Single
Packs

Single Pack BD1.4F-AUTO.3 12V DC PM

Single pack code number: **195B3449**

Position	Title	Code	Amount
1	Compressor BD1.4F	109Z0106	1
2	Electronic unit 12V DC	101N1001	1
3	Bolt joint for one compressor | M6 | ø16mm	118-1917	1

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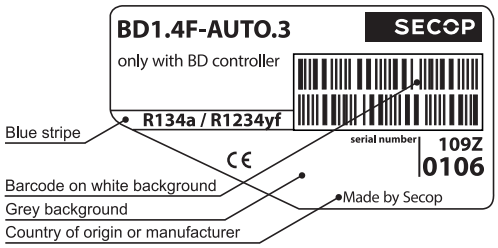
BD1.4F-AUTO.3
Direct Current Compressor
R134a, R1234yf
12V DC

TOOL4COOL® Flexible control settings



General

Code number (without electronic unit)	109Z0106
Electronic unit - Automotive	101N1000, 30 pcs: 101N1001
Electronic unit - Automotive	101N1010, 30 pcs: 101N1011
Approvals	–
Compressors on pallet	180

Application

Application		LBP/MBP
Evaporating temperature	°C	-25 to 5
Voltage range	VDC	8.5 - 17
Max. condensing temperature continuous (short)	°C	60 (70)
Max. winding temperature continuous (short)	°C	125 (135)

S = Static cooling normally sufficient
O = Oil cooling
F_1 = Fan cooling 1.5 m/s (compressor compartment temperature equal to ambient temperature)
F_2 = Fan cooling 3.0 m/s necessary
SG = Suction gas cooling normally sufficent
– = not applicable in this area

Cooling requirements

Application	LBP	MBP	HBP
32°C	S	S	–
38°C	S	S	–
43°C	S	S	–

Remarks on application:
- New generation with optimized noise level
- New generation also released for R1234yf

Motor

Motor type		permanent magnet, brushless DC
Speed	rpm	3,000
Resistance, all 3 windings (25°C)	mΩ	370

Design

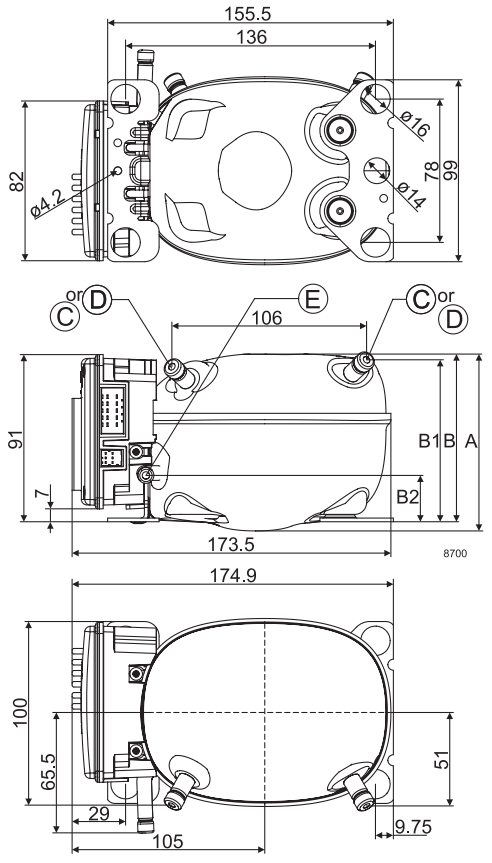
Displacement	cm^3	1.41
Oil quantity (type)	cm^3	75 (polyolester)
Maximum refrigerant charge	g	70
Free gas volume in compressor	cm^3	500
Weight - Compressor/Electronic unit	kg	2.1/0.17

Standard battery protection settings (refer to 101N1000 *Instructions* for optional settings)

Voltage			Min. value	Default	Max. value
Cut out	(0.1 steps)	VDC	8.5	8.5	17
Cut in diff.	(0.1 steps)	VDC	0.5	0.5	8

Dimensions

Height		mm	A	96.25
			B	91.25
			B1	88.00
			B2	25.20
Suction connector	location/I.D. mm | angle		C	6.2 | 25°
	material | comment			Cu-plated steel | Al cap
Process connector	location/I.D. mm | angle		D	6.2 | 25°
	material | comment			Cu-plated steel | Al cap
Discharge connector	location/I.D. mm | angle		E	5.0 | 0°
	material | comment			Cu-plated steel | Al cap
Connector tolerance		I.D. mm		±0.09, on 5.0 +0.12/+0.20
Remarks				



Performance Data with Refrigerant R134a & R1234yf

EN 12900 Household (CECOMAF), R134a

Evap. temp. in °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5
Capacity in W	16.1	19.2	25.7	37.4	51.2	61.5	67.1	85.2	105.4
Power cons. in W	24.1	25.7	29.0	34.1	39.3	42.9	44.7	50.3	56.0
Current cons. in A	1.84	1.96	2.20	2.59	2.99	3.26	3.40	3.84	4.29
COP in W/W	0.67	0.74	0.89	1.10	1.30	1.43	1.50	1.69	1.88

EN 12900 Household (CECOMAF), R1234yf

Evap. temp. in °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5
Capacity in W	17.4	20.5	27.2	38.8	52.0	61.5	66.7	82.7	99.9
Power cons. in W	26.5	28.2	31.4	36.3	41.1	44.3	45.9	50.6	55.2
Current cons. in A	2.02	2.15	2.39	2.76	3.13	3.37	3.50	3.86	4.22
COP in W/W	0.66	0.73	0.87	1.07	1.26	1.39	1.45	1.63	1.81

ASHRAE LBP, R134a

Evap. temp. in °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5
Capacity in W	20.2	23.9	32.0	46.5	63.7	76.4	83.5	106.0	131.3
Power cons. in W	24.0	25.7	29.0	34.0	39.2	42.8	44.6	50.1	55.8
Current cons. in A	1.84	1.96	2.20	2.59	2.98	3.25	3.40	3.82	4.27
COP in W/W	0.84	0.93	1.11	1.37	1.62	1.79	1.87	2.12	2.35

ASHRAE LBP, R1234yf

Evap. temp. in °C	-25	-23.3	-20	-15	-10	-6.7	-5	0	5
Capacity in W	22.7	26.8	35.4	50.4	67.5	80.0	86.7	107.7	130.4
Power cons. in W	26.4	28.1	31.3	36.2	41.0	44.1	45.7	50.4	54.9
Current cons. in A	2.37	2.53	2.85	3.34	3.83	4.16	4.33	4.81	5.29
COP in W/W	0.93	1.02	1.20	1.45	1.69	1.84	1.92	2.13	2.32

Test conditions	EN 12900/CECOMAF	ASHRAE LBP
Condensing temperature	55°C	54.4°C
Ambient temperature	32°C	32°C
Suction gas temperature	32°C	32°C
Liquid temperature	no subcooling	32°C

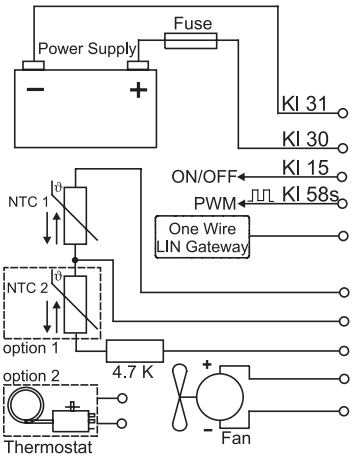
Operational errors

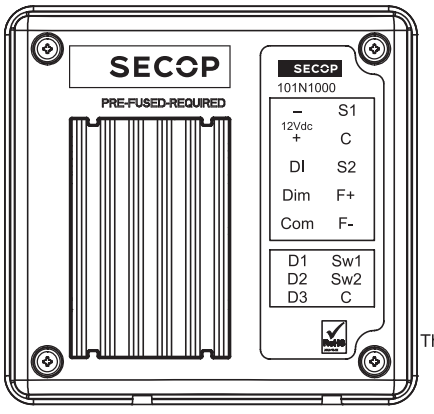
Error code	Error type Can be read out in the software **TOOL4COOL®**
7	**Communication failure**
6	**Thermostat failure** (If the NTC thermistor is short-circuit or has no connection, the electronic unit will enter manual mode).
5	**Thermal cut-out of electronic unit** (If the refrigeration system has been too heavily loaded, or if the ambient temperature is high, the electronic unit will run too hot).
4	**Minimum motor speed error** (If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 1,850 rpm).
3	**Motor start error** (The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)).
2	**Fan over-current cut-out** (The fan loads the electronic unit with more than $0.65A_{peak}$).
1	**Battery protection cut-out** (The voltage is outside the cut-out setting).

Accessories for BD1.4F-AUTO.3

Mounting		Code number
Bolt joint for one compressor	Ø: 16 mm	118-1917
Bolt joint in quantities	Ø: 16 mm	118-1918
Snap-on in quantities	Ø: 16 mm	118-1919
One Wire/LIN gateway		105N9501
Not deliverable from Secop		
Automobile fuse	DIN 7258	15A

NTC Temperature Sensors
Software-Setup





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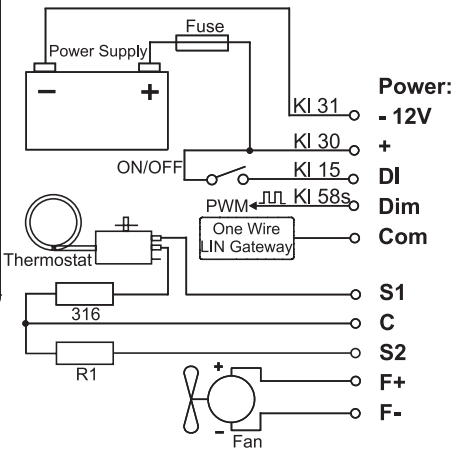
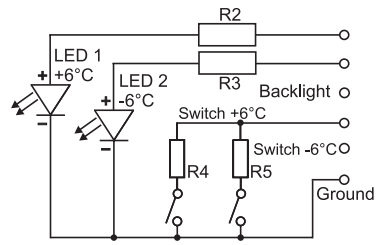
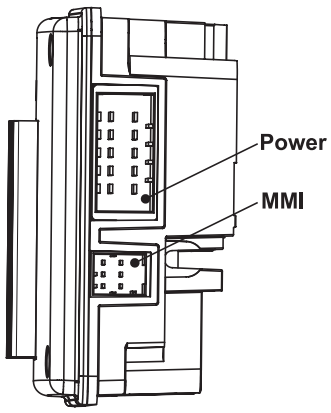
Mechanical Temperature Sensor
Hardware-Setup







Resistors

Marking	Value [Ω]	Function
R1	see *Instructions*	battery protection
R2	750	resistor LED 1
R3	750	resistor LED 2
R4	1500	coding resistor S1
R5	330	coding resistor S2

Connectors (Tyco Electronics)

Code no	Male	Female	Crimp
Power	178305-5	178289-5	1-175218-20
MMI	1376136-1	1-1318119-3	1-318108-1

Wire Dimensions DC

Size		Max. length* 12V operation	
Cross section [mm²]	AWG [Gauge]	[m]	[ft.]
2.5	12	2.5	8
4	12	4	13
6	10	6	20
10	8	10	33

***Length between battery and electronic unit**

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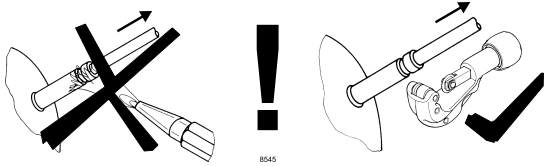
Keep electrical equipment clear from oil, chemicals, and water

BD Compressors

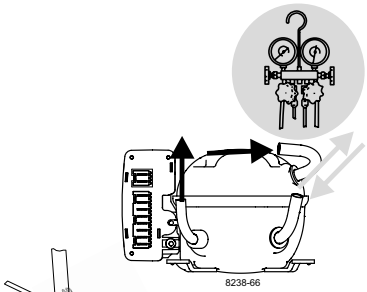
SECOP

Service/Repair – R290, R600a, R170, R1270, R1234yf (applies to all flammable refrigerants)



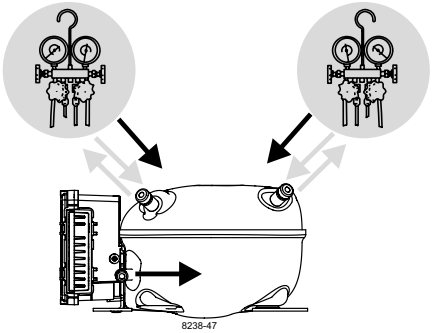
TOOL4COOL®

BD Nano

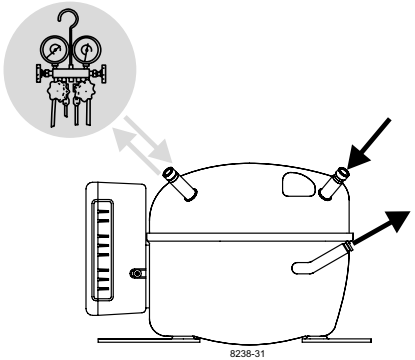


Do not heat up the bottom of the discharge connector directly.
Do not braze longer than 10 seconds and wait for 5 minutes for the next soldering attempt (Product Bulletin DES.N.101.M).

BD Micro



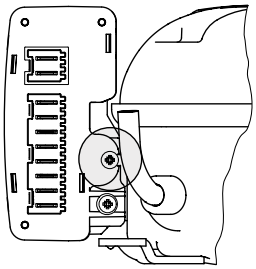
BD-P



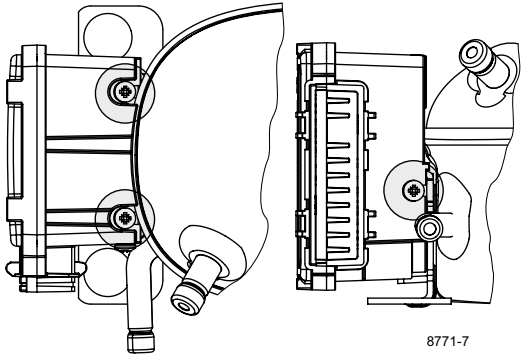
Dismantling, recycling, disposal: At the end of a compressor's lifecycle, proceed by separating and storing components according to their environmental impact. Parts that may cause pollution must be clearly identified and handled separately, ensuring appropriate disposal. Refrigerant gas must not be released into the environment and should be recovered by qualified operators. Compressor oil must also be collected separately. The compressor should be disposed of at specialized disposal centers in accordance with the applicable regulations. **Subject to modifications/alterations. www.secop.com**

Instructions for Electronic Units are available for download on **www.secop.com**

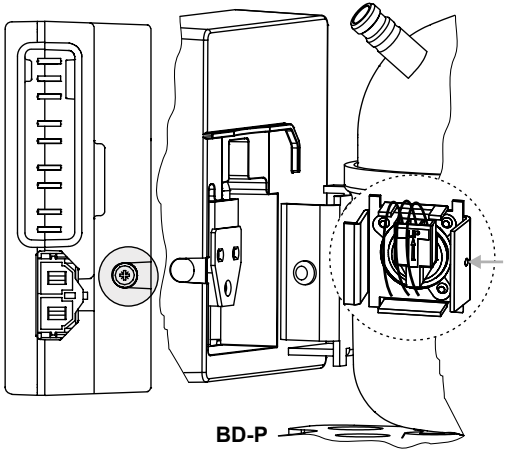
BD Compressors



BD Nano



BD Micro



BD-P

BD Nano
Attach the electronic unit by pressing it linearly onto the compressor's Fusite® connector and bracket. The electronic unit must be mounted straight onto the compressor terminals. Ensure correct alignment before pressing it into place. Apply pressure until both screw heads snap into place. For high-vibration environments, the unit can optionally be secured with a third screw (marked in grey).

BD Micro
Attach the electronic unit by pressing it linearly onto the compressor's Fusite® connector and bracket. The electronic unit must be mounted straight onto the compressor terminals. Ensure correct alignment before pressing it into place. Secure it with at least two screws, either from the side or from above (marked in grey).

BD-P
The cable plug of the electronic unit is connected to the compressor's Fusite® connector. The electronic unit is then mounted onto the compressor bracket. First, the left side is attached; next, the right side is pressed sideways over the screw on the bracket (marked in grey). The unit snaps into place on the bracket and is now securely fixed to the compressor. An earth connection (via the compressor baseplate) can be used if required.

Dismantling, recycling, disposal: At the end of a compressor's lifecycle, proceed by separating and storing components according to their environmental impact. Parts that may cause pollution must be clearly identified and handled separately, ensuring appropriate disposal. Refrigerant gas must not be released into the environment and should be recovered by qualified operators. Compressor oil must also be collected separately. The compressor should be disposed of at specialized disposal centers in accordance with the applicable regulations. **Subject to modifications/alterations. www.secop.com**