

ALCOLOCK™ V3 Series B-2

12V & 24V

Technical Specification

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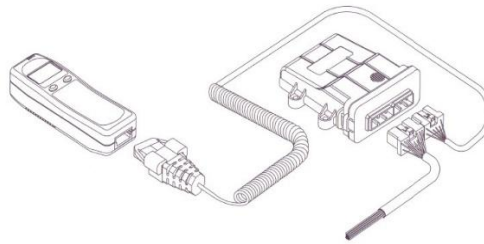
ALCOLOCK™ V3

Series B-2

Alcohol

Interlock

Technical Specification



Overview

The ALCOLOCK series of alcohol interlocks are devices which are intended to prevent in the blocked state the starting of a motor vehicle, and which can be brought into the unblocked state only after presenting and analyzing a breath sample with an alcohol concentration below a set value. It consists of a handset and a control unit electrically connected to the vehicle.

The ALCOLOCK alcohol interlock only prevents the starting of the vehicle; it does not influence a running vehicle motor.

The installation of the ALCOLOCK alcohol interlock requires connection to vehicle +12V or +24V vehicle ground, monitoring of either the ignition switch or tachometer signal or both, and the interruption of the starter wire.

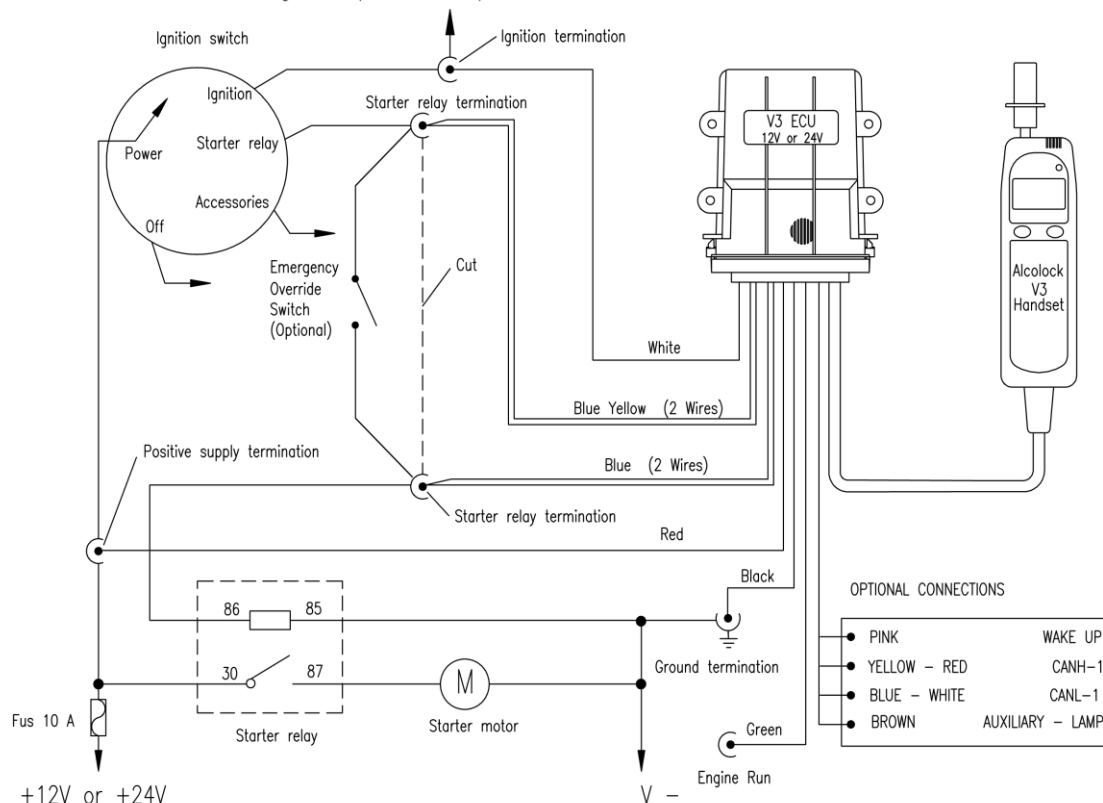
After presenting a proper breath sample the ALCOLOCK alcohol interlock will close a set of relay contacts that allow the vehicle motor to start. The ALCOLOCK alcohol interlock starter relay shall stay closed until after the vehicle motor and ignition switch has been turned off plus a pre-programmed restart period. The restart period does not require a new breath sample and is typically programmed between 3 and 60 minutes.

	ALCOLOCK™ V3 Series B-2 12V 	ALCOLOCK™ V3 Series B-2 24V 
Handset Specs	12V	24V
Classifications	Designed to meet European Standard pr EN 50436-2, Class A	Designed to meet European Standard pr EN 50436-2, Class A
Operating Temperature	-40 °C to +85 °C	-40 °C to +85 °C
Display Size	Graphic LCD 4 cm x 2cm	Graphic LCD 4 cm x 2cm
Display Resolution	106 x 56 Dot Pixel Backlit	106 x 56 Dot Pixel Backlit
Display Temperature	-25 °C - +80 °C (LED used for temperatures outside this range)	-25 °C - +80 °C (LED used for temperatures outside this range)
Alcohol Sensor	ACS Custom Part	ACS Custom Part
Accuracy	± .02 @ .20 g/l	± .02 @ .20 g/l
Range of Measurement	.00 to 2.5 g/l	.00 to 2.5 g/l
Alcohol sample Pump	ACS Custom Part	ACS Custom Part
Power Up Time (from On)	10 – 270 seconds	10 – 270 seconds
Breath Sample Time	5 second moderate and continuous 1.2 litre breath volume	5 second moderate and continuous 1.2 litre breath volume
Analysis Time	5 to 25 seconds	5 to 25 seconds
Purge Cycle	30 seconds	30 seconds

Recycle Time (Recovery)	10 to 30 seconds	10 to 30 seconds
Mouthpieces (Style)	Round	Round
Handset Cable Length	158 cm	158 cm
Handset Size (length width depth)	15 x 4.4 x 5 cm	15 x 4.4 x 5 cm
Handset Weight	230 g	230 g
Handset Audio	Buzzer tone with volume control	Buzzer tone with volume control
Handset Real-Time Clock	With Lithium backup Battery Estimated Operating Life: 10 years	With Lithium backup Battery Estimated Operating Life: 10 years
ECU Specs	12V	24V
ECU Size	12.4cm x 11.5 cm x 4.1 cm	12.4cm x 11.5 cm x 4.1 cm
ECU Module Weight	230 g	203 g
Operating Voltage	9V – 16V/8A (for ½ sec when solenoid is active and heaters are on, rest of the time – 3A)	16V – 32V/6A (for ½ sec when solenoid is active and heaters are on, rest of the time – 2.5A)
ECU Module Audio	Buzzer Tone	Buzzer Tone
ECU Real-Time Clock	With Lithium backup Battery Estimated Operating Life: 10 years	With Lithium backup Battery Estimated Operating Life: 10 years
ECU Enclosure	ABS +PC, UL94V0	ABS +PC, UL94V0

Circuit Diagram (Overview)

Alcolock V3 B-2 Circuit diagram (12V or 24V)



Current Consumption 12V

State @ 22°C	Duration	Minimum Current (amps)	Maximum Current (amps)	Average Current (amps)
Warm-up	40 seconds	0.6	2.7	1.6
Ready	Continuous	0.2	2.7	1.0
Sleep mode	Continuous	0.013	0.013	0.013
Test: blow	5 sec.	0.3	2.9	1.8
Test solenoid active	0.5 sec.	6.2	6.2	6.2
Test analysis	3.0 sec.	0.2	0.2	0.2
Vehicle running	Continuous	0.2	2.7	1.0

Current Consumption 24V

State @ 22°C	Duration	Minimum Current (amps)	Maximum Current (amps)	Average Current (amps)
Warm-up	25 seconds	0.6	2.3	1.7
Ready	Continuous	0.1	2.1	0.3
Sleep mode	Continuous	0.015	0.015	0.015
Test: blow	5 sec.	0.1	2.2	0.8
Test solenoid active	0.5 sec.	3.5	3.5	3.5
Test analysis	3.0 sec.	0.1	0.1	0.1
Vehicle running	Continuous	0.1	2.1	0.3

Feature	Operation	Comment
Automatic Power Down	Four programmable power downtimes	5, 30, 60 & 90 minute power down time
Emergency Override (Optional)	Random code	Single or multiple use
Calibration	Alcohol-Water Simulator Calibration Interval: 6 months	Calibration by ACS auto calibration station Part number: #79-006103
TPM – Garage Service Mode (Optional)	Random Code	Allows starting of motor without a breath test
Wake Up	Up to three programmable wake up times	Automatically wakes up the handset at 3 predetermined times. Three days of vehicle inactivity disables this function
Sleep Mode	Four programmable sleep times	5, 30, 60 & 90 minute sleep option time
Vehicle Run Detection	Ignition and/or Level and/or Pulse	Ignition and/or Level and/or Pulse
Human Breath Detection	Four methods	Humidity, temperature, Flow and option for Hum tone detection

Connector Specifications

The V3 ECU consists of two cable assemblies; a handset cable assembly and an auto interface cable assembly. Listed below are connector types, positions available and information regarding conduit materials.

Connector	Part Number	Position	Part Number for Receptacle Contact	Material
ECU Interface Cable Connector	Tyco 173852-2	14	8 Contacts: Tyco 776129-2 6 Contacts: Tyco 776129-6 - See below table *	Tinned Copper
ECU Handset Connector	Tyco 174465-2	10	6 Contacts: Tyco 175186-1	Tinned Copper
Handset Cable Connector	Tyco 1-520424-2	6	SDL Connector	

(*) Receptacle Contact:

Part Number 227129-2	14 AWG
Part Number 776129-6	16 – 20 AWG

10 Pin Connector	6 Pin Connector				
ECU Conn. Position	Handset Connector Position	Insulation Colour	Fn.	Gauge	Strands per Conductor
3	1	Red/Black	+12V	24	19/36
9	2	Black/Red	GND	24	19/36
8	5	Yellow	CPU-GD	24	19/36
7	6	White	CPU-8.8V	24	19/36
1	3	Brown	CANH-0	24	19/36
5	4	Violet	CANL-0	24	19/36
2		Not Used			
4		Not Used			
6		Not Used			
10		Not Used			
11		Not Used			

ECU Connection and Function

Pin	Function	Comment	12V	24V
1	Power	Main Power Connection Input from vehicle	Type: analog input Full Operating Range: 9V – 16V/6A Minimum Input: 4.5V (to keep the starter relay latched during cranking)	Type: analog input Full Operating Range: 16V – 32V/4A Minimum Input: 10V (to keep the starter relay latched during cranking)
2	Engine Run	Signal Input	Type: digital input “Guaranteed on”: 4.5V~16V “Guaranteed off”: 0V~0.7V Freq.=40HZ~1.5KHZ %Duty= 25~75	Type: digital input “Guaranteed on”: 4.5V~16V “Guaranteed off”: 0V~0.7V Freq.=40HZ~1.5KHZ %Duty= 25~75
8	Ignition		Type: digital input “Guaranteed on”: 4.5V~16V “Guaranteed off” 0V~0.7V	Type: digital input “Guaranteed on”: 4.5V~16V “Guaranteed off” 0V~0.7V
9	Auxiliary	Handset Wake-up – generally connected to vehicle parking lamps. Minimum Pulse Time to activate: 10 mins.	Type: digital input “Guaranteed on”: 4.5V~16V “Guaranteed off” 0V~0.7V Current consumption when active: nominal 55µA	Type: digital input “Guaranteed on”: 4.5V~16V “Guaranteed off” 0V~0.7V Current consumption when active: nominal 110µA
4	Relay Output 1	Optional AUX Lamp (positive output)	+12 DC 6 amp, Normally open	+12 DC 6 amp, Normally open
6,14	Starter Relay	From Ignition	Type: dry contact 23 amp, Normally open	Type: dry contact 23 amp, Normally open
5, 13	Starter Relay	To Starter Relay	Type: dry contact 23 amp, Normally open	Type: dry contact 23 amp, Normally open
10	CANH-1	CAN Communications to Vehicle	Type: Bidirectional digital Vin+ 36V max Vin=36V Max to gnd Vdiff-12V Max	Type: Bidirectional digital Vin+ 36V max Vin=36V Max to gnd Vdiff-12V Max
11	CANL-1	CAN Communications to Vehicle	Type: Bidirectional digital Vin+ 36V max Vin=36V Max to gnd Vdiff-12V Max	Type: Bidirectional digital Vin+ 36V max Vin=36V Max to gnd Vdiff-12V Max
7	Ground			

ECU Interface Cable Specifications 14 Pin Cable Connector

Pin Assignment				
Pin	Function	Insulation Colour	Gauge	Strands per Conductor
1	Power	Red	14	19/27
2	Engine Run	Green	20	10/30
8	Ignition	White	20	10/30
9	Auxiliary	Pink	20	10/30
4	Relay Output 1	Brown	14	19/27
12	NOT USED			
6, 14	Starter Relay	Blue	14	19/27
5, 13	Starter Relay	Blue/Yellow	14	19/27
11	CANH	Yellow/Red	20	10/30
10	CANL	Blue/White	20	10/30
7	Ground	Black	14	19/27
3	NOT USED			

Handset: Warm-Up Times

The table below indicates the normal average time period to achieve full ready state for operation throughout a temperature range of +85 °C at the high extreme and -40 °C at the low extreme.

Temperature	Time (secs) 12V	Time (secs) 24V
+ 85 °C	10	10
+ 45 °C	15	10
+ 25 °C	40	25
+ 10 °C	65	40
0 °C	90	75
- 10 °C	110	90
- 20 °C	150	145
-40 °C	265	265

Description of Components

Handset	# 79-009000	1
ECU Module Interface Cable	# 13-001120	1
ALCOLOCK V3 Series B-2 ECU 12V	# 79-008811	1
ALCOLOCK V3 Series B-2 ECU 24V	# 79-008847	1
Round Style Plastic Mouthpieces	# 95-000250	25 per bag
Handset Cable	#13-001050, # 13-001058, #13-001074, # 13-001112	1
Clip Fixture	# 58-000257	1
Installation Kit	# 95-000513	1