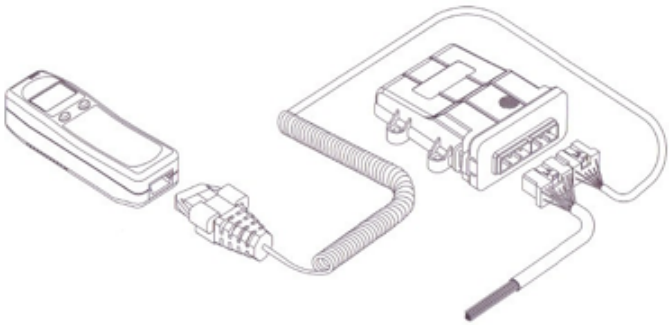
ACS
ALCOHOL COUNTERMEASURE SYSTEMS



ALCOLOCK™ V3
Series B-2 Wi-Fi

24V

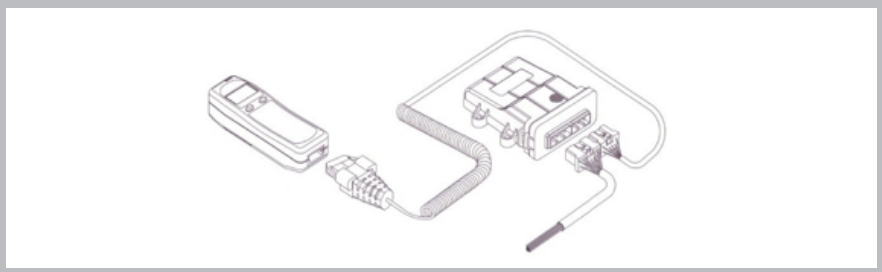
Technical Specification

CONTENTS

ACS
ALCOHOL COUNTERMEASURE SYSTEMS

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.

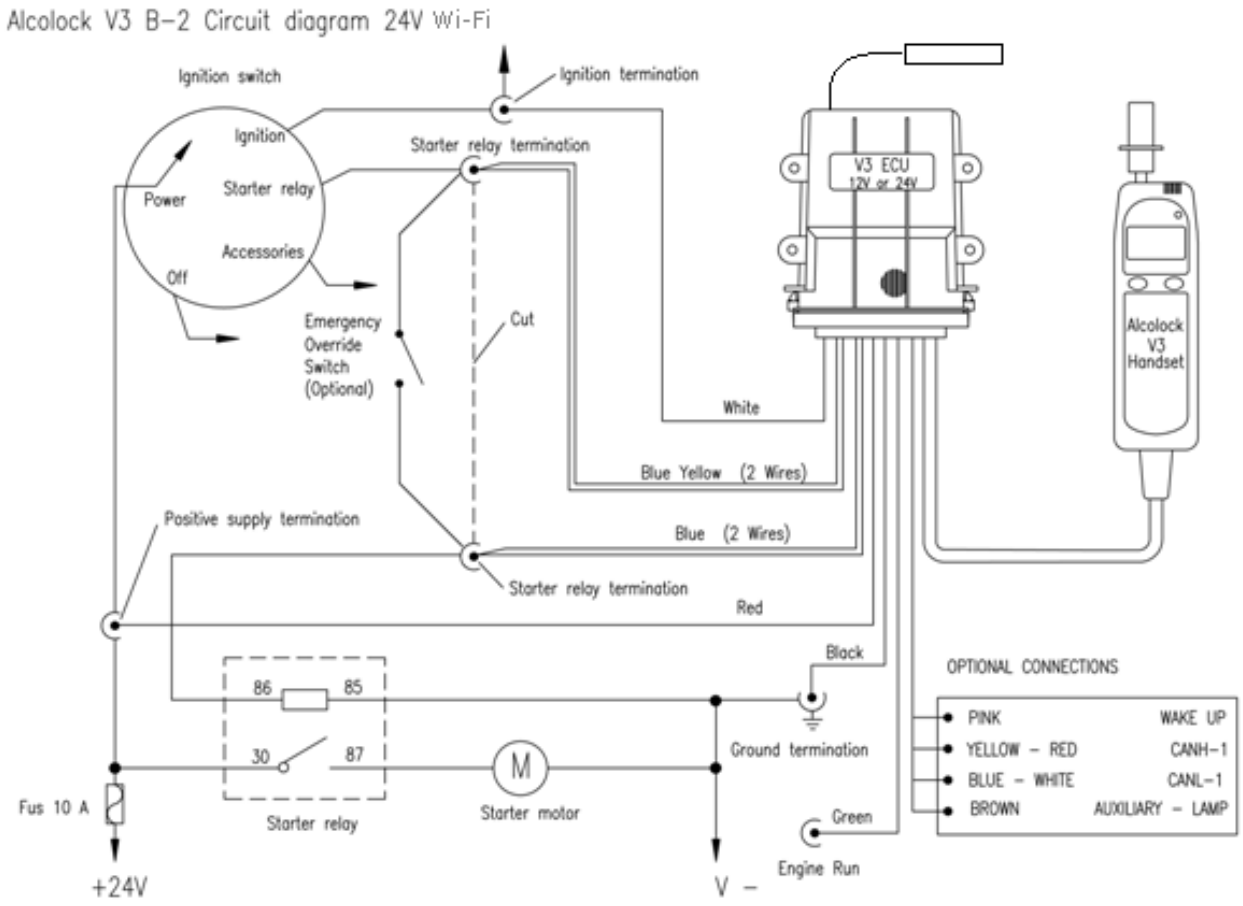
The installation of the ALCOLOCK alcohol interlock requires connection to vehicle +24V vehicle ground, monitoring of either the ignition switch or tachometer signal or both, and the interruption of the starter wire.

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 HS** 
HANDSET SPECS	
Classifications	Designed to meet European Standard pr EN 50436-2, Class A
Operating Temperature	-40 °C to +85 °C
Display Size	Graphic LCD 4 cm x 2 cm
Display Resolution	106 x 56 Dot Pixel Backlit
Display Temperature	-25 °C to +80 °C (LED used for temperatures outside this range)
Alcohol Sensor	ACS Custom Part
Accuracy	± .02 @ .20 g/l
Range of Measurement	.00 to 2.5 g/l
Alcohol Sample Pump	ACS Custom Part
Power Up Time (from On)	10 to 270 seconds
Breath Sample Time	5 second moderate and continuous 1.2 litre breath volume
Analysis Time	5 to 25 seconds
Purge Cycle	30 seconds
Recycle Time (Recovery)	10 to 30 seconds
Mouthpieces (Style)	Round
Handset Cable Length	158 cm
Handset Size **(length width depth)**	15 cm x 4.4 cm x 5 cm
Handset Weight	230 g
Handset Audio	Buzzer tone with volume control
Handset Real-Time Clock	Lithium Battery Coin-Type Lifetime: 10 years

	ALCOLOCK™ V3 **Series B-2 24V**
	
ECU SPECS	
ECU Size	12.4 cm x 11.5 cm x 4.1 cm
ECU Module Weight	214 g
Operating Voltage	16V – 32V
ECU Module Audio	Speaker Tone
ECU Real-Time Clock Battery	Lithium Battery Coin-Type Estimated Operating Life: 10 years
ECU Enclosure	ABS +PC, UL94V0

CIRCUIT DIAGRAM (OVERVIEW) – WI-FI



CURRENT CONSUMPTION 24V

State @ 22°C	Duration	Minimum Current (amps)	Maximum Current (amps)	Average Current (amps)
Warm-up	24 seconds	0.7	2.3	1.2
Ready	Continuous	0.15	0.8	0.3
Sleep mode	Continuous	0.015	0.015	0.015
Test: blow	5 sec.	0.4	2.4	0.7
Test solenoid active	0.5 sec.	5.5	5.5	5.5
Test analysis	3.0 sec.	0.25	0.25	0.25
Vehicle running	Continuous	0.15	0.8	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 or Dry Gas Calibration Interval: 12 months	Calibration by ACS auto calibration station Part number: #79-006103 OR Dry Gas kit 130PPM: #97-000107 OR 260PPM: #97-000116
Dealer Service (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
ECU - SSRs (Solid State Relays)	Additional optional outputs	Customized according to clients requirement (i.e. start violation, pass test...)
ECU - Real time clock	Date/Time	With embedded crystal, monitoring of oscillator and low backup battery state
Wi-Fi module	Wi-Fi communication with SPI protocol between host CPU and Wi-Fi module to provide support for DNS network service.	Independently supplied from 0.5A SMPS chip

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	
Wi-Fi connector (Wi-Fi versions only)	Samtec SMA-J-P-H-ST-EM1	1	N/A	Gold Plated

(*) Receptacle Contact:

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

HANDSET CABLE – 6 PIN CABLE CONNECTOR

Pin	Function	Insulation Colour	Gauge	Strands per conductor
1	Power + 24V	Red / Black	24	19/36
2	GND	Black / Red	24	19/36
3	CANH-0	Brown	24	19/36
4	CANL-0	Violet	24	19/36
5	CPU-GD	Yellow	24	19/36
6	CPU - 8.8V	White	24	19/36

ECU HANDSET – 10 PIN CABLE CONNECTOR

Pin	Function	Insulation Colour	Gauge	Strands per conductor	Comment
1	CANH-0	Brown	24	19/36	CAN Communications with ECU Type: Bidirectional digital Vinmax=36V to Gnd Vdiff-12V Max
2	TXDRS232 (optional)	N/A			Standard RS232 voltage levels
3	V1+	Red / Black	24	19/36	Type: Input Handset heaters and pump supply from ECU, DC +13.6V, regulated, Fuse 5A on the ECU side
4	V2- (tied with pin#8 in ECU)	N/A			
5	CANL-0	Violet	24	19/36	CAN Communications with ECU Type: Bidirectional digital Vinmax=36V to Gnd Vdiff-12V Max
6	RXDRS232 (optional)	N/A			Standard RS232 voltage levels
7	V2+	White	24	19/36	Type: Input Handset control system supply from ECU, DC +8.8V, regulated, Fuse 3A on the ECU side
8	V2-	Yellow	24	19/36	Type: Input Handset control system supply from ECU, DC -8.8V, regulated
9	V1-	Black / Red	24	19/36	Type: Input Handset heaters and pump supply from ECU, DC -13.6V, regulated
10	V2+ (tied with pin#7 in ECU)	N/A			

ECU INTERFACE – 14 PIN CABLE CONNECTOR AND FUNCTIONS

Pin	Function (schematics)	Insulation Colour	Gauge	Strands per conductor	Description	Comment
1	Power (VPCAR)	Red	14	19/27	+ VBat Main Power Connection Input from vehicle	Full Operating Range: 16V – 32V, Fuse 7A Minimum Input: 8V (keeps starter relay latched during cranking)
2	Signal Input (TACH_IN)	Green	20	10/30	Signal Input	Type: input “Guaranteed on”: 4.5V~32V “Guaranteed off”: 0V~0.8V Freq.=5HZ~600HZ %Duty= 40~60 Current consumption when active (Vinput=+24V): 55µA
3	Solid State Relay (PASSAT)	Yellow	20	10/30	Solid State Relay output Function: Pass Alcohol Test, Positive Output	Imax=100mA, Vmax=+Vbatmax=+32V Normally open, resettable fuse 100mA
4	Optional AUX Lamp (LAMP)	Brown	14	19/27	Optional AUX Lamp (positive output)	+Vbat 10A, Normally open Fuse 10A
5	Starter Relay (EX2)	Blue / Yellow	14	19/27	To Starter Relay (tied with pin#13 in ECU)	Type: dry contact 25A Normally open (no fuse)
6	Starter Relay (EX1)	Blue	14	19/27	To Starter Relay (tied with pin#14 in ECU)	Type: dry contact 25A Normally open (no fuse)
7	Ground (VGCAR)	Black	14	19/27	-Vbat, Vehicle ground	
8	Signal Input (IGN_IN)	White	20	10/30	Signal Input	Type: input “Guaranteed on”: 4.5V~32V “Guaranteed off” 0V~0.8V Current consumption when active (Vinput=+24V): 55µA
9	Auxiliary input (AUX_IN)	Pink	20	10/30	Auxiliary input: Function Wake-Up Handset Wake-up – generally connected to vehicle parking lamps.	Type: input “Guaranteed on”: 4.5V~32V “Guaranteed off” 0V~0.8V Current consumption when active (Vinput=+24V): 55µA
10	CAN Communication (CANH1)	Yellow / Red	20	10/30	CAN Communications to Vehicle	Type: Bidirectional digital Vinmax=36V to Gnd Vdiff-12V Max
11	CAN Communication (CANL1)	Blue / White	20	10/30	CAN Communications to Vehicle	Type: Bidirectional digital Vinmax=36V to Gnd Vdiff-12V Max
12	Solid State Relay (STRVIOL)	Orange	14	19/27	Solid State Relay output Function: Start Violation (positive output)	Imax=100mA, Vmax=+Vbatmax=+32V, Normally open, resettable fuse 100mA

13	Starter Relay (EX2)	Blue / Yellow	14	19/27	To Starter Relay (tied with pin#5 in ECU)	Type: dry contact 25A, Normally open (no fuse)
14	Starter Relay (EX1)	Blue	14	19/27	To Starter Relay (tied with pin#6 in ECU)	Type: dry contact 25A, Normally open (no fuse)

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) 24V
+85 °C	10
+45 °C	10
+25 °C	30
+10 °C	50
0 °C	75
-10 °C	95
-20 °C	150
-40 °C	270

DESCRIPTION OF COMPONENTS

Handset	# 79-009000	1
ECU Module Interface Cable	# 13-001045 # 13-001137	1
ALCOLOCK V3 Series B-2 ECU 24V	# 79-008936	1
Round Style Plastic Mouthpieces	# 95-000250	25 per bag
Handset Cable	# 79-008995	1
Clip Fixture	# 58-000257	1
Installation Kit	# 95-000514	1

ACS
ALCOHOL COUNTERMEASURE SYSTEMS

TS-ENG-60-000562-B