

SUNON

SPECIFICATION FOR APPROVAL FOR REFERENCE

CUSTOMER :
DESCRIPTION : EC 190 CENTRIFUGAL FAN
DIMENSION : Ø190x 91 MM
SUNON MODEL : CBIP2199C-1000U-OJ9
MOTOR MODEL : CMP2060F(Y)
SUNON SEQ NO :
REV : 1
ISSUE DATE : 2026.08.26
APPROVED BY CUSTOMER :

Preliminary Data Sheet is for reference only, final specification might be changed according to design verification (or mass production) data. Specifications are subject to change without notice.

APPROVED BY	TSETA	CHECKED BY	LIYONNG	DESIGNED BY	Howard
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1. SCOPE

THIS SPECIFICATION DEFINES THE ELECTRICAL AND MECHANICAL CHARACTERISTICS OF THE EC CENTRIFUGAL FAN.

2. CHARACTERISTICS

ITEM	DESCRIPTION
NOMINAL VOLTAGE	1~ 230 VAC 50/60HZ
RATED VOLTAGE	1~ 200 – 240 VAC
RATED POWER	146W @ FREE AIR
MAX. LOAD POWER	170W
SPEED CONTROL	PWM RS485 (MODBUS-RTU) VOLTAGE CONTROL(0-10 VDC)
RATED SPEED	4350RPM
MAX. AIRFLOW	1076 m ³ /h 633 CFM
MAX. STATIC PRESSURE	484 Pa 1.94 inch-H ₂ O
INSULATION CLASS	F
PROTECTION CLASS	1
INGRESS PROTECTION	IP55
LIFE EXPECTANCY	60,000 HOURS AT 40 °C WITH 15~65% RH
DIRECTION OF ROTATION	CLOCKWISE VIEWED FROM BLADE SIDE
EMC	EN61000-6-2 , EN61000-6-3
SAFETY	CSA C22.2 N0.77 ; UL 1004-7 + 60730-1 ; EN 60335-1 ; CCC GB12350 (IN PROCESS)

3. MECHANICAL

3.1	BEARING SYSTEM	:	BALL BEARING SYSTEM
3.2	FRAME	:	NA
3.3	FAN GUARD	:	NA
3.4	SUPPORT BRACKET	:	NA
3.5	SUPPORT PLATE	:	NA
3.6	INLET NOZZLE	:	GALVANISED SHEET STEEL
3.7	IMPELLER	:	PA66+25%GF
3.8	ELECTRONICS HOUSING	:	DIE-CAST ALUMINUM
3.9	IMPELLER BALANCE GRADE	:	G6.3 PER ISO 1940-1:2003(E)
3.10	WEIGHT	:	1.4 KG (REF.)

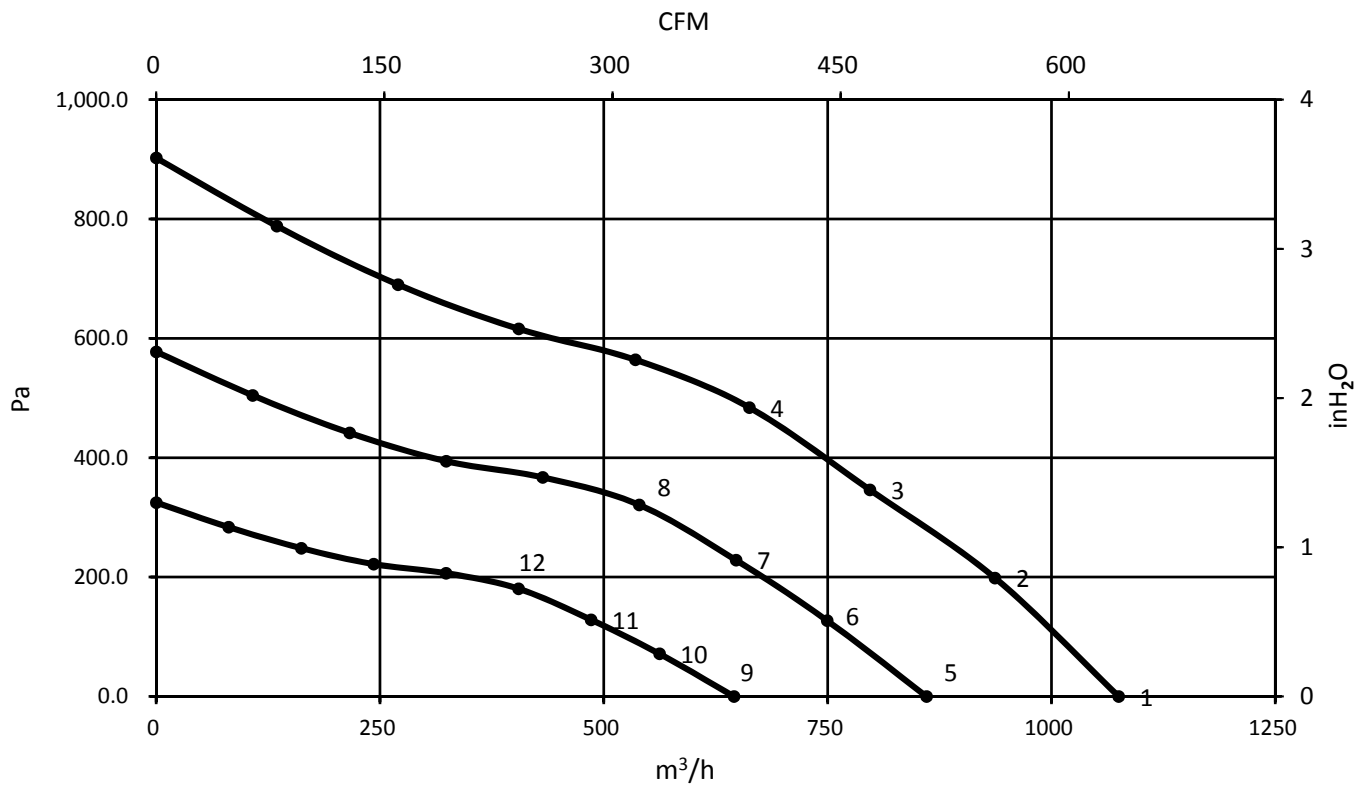
4. ENVIRONMENTAL

4.1	OPERATING TEMPERATURE RANGE	:	-25 TO + 60 DEGREE C
4.2	STORAGE TEMPERATURE RANGE	:	-40 TO + 80 DEGREE C

5. PROTECTION

- ☒ AUTOMATIC RESTART
- ☒ SOFT START
- ☒ OVER TEMPERATURE PROTECTION
- ☒ OVER LOAD PROTECTION
- ☒ OVER VOLTAGE PROTECTION
- ☒ LOCKED ROTOR PROTECTION

6. AIR FLOW & STATIC PRESSURE CURVE



MEASURE DATA:

Index	Static pressure		Air volume		Speed	Power	Current	Lp
	Pa	inH ₂ O	m ³ /h	CFM	RPM	W	A	dB(A)
1	0	0.00	1076	633	4350	146	0.63	75.8
2	199	0.80	937	551	4350	167	0.72	
3	346	1.39	798	469	4350	170	0.73	
4	484	1.94	663	390	4350	170	0.74	
5	0	0.00	861	506	3480	75	0.32	71
6	127	0.51	750	441	3480	85	0.37	
7	228	0.92	648	381	3480	91	0.39	
8	321	1.29	540	318	3480	92	0.40	
9	0	0.00	646	380	2610	32	0.14	64.7
10	71	0.29	562	331	2610	36	0.16	
11	129	0.52	486	286	2610	38	0.17	
12	181	0.73	405	238	2610	39	0.17	

TEST CONDITION:
 INPUT VOLTAGE: NOMINAL VOLTAGE.
 TEMPERATURE: ROOM TEMPERATURE.
 MEASURED WITH INLET NOZZLE
 NOISE (LP) IS MEASURED AT A DISTANCE OF ONE METER FROM THE INLET SIDE.

ERP DIRECTIVE:

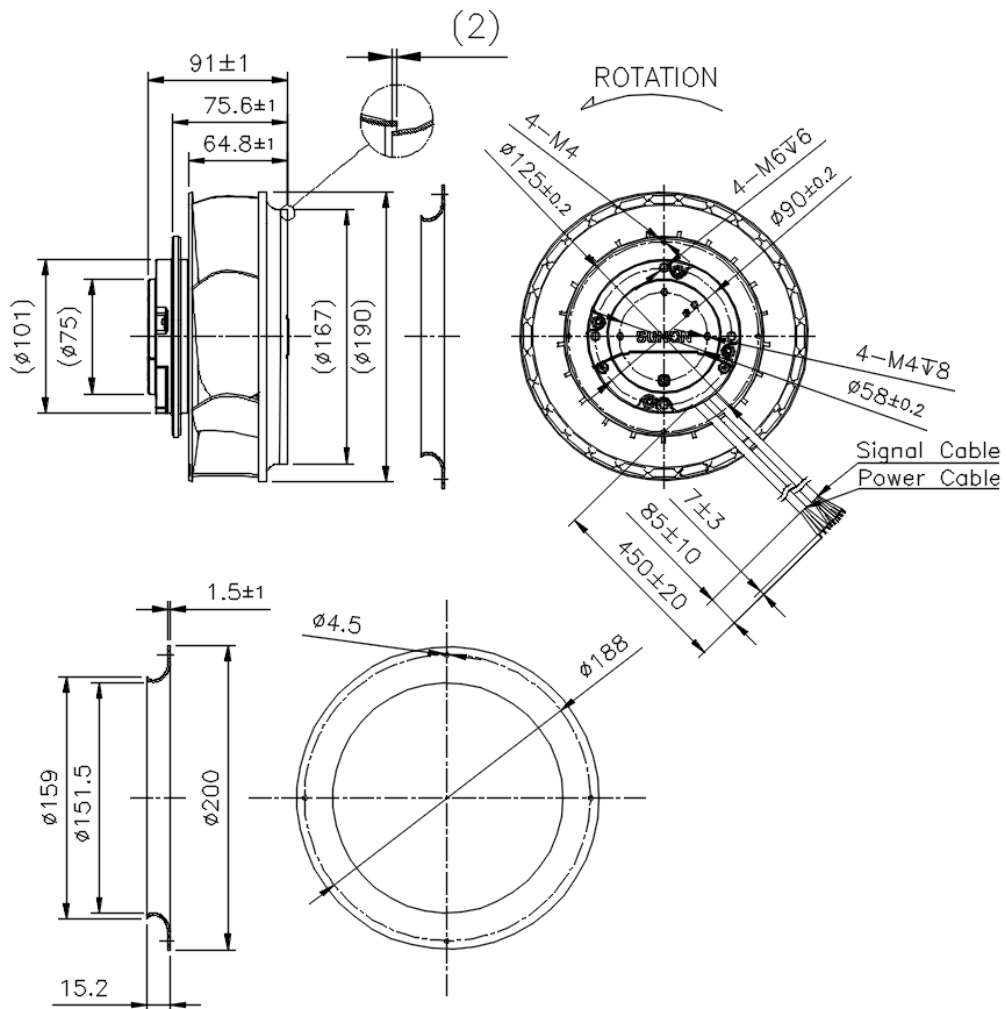
	Actual	2026
Over all Eff%	52.3	45.4
Eff Grade N	70.9	64
Power(kW)	0.17	
Air Flow(m ³ /h)	663	
Pressure(Pa)	484	
Speed(RPM)	4350	

NOTE: The airflow and static pressure are measured in accordance with ISO 5801 Category A (using manufacturer's designated test chamber/fixture).

7. DIMENSIONS

SCREW TYPE (PAN HEAD)	TORQUE	SCREW SPEC	
		SIZE	STANDARD
MACHINE SCREW	3 ~ 4 Kgf-cm	M4.0	JIS B1111-1974

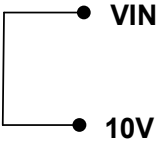
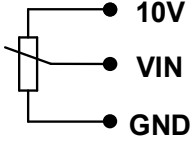
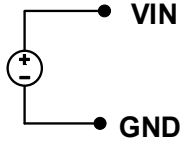
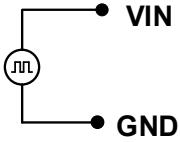
NOTE: Above spec is available for customization.



UNIT:mm

ITEM	FUNCTIONS	WIRE TYPE	COLOR
Power	L	UL2517#20AWG	BLUE
	N	UL2517#20AWG	BROWN
	PE	UL2517#20AWG	YELLOW/GREEN
Signal	10 V	UL2517#24AWG	RED
	VIN	UL2517#24AWG	BLUE/WHITE
	FG	UL2517#24AWG	YELLOW
	GND	UL2517#24AWG	BLACK
	RSA	UL2517#24AWG	GRAY
	RSB	UL2517#24AWG	BROWN

8. SPEED SETTING

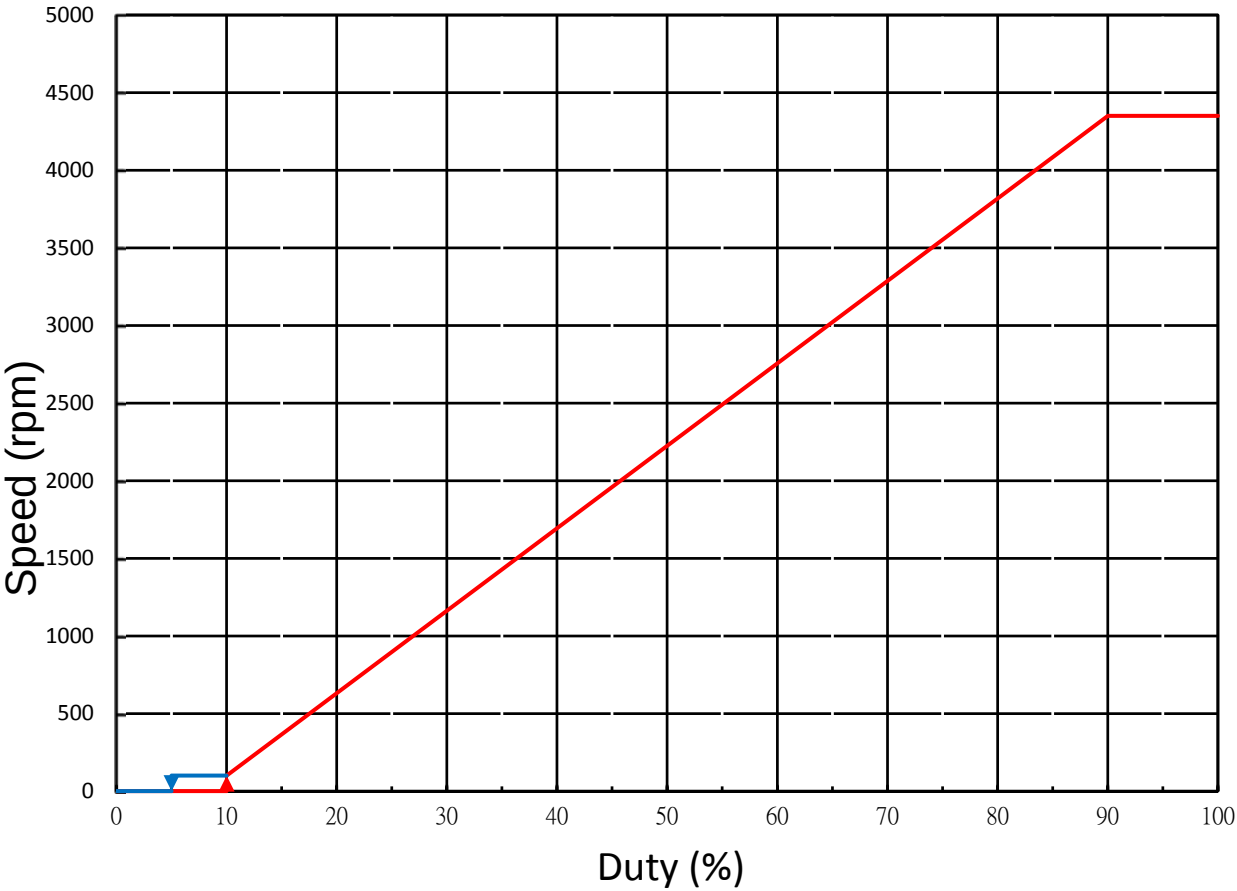
Full Speed 	Short 10V & VIN Fan will run at full speed.
	Connector 1-10kΩ variable resistor Between 10V with GND and VIN(0-10V/PWM) Vary the variable resistance, to change the 'Vin' voltage (0-10V), then change FAN speed.
Voltage Control B 0-10V DC Source 	Use voltage source supply 0~10V_{DC} voltage DC+ : connector to 1~10V(+) DC- : connector to GND(-)
PWM Control PWM Generator 	PWM duty control PWM amplitude is 10V_{DC}(±5%) Frequency Range is 100Hz-100kHz - PWM duty higher than 15%, fan start up. - PWM duty lower than 5%, fan stop.

9. SIGNAL FUCTION

RS485 control function	RS485 control function -Select the control mode of speed, fixed speed or fixed PWM duty -Speed and power consumption feedback. -Allow multiple FANs control and status patrol. Cable: A MODBUS over Serial Line Cable must be shielded. At one end of each cable its shield must be connected to protective ground.															
Voltage/PWM control	The speed comparison will control level <table><tr><th>Voltage (V)</th><th>PWM (%)</th><th>Speed (RPM) (REF)</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>1.0</td><td>10</td><td>100 ± 50 RPM</td></tr><tr><td>5.0</td><td>50</td><td>2225 ± 10%</td></tr><tr><td>9.0</td><td>90</td><td>4350± 5%</td></tr></table>	Voltage (V)	PWM (%)	Speed (RPM) (REF)	0	0	0	1.0	10	100 ± 50 RPM	5.0	50	2225 ± 10%	9.0	90	4350± 5%
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9.0	90	4350± 5%														
FG Signal	$V_{CE(sat)} = 0.7V \text{ MAX.}$ $V_{FG} = 30.0V \text{ MA}$ $I_C = 5mA \text{ MAX.}$ $R \geq V_{FG} / I_C$ Frequency generator waveform $N = \text{R.P.M}$ $TS = 60/N(\text{SEC})$ 1 PULSE PER REVOLUTION $T1 = T2 = 1/2 TS$															

10. VOLTAGE 、PWM VS SPEED CURVE

VOLTAGE(VDC)	0	0.5	1	2	3	4	5	6	7	8	9	10
PWM DUTY(%)	0	5	10	20	30	40	50	60	70	80	90	100
Speed(rpm)	0	0	100	631	1163	1694	2225	2756	3288	3819	4350	4350



NOTE:It is tested under free air condition. The same spec is not able to apply in static pressure condition