	STANDARD	STANDARD
POTENTIOMETER	STANDARD	STANDARD	STANDARD
MOTOR OPERATED POT (MOP)	STANDARD	STANDARD	STANDARD
PRESET SPEEDS	4	4	4
<b>ANALOG OUTPUTS</b>			
0-10 VDC: SPEED or LOAD	STANDARD	STANDARD	STANDARD
2-10 VDC: SPEED or LOAD*	STANDARD	STANDARD	STANDARD
<b>DIGITAL OUTPUTS</b>			
PROGRAMMABLE STATUS INDICATIONS (eg. RUN, FAULT, AT SPEED, etc)	STANDARD	STANDARD	STANDARD
FORM C RELAY OUTPUTS	1	1	1
2nd FORM C RELAY	OPTION	OPTION	OPTION (standard with Bypass)
OPEN-COLLECTOR OUTPUTS	2	2	2 (none with Bypass)
<b>KEYPAD &amp; DISPLAY FUNCTIONS</b>			
DISPLAY TYPE	16 CHAR. BACKLIT LCD	16 CHAR. BACKLIT LCD	<b>32 CHAR. BACKLIT LCD</b>
FREQUENCY (SPEED) DISPLAY	STANDARD	STANDARD	STANDARD
SPEED REFERENCE SOURCE DISPLAY	STANDARD	STANDARD	STANDARD
MOTOR LOAD DISPLAY	STANDARD	STANDARD	STANDARD
ROTATION DIRECTION DISPLAY	STANDARD	STANDARD	STANDARD
MOTOR VOLTAGE DISPLAY	STANDARD	STANDARD	STANDARD
ELAPSED TIME/RUN TIME METER	N/A	STANDARD	STANDARD
KILOWATT-HOUR METER	N/A	N/A	STANDARD
<b>SERIAL COMMUNICATIONS</b>			
RS-232	OPTION	OPTION	OPTION
RS-485	STANDARD	STANDARD	STANDARD
MODBUS PROTOCOL	STANDARD	STANDARD	STANDARD
METASYS PROTOCOL	N/A	OPTION	OPTION
SIEMENS P1 PROTOCOL	N/A	N/A	OPTION
LONWORKS PROTOCOL	N/A	N/A	OPTION
BACNET PROTOCOL	N/A	N/A	OPTION
REMOTE KEYPAD	OPTION	OPTION	OPTION

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