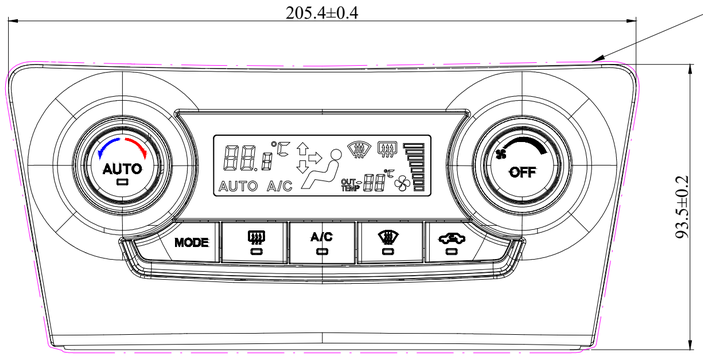
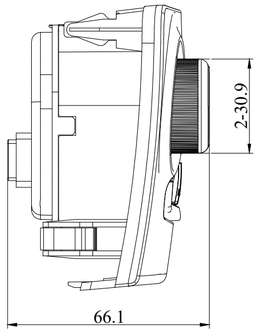
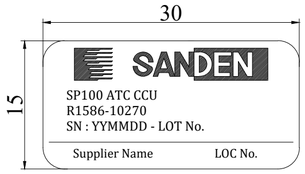
P/ NO. : R1586-10270
SHEET: 1/2

OFFICIAL DRAWING

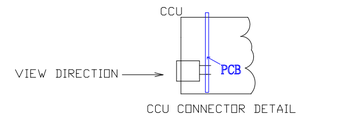
17052022



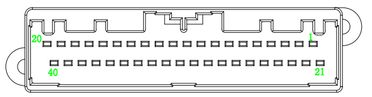




LABEL detail



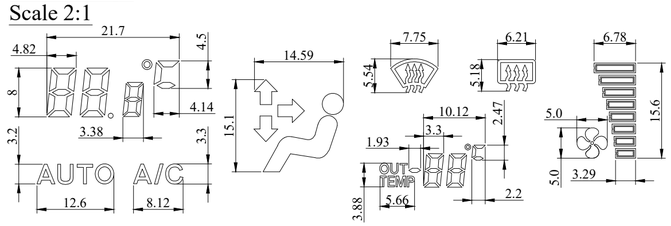
CCU CONNECTOR DETAIL



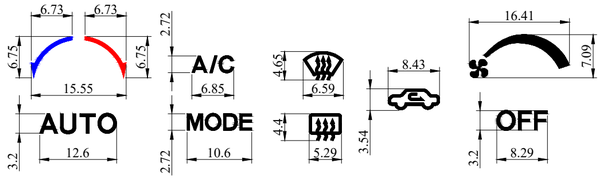
MATCHING CONNECTOR HOUSING PART NO: MX34040SF1

Detail A
Scale 2:1

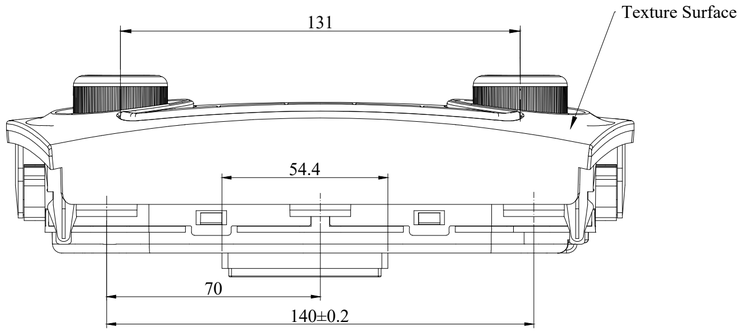
Display Logo
Scale 2:1

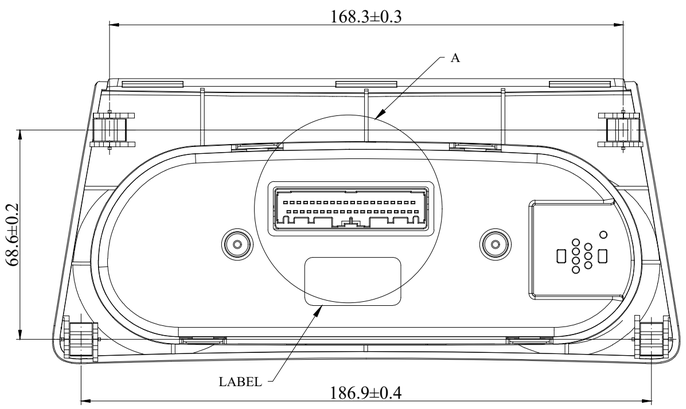


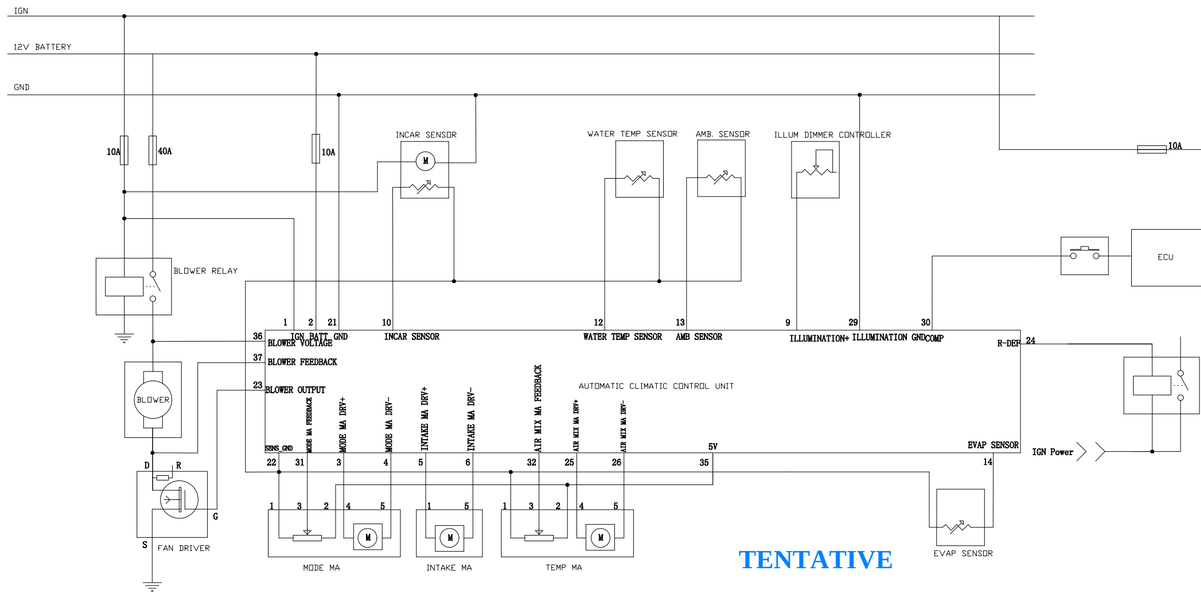
Button Logo
Scale 2:1



PIN NO.	ITEM	PIN NO.	ITEM
1	IGN	21	GND
2	BATT	22	SENS_GND
3	MODE MA DRV+	23	BLOWER OUTPUT
4	MODE MA DRV−	24	R_DEF
5	INTAKE MA DRV+	25	AIR MIX MA DRV+
6	INTAKE MA DRV−	26	AIR MIX MA DRV−
7		27	
8		28	
9	ILLUMINATION+	29	ILLUMINATION GND
10	INCAR SENSORET	30	COMP
11		31	MODE MA FEEDBACK
12	WATER SENSOR	32	AIR MIX MA FEEDBACK
13	AMB_SENSOR	33	
14	EVAP_SENSOR	34	
15		35	5V
16		36	BLOWER VOLTAGE
17		37	BLOWER FEEDBACK
18		38	
19		39	
20		40	







TENTATIVE

±	ABOVE 0 BELOW 3	ABOVE 3 BELOW 6	ABOVE 6 BELOW 30	ABOVE 30 BELOW 120	ABOVE 120 BELOW 315	ABOVE 315 BELOW 1000	ABOVE 1000 BELOW 2000	ABOVE 2000 BELOW 3150	OVER 3150	ANGLE(°) 90°	ANGLE(°) OTHERS
A	0.05	0.1	0.15	0.2	0.3	0.4	0.7	1.0	—	1	1.5
B	0.2	0.3	0.4	0.5	0.7	1.0	1.6	2.5	—		
C	0.4	0.5	0.6	0.8	1.2	1.6	3.0	4.0	—		
D	0.5	0.8	1.0	1.2	1.8	2.8	4.0	6.0	—	2	3
E	1.0	2.5	2.5	3.5	5.0	7.0	10.0	15.0	—		
F	10.0				15.0	20.0	30.0	45.0	1.5%	—	—

CHAMFERING(C),ROUNDNESS(R)APPLY THE GRADE 1 CLASS ROUGHER THAN THE SPECIFIED CLASS.

No.	DATE	REVISION	SIGN.
4			
3			
2			
1			

THIRD ANGLE PROJECTION | SCALE 1:1 | DATE 08.May.2022

MATERIAL	DIMENSION	FINISH

DESIGNED	CHECKED	APPROVED
ED 14/May/2022 Kazemi	ED 14/May/2022 NAEIMI	ED 16/May/2022 Allen
	ED 14/May/2022 osali	

MODEL: SP100
NAME: SP100 ATC CCU
DWG.No.: R1586-10270A

SANDEN IRANIAN SANDEN INDUSTRIAL (ISI)

JIS A1 594 X 841

OFFICIAL DRAWING

Key Function

NAME	LOGO	FUNCTION
AUTO	AUTO	Switch to AUTO state. Also can turn ON the CCU. There is an LED indicating whether the AUTO state is enabled or disabled.
A/C	A/C	Turn the compressor ON or OFF. Also can turn ON the CCU. There is an LED indicating whether the compressor is ON or OFF.
DEF		Switch to DEF state. Also can turn ON the CCU. There is an LED indicating whether the DEF state is enabled or disabled.
Rear DEF		Turn the Rear DEF ON or OFF. There is an LED indicating whether the Rear DEF state is enabled or disabled.
Mode	MODE	Change the mode damper. Face → Face/Foot → Foot → Foot/Def(Screen) → Def(Screen)
Intake		Change the intake damper (Recycle ↔ Fresh). There is an LED indicating whether the damper position is in Fresh or Recycle.
OFF	OFF	Turn OFF the CCU
Blower +		Increase the blower speed. Also can turn ON the CCU
Blower −		Decrease the blower speed. Also can turn ON the CCU
Temp. +		Increase the set point Temp.
Temp. −		Decrease the set point Temp.

Display Function

NAME	LOGO	FUNCTION
AUTO	AUTO	It appears when AUTO state is enabled.It keeps blinking if there is faults with the sensors and actuators.
A/C	A/C	It shows the compressor is ON.
DEF		It appears when DEF state is enabled.
Rear DEF		It appears as long as the Rear DEF is enabled.
OUT TEMP		It shows the Ambient Temp value.
Mode		It shows the Mode is set on Face.
		It shows the Mode is set on Face/Foot.
		It shows the Mode is set on Foot.
		It shows the Mode is set on Foot/Def(Screen).
		It shows the Mode is set on Def(Screen).
Blower		It shows the level speed of blower fan (L1 to L8).
Temp.		It shows the set point Temp.
HI		It appears when HI state is enabled.
LO		It appears when LO state is enabled.

Button	Pre-Condition	Action
AUTO	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Turn ON the CCU and also switch to AUTO. Action#02 : Switch to AUTO. Action#03 : Exit from DEF and switch to AUTO.
A/C	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Turn ON the CCU and also switch to previous state with compressor ON. Action#02 : Exit from AUTO and compressor will be OFF. Action#03 : Make the compressor either ON or OFF.
OFF	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : No Change. Action#02 : Turn OFF the CCU. Action#03 : Turn OFF the CCU.
DEF	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Turn ON the CCU and also switch to DEF. Action#02 : Exit from AUTO and switch to DEF. Action#03 : Switch to previous state.
Rear DEF	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Enable the Rear DEF for 14 minutes. Do NOT Turn ON the CCU. Action#02 : Enable the Rear DEF for 14 minutes. Action#03 : Enable the Rear DEF for 14 minutes.
Mode	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Change the mode damper. Do NOT Turn ON the CCU. Action#02 : Exit from AUTO and change the mode damper according to its sequence. Action#03 : Exit from DEF and switch to previous state.
Intake	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Change the intake damper (Fresh ↔ Recycle). Do NOT Turn ON the CCU. Action#02 : Exit from AUTO and change the intake damper according to its sequence. Action#03 : Change the intake damper according to its sequence.
Blower +	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Turn ON the CCU and also switch to previous state. Blower Speed = L1 Action#02 : Exit from AUTO and increase the blower speed. Action#03 : Increase the blower speed.
Blower −	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : Turn ON the CCU and also switch to previous state. Blower Speed = L1 Action#02 : Exit from AUTO and decrease the blower speed. Action#03 : Decrease the blower speed.
Temp. +	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : No Change. Action#02 : Increase the Set Point. (LO → 14~32 → HI) Action#03 : Increase the Set Point. (LO → 14~32 → HI)
Temp. −	Case#01 : CCU=OFF Case#02 : CCU=ON , State=AUTO Case#03 : CCU=ON , State=DEF	Action#01 : No Change. Action#02 : Decrease the Set Point. (HI → 32~14 → LO) Action#03 : Decrease the Set Point. (HI → 32~14 → LO)

17052022

Default Setting

Module	AUTO	DEF
A/C	auto control	ON
Intake	auto control	Fresh
Mode	auto control	Def(Screen)
Air Mix	auto control	auto control
Blower	auto control	8

Technical Information:

1. Appearance:
1.1. CCU surface should be clean and free from scratch or burrs.
1.2. Paint surface should be free from bubbles or uneven paint marks.
1.3. Indication symbols should be clear and sharp.
2. Specification is baced on MES PS61190 and ISO 16750-1,3,4.
3. Standard test conditions:
3.1. Power Supply Voltage : 14.4 V DC
3.2. Environmental Conditions:
- Temperature: 23±5 °C
- Humidity: 50±25 %
4. Specified Voltage: 12V DC
5. Operating Voltage: 9-16 V DC
6. Operating Temperature: - 40 °C ~ +85 °C
7. Quiescent current < 1.5 mA
8. Operating Current not more than 1.5 A
△A 9. Knob turning torque: 2.5±0.8 N.cm, 20 stop(360°)
10. Button push force: 3.0±1 N
11. Button stroke 1.5±0.3 mm
12. Button Illumination Color: White, Brightness: 4±2 cd/m^2
13. Switch Type: Silicon Rubber
14. Material Test Item: B155050
Desired Code: 1/0/2/0/0/3/1/0/0
15. CCU backlight as Wight Color.
16. Indicator light as Amber Color.
△A 17. GAP and flashes control at 0.4±0.2 mm for Button and 0.6±0.2 mm for Knob.
△B 18. Paint Test Item: B155050
19. LCD Specifications:
19.1. Display Illumination Color: Blue (RGB : 44,115,221)
19.2. Brightness: 10±2 cd/m^2
19.3. Viewing Angle: 12 O'CLOCK
19.4. Operating Temperature (T_{op}): -40~+85°C
19.5. Storage Temperature (T_{stg}): -50~+90°C
△A 20. EMC test items: ECE R10
21. Long term heat resistance 400 hr @ 85±2°C: After 72 and 400hr from the beginning the test check for discoloration ,deformation, dent, crack, creep, loose joint, peel off and etc. During 400hr check the function of ETC every 24hr
△A 22. The LEDs must endure 1000hr continuous lightening after the luminous power change shall be within 10%
△A 23. The connecting and disconnecting force of the connector shall be measured based on the PSA B, 217050SPEC 10.2.2 & 10.2.1
24. Compressor cut-off & cut-in temperature points:
- Cut-off: 1.5 ±0.5 °C
- Cut-in: 3.5 ±0.5 °C

TENTATIVE

±	ABOVE 0 BELOW 3	ABOVE 3 BELOW 6	ABOVE 6 BELOW 30	ABOVE 30 BELOW 120	ABOVE 120 BELOW 315	ABOVE 315 BELOW 1000	ABOVE 1000 BELOW 2000	ABOVE 2000 BELOW 3150	OVER 3150	ANGLE(°) 90°	ANGLE(°) OTHERS
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C	0.4	0.5	0.6	0.8	1.2	1.6	3.0	4.0	—		
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E	1.0	2.5	2.5	3.5	5.0	7.0	10.0	15.0	—		
F		10.0			15.0	20.0	30.0	45.0	1.5%	—	—

CHAMFERING(C),ROUNDNESS(R)APPLY THE GRADE 1 CLASS ROUGHER THAN THE SPECIFIED CLASS.

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THIRD ANGLE PROJECTION | SCALE 1:1 | DATE 08.May.2022

MATERIAL	DIMENSION	FINISH

DESIGNED	CHECKED	APPROVED
ED 16/May/2022 Rizemi	ED 16/May/2022 NAEIMI	ED 16/May/2022 Allen
	ED 16/May/2022 osati	

MODEL SP100
NAME SP100 ATC CCU
DWG.No. R1586-10270A

SANDEN IRANIAN SANDEN INDUSTRIAL (ISI)

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