amber connect
Experience Telematics AI

Quick Start Guide

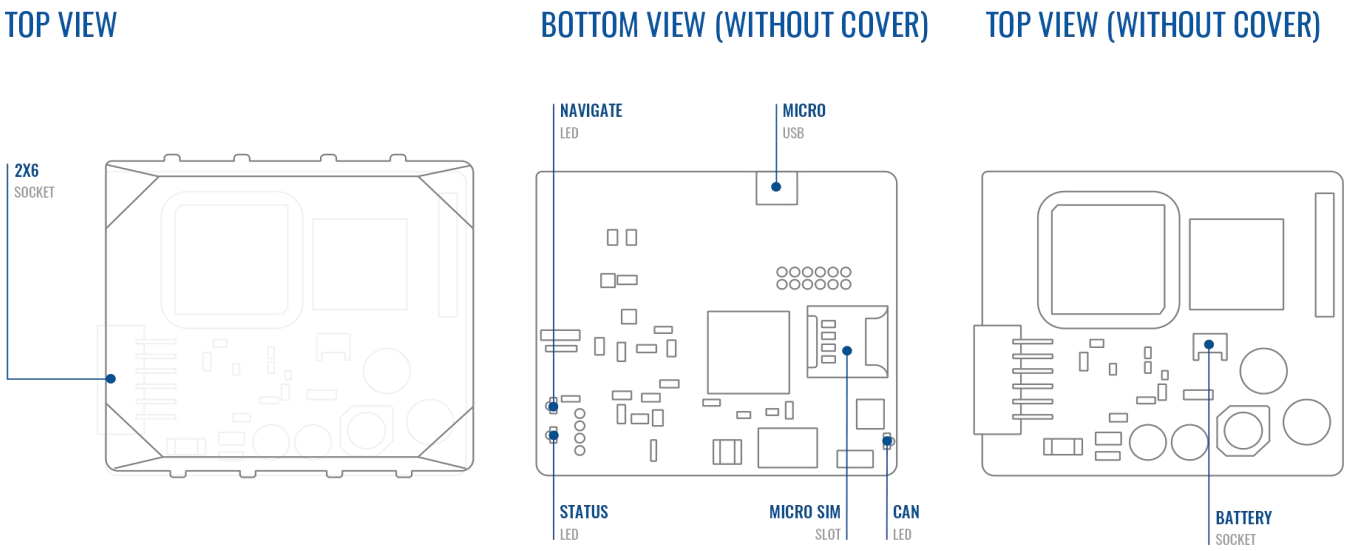
AIT400
Amber Insight T400
Multifunctional LTE TRACKER

1 Install Your device

2 Download Amber Connect App

3 Activate the device

Know your device



AIT400 Device view

Pinout

AIT400-QJIB0 pinout

Pin number	Pin name	Description
1	VCC (10-30) V DC (+)	Power supply (+10-30 V DC).
2	DIN 3 / AIN 2	Digital input, channel 3 / Analog input, channel 2, Input range: 0-30 V DC
3	DIN2-N / AIN1	Digital output, channel 3 with ground sense / Analog input, channel 1. Input range: 0-30 V DC
4	DIN1	Digital input, channel 1.
5	CAN2L	CAN LOW, 2nd line
6	CAN1L	CAN LOW, 1st line
7	GND (-)	Ground pin. (10-30) V DC (—)
8	DOUT 1	Digital output, channel 1. Open collector output. Max. 3,3 A DC.
9	DOUT 2	Digital output, channel 2. Open collector output. Max. 3,3 A DC.
10	1WIRE DATA	Data for 1–Wire devices.
11	CAN2H	CAN HIGH, 2nd line
12	CAN1H	CAN HIGH, 1st line

AIT400-QKIB0 pinout

Pin number	Pin name	Description
1	VCC (10-30) V DC (+)	Power supply (+10-30 V DC).
2	DIN2/ AIN1	Digital input, channel 2 / Analog input, channel 1, Input range: 0-30 V DC
3	DOUT3	Digital output, channel 3. Open collector output. Max 3,3 A DC.
4	DIN1	Digital input, channel 1.
5	CAN2L	CAN LOW, 2nd line
6	CAN1L	CAN LOW, 1st line
7	GND (-)	Ground pin. (10-30) V DC (—)
8	DOUT 1	Digital output, channel 1. Open collector output. Max. 3,3 A DC.
9	DOUT 2	Digital output, channel 2. Open collector output. Max. 3,3 A DC.
10	1WIRE DATA	Data for 1–Wire devices.
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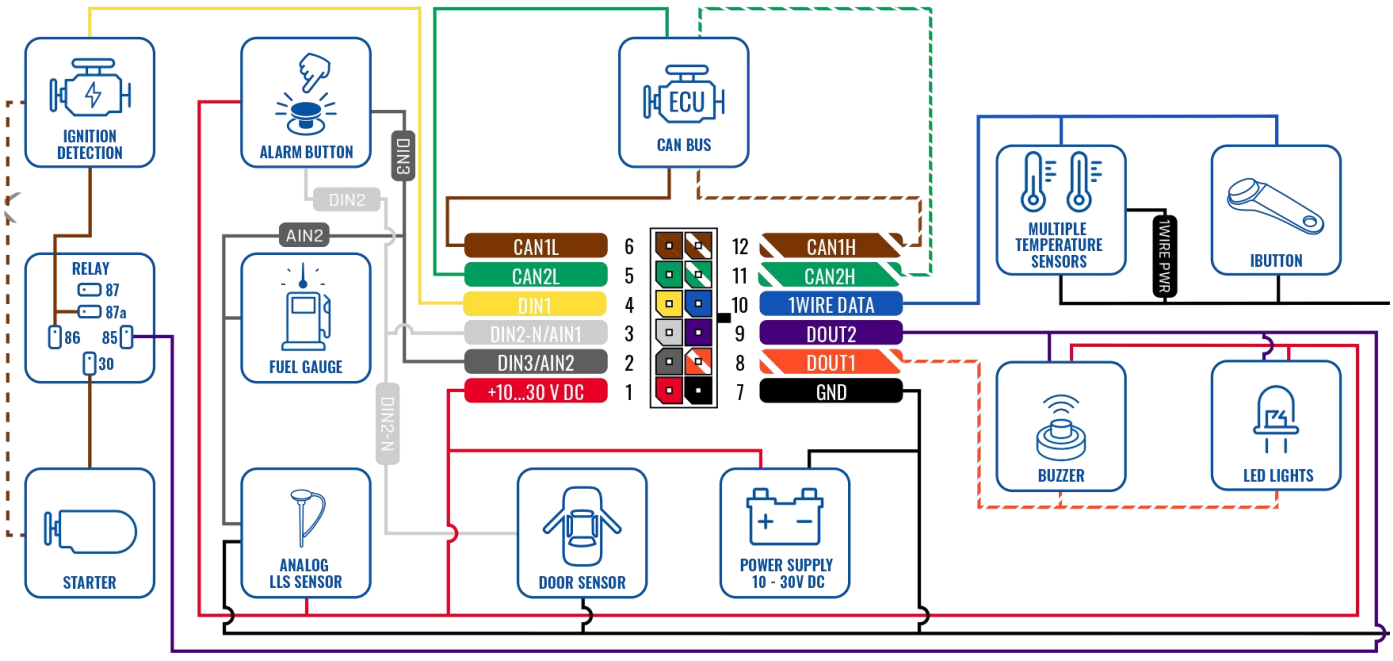
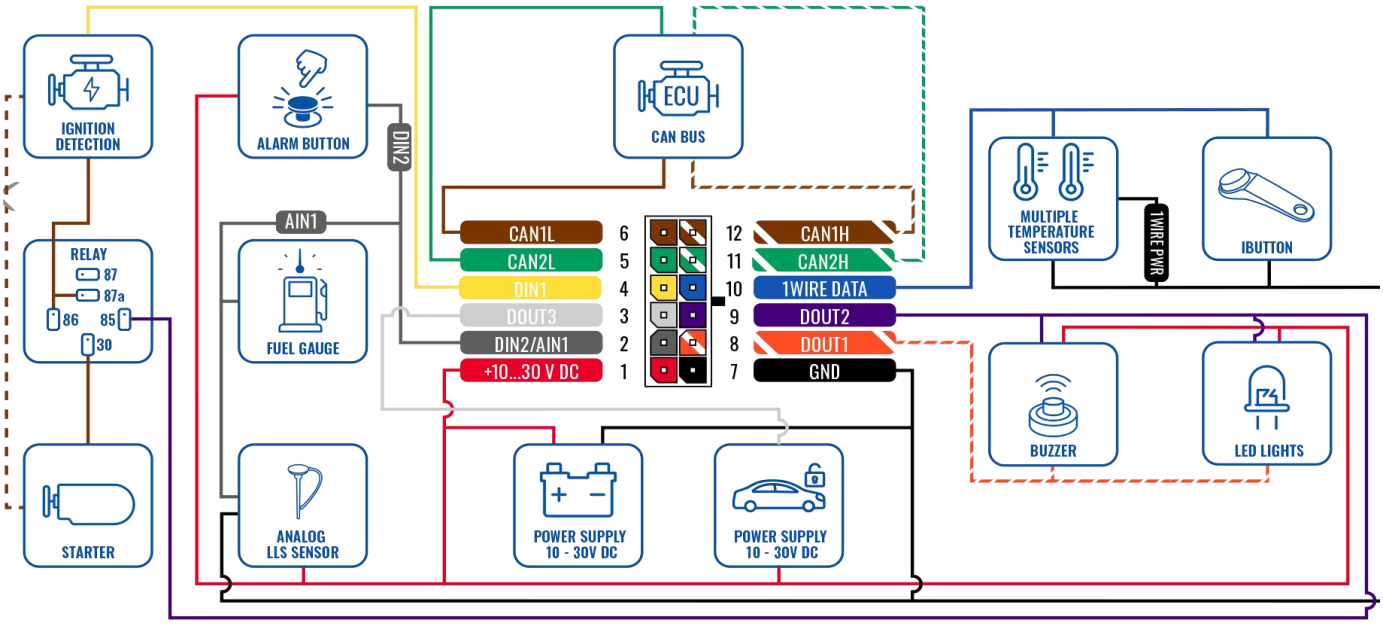
AIT400-QJIB0 WIRING SCHEME

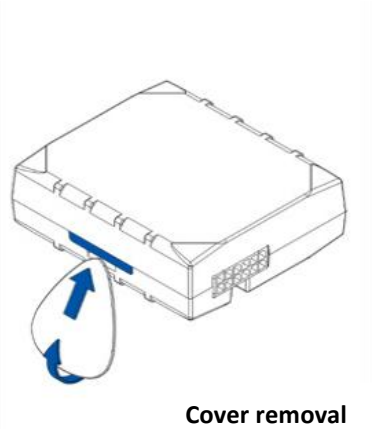


AIT400-QKIB0 WIRING SCHEME

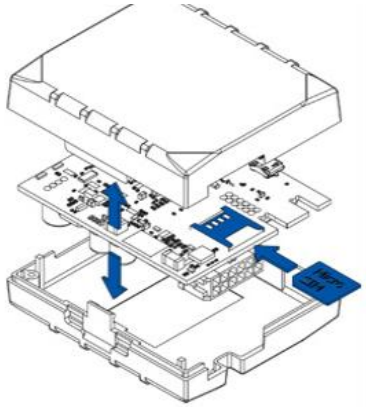


Set up your device

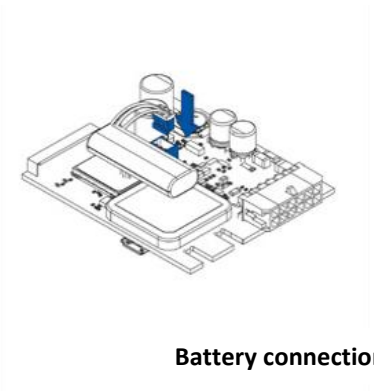
How to insert the Micro-SIM card and connect the internal battery.



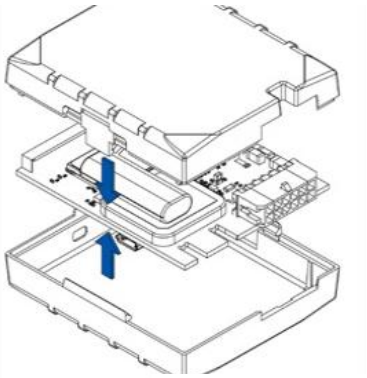
Cover removal



Micro-SIM card insert



Battery connection



Attaching cover back

1. Please use a plastic pry tool to gently remove the cover from both sides of the **AIT400**.
2. Insert the **Micro-SIM card** as shown, with the PIN request disabled. Alternatively, read our Wiki to learn how to enter it later in **Amber Configurator**. Please ensure that the **Micro-SIM** card's cut-off corner is facing forward towards the slot.
3. Make sure to connect the battery to the device according to the shown orientation. Avoid placing the battery in a way that obstructs other components.
4. After completing the configuration, please refer to the **"PC Connection (Windows)"** section of the instructions and reattach the device cover.

Mounting recommendations

- ## Connecting wires
  1. To prevent any damage or movement, never attach wiring to any moving parts of the vehicle.
  2. The wire connections should be concealed during fitment and ensure the factory insulation is reapplied after opening the wiring harness.
  3. If the fitment is done on the outside of the vehicle, please ensure additional insulation is being used to protect the wiring from heat or any other damage.
  4. Avoid connecting any wiring to the vehicle's computer box or control units

- ## Connecting power source
  1. Be sure that after the car computer goes into sleep mode, the power is still available on the power wires. Depending on the car model, this may happen in a 5 to 30-minute period.
  2. When the module is connected, measure the voltage again to make sure it does not decrease.
  3. It is recommended to connect to the main power cable in the fuse box.
  4. 3 A, 125 V external fuse shall be used.
- ## Connecting ignition wire
  1. Be sure to check if it is a real ignition wire, i.e. power does not disappear after starting the engine.
  2. Check if this is not an ACC wire (when the key is in the first position, most of the vehicle electronics are available).
  3. Check if there is still power when switching on the vehicle accessories, for example, the air conditioning and vehicle lights.
  4. The ignition is connected to the ignition relay output. As an alternative, any other relay, that has power output when ignition is on, may be chosen.
- ## Connecting ground wire
  1. The ground wire can be connected to any metal part on the body of the vehicle.
  2. The ground wire can be connected with a bolt and nut to the body of the vehicle.
  3. For better contact scrub paint from the spot where the terminal is going to be connected.

LED indications

Navigation LED indications

Behaviour	Meaning
Permanently switched on	GNSS signal is not received
Flashing every second	Normal mode, GNSS is working
Off	GNSS is turned off because the device is not working, or the device is in sleep mode
Flashing fast constantly	Device firmware is being flashed

Status LED indications

Behaviour	Meaning
Flashing every second	Normal mode
Flashing every two seconds	Sleep mode
Flashing fast for a short time	Modem activity
Off	The device is not working, or the device is in reboot mode

Can Status LED indications

Behaviour	Meaning
Flashing fast constantly	Reading CAN data from the vehicle
Permanently switched on	Wrong program number or wrong wire connection
Off	Wrong connection or CAN processor in sleep mode

Characteristics

Basic characteristics

Module	
Name	AIT400
Technology	GSM, GPRS, GNSS, BLUETOOTH® LE, LTE

GNSS	
GNSS	GPS, GLONASS, GALILEO, BEIDOU, QZSS, AGPS
Receiver	Tracking: 33
Tracking sensitivity	165 dBM
Accuracy	< 3 m
Hot start	< 1 s
Warm start	< 25 s
Cold start	< 35 s

Cellular	
GSM	LTE Cat 1, GSM
2G bands	AIT400-QJIB0: GSM: B2/B3/B5/B8 AIT400-QKIB0: GSM: B2/B3/B5/B8
4G bands	AIT400-QJIB0: LTE FDD: B1/B3/B5/B7/B8/B20/B28 AIT400-QKIB0: LTE FDD: B2/B3/B4/B5/B7/B8/B28/B66
Data transfer	LTE: LTE FDD : Max 10Mbps (DL)/Max 5Mbps (UL) GSM: GPRS: Max 85.6Kbps (DL)/ Max 85.6Kbps (UL)
Data support	SMS (text/data)
Transmit power	Class 5 for GSM900: 36dBm Class 3 for DCS1800: 33dBm Class 3 for LTE-FDD: 25.7dBm Bluetooth®: 5.56dBm Bluetooth® LE: -3.17dBm

Power	
Input voltage range	10-30 V DC with overvoltage protection
Back-up battery	170 mAh Li-Ion battery 3.7 V (0.63 Wh)
Internal fuse	3 A, 125 V

Power consumption	At 12V < 6 mA (Ultra Deep Sleep) At 12V < 8 mA (Deep Sleep) At 12V < 11 mA (Online Deep Sleep) At 12V < 20 mA (GPS Sleep) At 12V < 35 mA (nominal with no load) At 12V < 1.5 A Max. (with full Load / Peak)
Bluetooth	
Specification	4.0 + LE
Supported peripherals	Temperature and Humidity sensor2, Headset3, OBDII dongle4, Inateck Barcode Scanner, Universal Bluetooth® LE sensors support
Interface	
Digital Inputs	AIT400-QJIB0: 3 AIT400-QKIB0: 2
Negative Inputs	AIT400-QJIB0: 1 (Digital Input 2) AIT400-QKIB0: -
Impuls Inputs	AIT400-QJIB0: 2 (Digital Input 1, Digital Input 2) AIT400-QKIB0: 1 (Digital Input 1)
Digital Outputs	AIT400-QJIBO: 2 AIT400-QKIBO: 3
Analog Inputs	AIT400-QJIB0: 2 AIT400-QKIB0: 1
CAN interfaces	2
1-Wire	1 (1-Wire data)
GNSS antenna	Internal High Gain
GSM antenna	Internal High Gain
USB	2.0 Micro-USB
LED indication	3 status LED lights
SIM	Micro-SIM + eSIM
Memory	128MB internal flash memory
Physical specification	
Dimensions	65 x 56.6 x 20.6 mm (L x W x H)
Weight	55 g

Operating environment	
Operating temperature (without battery)	-40 °C to +85 °C
Storage temperature (without battery)	-40 °C to +85 °C
Operating temperature (with battery)	-20 °C to +40 °C
Storage temperature (without battery)	-20 °C to +45 °C for 1 month -20 °C to +35 °C for 6 months
Operating humidity	5% to 95% non-condensing
Ingress Protection Rating	IP41
Battery charge temperature	0 °C to +45 °C
Battery discharge temperature	-20 °C to +60 °C
Battery storage temperature	-20 °C to +45 °C for 1 month -20 °C to +35 °C for 6 months
Features	
CAN Data	Fuel Level (Dashboard), Total fuel consumption, Vehicle speed (wheel), Vehicle driven distance, Engine speed (RPM), Accelerator pedal position
Sensors	Accelerometer
Scenarios	Green Driving, Over Speeding detection, Jamming detection, GNSS Fuel Counter, DOUT Control Via Call, Excessive Idling detection, Immobilizer, iButton Read Notification, Unplug detection, Towing detection, Crash

	detection, Auto Geofence, Manual Geofence, Trip
Sleep modes	GPS Sleep, Online Deep Sleep, Deep Sleep, Ultra Deep Sleep
Configuration and firmware update	FOTA Web, FOTA, Amber Configurator (USB, Bluetooth), FMBT mobile application (Configuration)
SMS	Configuration, Events, DOUT control, Debug
GPRS commands	Configuration, DOUT control, Debug
Time Synchronization	GPS, NITZ, NTP
Ignition detection	Digital Input 1, Accelerometer, External Power Voltage, Engine

Electrical characteristics

Characteristic description	Value			
	Min.	Typ.	Max.	Unit
Supply Voltage				
Supply Voltage (Recommended Operating Conditions)	+10		+30	V
Digital Output (Open Drain grade)				
Drain current (Digital Output OFF)			120	µA
Drain current (Digital Output ON, Recommended Operating Conditions)		0.1	0.5	A
Static Drain-Source resistance (Digital Output ON)		400	600	mΩ
Digital Input				
Input resistance (DIN1)	47			kΩ
Input resistance (DIN2)	38.45			kΩ
Input resistance (DIN3)	150			kΩ
Input voltage (Recommended Operating Conditions)	0		Supply voltage	V
Input Voltage threshold (DIN1)		7.5		V
Input Voltage threshold (DIN2)		2.5		V
Input Voltage threshold (DIN3)		2.5		V

Output Supply Voltage 1-Wire				
Supply voltage	+4.5		+4.7	V
Output inner resistance		7		Ω
Output current (U_{out} > 3.0 V)		30		mA
Short circuit current (U_{out} = 0)		75		mA

NEGATIVE INPUT				
Input resistance	38.45			kΩ
Input voltage (Recommended Operating Conditions)	0		Supply voltage	V
Input voltage threshold		0.5		V
Sink current			180	nA
CAN Interface				
Internal terminal resistors CAN bus (no				Ω

internal termination resistors)				
Differential input resistance	19	30	52	kΩ
Recessive output voltage	2	2.5	3	V
Differential receiver threshold voltage	0.5	0.7	0.9	V
Common mode input voltage	-30		30	V

Safety information

This message contains information on how to operate AIT400 safely. By following these requirements and recommendations, you will avoid dangerous situations. You must read these instructions carefully and follow them strictly before operating the device!

- The device uses SELV limited power source. The nominal voltage is +12 V DC. The allowed voltage range is +10...+30 V DC.
- To avoid mechanical damage, it is advised to transport the device in an impact-proof package. Before usage, the device should be placed so that its LED indicators are visible. They show the status of the device's operation.
- When connecting the 2x6 connector wires to the vehicle, the appropriate jumpers of the vehicle power supply should be disconnected.
- Before un-mounting the device from the vehicle, the 2x6 connector must be disconnected. The device is designed to be mounted in a zone of limited access, which is inaccessible to the operator. All related devices must meet the requirements of EN 62368-1 standard.
- The device AIT400 is not designed as a navigational device for boats.

Do not disassemble the device. If the device is damaged, the power supply cables are not isolated or the isolation is damaged, DO NOT touch the device before unplugging the power supply.

All wireless data transferring devices produce interference that may affect other devices that are placed nearby.

The device must be connected only by qualified personnel.

The device must be firmly fastened in a predefined location.

The programming must be performed using a PC with an autonomic power supply.

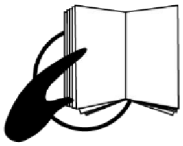
Installation and/or handling during a lightning storm is prohibited.

The device is susceptible to water and humidity.

CAUTION: Risk of explosion if the battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

Battery should not be disposed of with general household waste. Bring damaged or worn-out batteries to your local recycling center or dispose of them in the battery recycle bin found in stores.

Certification and Approvals



This sign on the package means that it is necessary to read the User‘s Manual before your start using the device. Full User‘s Manual version can be found in our Wiki.

Hereby, Amber declares under our sole responsibility that the above-described product conforms with the relevant Community harmonization: European Directive 2014/53/EU (RED).

UK Conformity Assessed (UKCA) marking is a conformity mark that indicates conformity with the applicable requirements for above described products sold within Great Britain.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc., and any use of such marks by UAB Amber Telematics is under license. Other trademarks and trade names are those of their respective owners.

The RoHS1 is a directive regulating the manufacture, import, and distribution of Electronics and Electrical Equipment (EEE) within the EU, which bans from use of 10 different hazardous materials (to date).

This sign on the package means that all used electronic and electric equipment should not be mixed with general household waste.

E-Mark and e-Mark are the European conformity marks issued by the transport sector, indicating that the products comply with relevant laws and regulations or directives. Vehicles and related products need to go through the E-Mark certification process to be legally sold in Europe.

Warranty

We guarantee our products 24-month warranty1 period.
All batteries carry a 6-month warranty period.
Post-warranty repair service for products is not provided.
If a product stops operating within this specific warranty time, the product can be:

- Repaired
- Replaced with a new product
- Replaced with an equivalent repaired product fulfilling the same functionality
- Amber can also repair products that are out of warranty at an agreed cost.

Warranty Disclaimer

- Customers are only allowed to return products because of the product being defective, due to order assembly, or manufacturing fault.
- Products are intended to be used by personnel with training and experience.
- Warranty does not cover defects or malfunctions caused by accidents, misuse, abuse, catastrophes, improper maintenance, or inadequate installation – not following operating instructions (including failure to heed warnings) or use with equipment with which it is not intended to be used.
- The warranty does not apply to any consequential damages.
- The warranty is not applicable for supplementary product equipment (e.g. PSU, power cables, antennas) unless the accessory is defective on arrival.

Need help? Contact 24/7 live support!

In App Chat | support@amberconnect.com | Chat via website www.amberconnect.com

Works with Android phones and tablets, iPhone, iPad.
Compatible with Chrome, Mac and PC web browsers.

Download on the App Store

Get it on Google play

Scan this QR code to download your App

Amber Connect