

THE APPEAL OF “ALL-INCLUSIVE”

After comparing the most common group intercoms on the market (Motociclismo 05/2017), now we’re bringing you the announced test of four of the most well-known integrated intercom systems, housed in as many well-known touring helmets (LS2, Nolan, Schuberth, Shark). Once again, audio quality is at the heart of our test, which we carried out with a wind-tunnel test.

Last time, we tested the best universal intercom systems, which can be used with any helmet on the market. We promised that we’d test integrated versions that, on paper, offer various advantages: they’ve no control units and unwieldy external aerials, they’re made to fit perfectly into our specific model of helmet (normally they come with bigger speakers compared with universal models, which only offer them as options), they leave a clean, elegant line and there’s no need to remove them from the helmet when it’s left with a parked bike. They all allow communication between rider and pillion as well as from bike to bike. Compared with manufacturers of universal intercoms, manufacturers of helmets can accurately measure how their intercom behaves with their model of helmet and can create moulds for the helmet interior with made-to-measure cut-outs for the various components. Even the total weight is slightly lower compared with universal models. The downside for the end user is that it’s impossible to use these integrated intercoms on a different brand of helmet (if you’re faithful to a particular brand of helmet, the intercom usually works with several models).

As part of the first (sophisticated) wind-tunnel test, we also analysed the four models of helmet with integrated intercom discussed here. The Shark Evo One helmet we tested uses Interphone, which has the simplest and less advanced system, called Sharktooth. The technology it uses is some years old, with limited multimedia functionality, but you can understand the reason: it’s only meant to be used for communication between rider and pillion or to be connected to a mobile phone and satnav. For example, to turn it on and to be connected over intercom, you only need to press and hold the central button twice. Overall, it’s missing FM radio and the potential to be connected to other brands of intercom. LS2 and Schuberth use SENA as their supplier. Here, we don’t have an intercom as well developed as the latest top of the range SENA (the 20S that we tested last time), but we do have systems that are decidedly more advanced, even if there are differences. The Linkin Ride Pal II applied to the LS2 Metro is more basic and is aimed at providing easy rider-pillion communication. You turn it on by pressing two buttons together, then you press the centre button and you’re connected. The system used in the Schuberth C3, the SC10U we tested, and also the SC1, that is used in the C4, its successor, has almost all the characteristics of latest generation intercoms, but it’s slower to use.

Taking the usual example, to turn it on and get connected, you need to open the visor, press the “+” and “-” buttons together for a second, then press the “-” button on its own for a second and tap the “-” button again. The buttons are on the outside on the Schubert C4 but the procedure remains the same. Nolan, instead, is totally different: it’s the only manufacturer in the world to design and build both helmet and communication system in-house. We tested the top of the range B5L, that’s also available as an external and universal intercom for all helmets (under the name M5). The technology used in this is on a par with the best universal intercoms on the market. Doing the switch on and connection test again, you don’t even need to press a button to turn it on, because it starts automatically when the helmet moves (and it switches off only when the helmet is still for any length of time). Tap the central key and you’re connected. This auto on-off function can be deactivated by turning off the intercom using the OFF button. When the system’s turned back on, the auto function starts again, but it’d be useful to be able to deactivate it completely.

Nolan

N104 Absolute + N-COM B5L

Price helmet + intercom: from €629.99

Price intercom: from €279.99

OFFICIAL DATA

- **MATERIALS** Lexan Polycarbonate (2 sizes)
- **CLOSURE** Micrometric
- **SIZES** From XXS to 3XL
- **FUNCTIONS** Intercom for up to 6 users, remote control app, Auto ON-OFF, universal intercom, FM radio, A2DP-AVRCP, Bluetooth 4.1, background noise reduction, voice commands, speed dial, share music-calls-satnav commands with pillion, LED light for emergency braking.

The N104 Absolute helmet has been substituted by the new N100-5 flip up helmet for 2018, and the N-Com B5L system with the new B901 range that is described as having better performance compared with previous systems: new conference functions (Smart Conference and Universal Conference), A2DP music sharing, Vox, voice response, new, dedicated EASYSET app (for both Android and iOS), new EASYSET management program (for both Windows and Mac).

KEY DATA

- **RANGE** (in real conditions) 190 m
- **BATTERY LIFE** 21 h
- **INTERCOM WEIGHT** 128 g
- **TOTAL HELMET WEIGHT** size M 1,805 g, size L 1,835 g

OUR RATINGS

- **AUDIO QUALITY** ●●●●◐
- **FUNCTIONALITY** ●●●●○
- **EASE OF USE** ●●●●◐
- **BATTERY LIFE** ●●●●●

POSITIVES

An app that acts as a remote control

NEGATIVES

Range

Nolan
N104 Absolute
+ N-COM B5L

Price helmet + intercom: from €629.99

Price intercom: from €279.99

POWER CONTROLLED BY ACCELEROMETER

It's the most evolved and complete system, and it guarantees excellent audio quality. The battery also has a much greater life. The commands are intuitive, but in this case, we also have a smartphone app that acts as a remote control that can manage all the system's functions. The auto-off function after a period of inactivity is convenient; the system turns itself back on again as soon as the helmet is moved (thanks to the internal accelerometer). This means there's no need to worry about turning the system off to save battery, but it would be useful to be able to deactivate this function in certain situations (like a car's start/stop function). The only other thing is that not everything is integrated into the helmet's lining, but the main defect is that its range isn't as good as the others.

THE ADDITIONAL DETAIL: THE BRAKE LIGHT

The powerful rear red LED is activated during emergency braking, thanks to an internal accelerometer; the system's sensitivity can be adjusted. The control panel is on the helmet's exterior, but it's extremely thin and compact. The system is fitted with a classic gooseneck microphone on the left side. All the components are installed with precise interlocking systems, apart from the rear light, which is stuck on. Be careful if you want to remove the system, because the flat connecting cables are delicate.

LS2

Metro FF324

+ Linkin Ride Pal II

Price helmet + intercom: from €358

Price intercom: from €149

OFFICIAL DATA

- **MATERIALS** Polycarbonate (3 sizes)
- **CLOSURE** Micrometric
- **SIZES** From XXS to 3XL
- **FUNCTIONS** Intercom mode for up to 4 users, pairing with two Bluetooth devices, music sharing, A2DP, Bluetooth 3.0, universal intercom, speed dial, FM radio (also in the background during intercom conversations), background noise reduction, voice controls.

KEY DATA

- **RANGE** 510 m
- **BATTERY LIFE** 11 h 30 mins
- **INTERCOM WEIGHT** 92 g
- **TOTAL HELMET WEIGHT** size M 1,715 g, size L 1,726 g

OUR RATINGS

- **AUDIO QUALITY** ●●●○○
- **FUNCTIONALITY** ●●●●○
- **EASE OF USE** ●●●○○
- **BATTERY LIFE** ●●●○○

POSITIVES

Completely integrated into the helmet

NEGATIVES

No app

LS2

Metro FF324

+ Linkin Ride Pal II

Price helmet + intercom: from €358

Price intercom: from €149

GOOD THINGS COME IN FOURS

Manufactured by SENA, it has all the functionality of the SMH10R and SMH5 models, which are not top of the range. All things considered, all that's missing is being able to listen to satnav instructions from your smartphone whilst you're talking on the intercom. It's easy to pair with devices from the same manufacturer for group communication (up to 4 users). It's quick and easy to start the device and talk to the pillion (press the centre button), for all other functions, you need to have a good memory to remember all the combinations of pressing and holding the various buttons (better to keep the user manual to hand, as for all SENA products). The real downside is the lack of a smartphone app to manage all the functions, which are advanced but not intuitive to use.

KEEPING EVERYTHING INSIDE!

The most important characteristics are the voice controls that are integrated perfectly into the strap padding, the helmet design remains unaltered, all components are completely flush. Everything is controlled with the three buttons, but these are situated on the right and it's a bit of a pain having to reach them with your left hand when you're on the move. Classic gooseneck microphone, the power/PC connection socket is contained within the helmet.

Schuberth

C3 PRO

+ SC10U

Price helmet + intercom: from €788

Price intercom: from €239

OFFICIAL DATA

- **MATERIALS** Fibreglass
- **CLOSURE** Micrometric
- **SIZES** From XS to XXL
- **FUNCTIONS** Intercom for up to 4 users, voice controls, pairing with two Bluetooth devices, music sharing, A2DP and AVRCP, Bluetooth 4.1, universal intercom, speed dial, FM radio (also in the background during intercom conversation), background noise reduction, SENA app to control settings, external audio input to reduce background noise, optional handlebar remote control.

KEY DATA

- **RANGE** (in real conditions) 480 m
- **BATTERY LIFE** 14 h 45 mins
- **INTERCOM WEIGHT** 90 g
- **TOTAL HELMET WEIGHT** size M 1,650 g, size L 1,633 g

OUR RATINGS

- **AUDIO QUALITY** ●●●○○
- **FUNCTIONALITY** ●●●●○
- **EASE OF USE** ●●◐○○
- **BATTERY LIFE** ●●●●○

POSITIVES

Extremely compact microphone

NEGATIVES

Controls contained within the visor

Schuberth

C3 PRO

+ SC10U

Price helmet + intercom: from €788

Price intercom: from €239

FUNCTIONS MANAGED VIA APP

This is also manufactured by SENA, it's more advanced than the Linkin, which fits the LS2, but not at the level as SENA's top-of-the-range 20S. The Bluetooth 4.1 system ensures a more efficient connection, especially when trying to conserve the power of connected devices (and the batteries last longer). Otherwise, we have the classic (and complicated) SENA interface to manage the many, very advanced functions. Turning it on and connecting it to a second helmet isn't as simple as with the LS2's Linkin. You may find it easier to use the optional handlebar control, because, to use the buttons, you need to have the visor or chin-guard open (or just use the voice control for some functions, like answering a call). The SENA app enables you to easily set and manage all the functions, but it's not a proper remote control. You can't hear smartphone satnav instructions during intercom conversations.

We also had the opportunity to test the new C4, equipped with the SC1 system, but we only had one C4 helmet available. This helmet comes with integrated speakers, microphone and aerial as standard. You've got to buy the battery and main unit separately, which click into place into the lower part of the helmet, like a camera's memory card. What strikes you the most is the absence of a "physical" microphone: it's integrated and hidden in the EPS. And it works well. In our test results, its audio quality was equal to that of the C3 PRO. The functions and controls are also identical, but the buttons are on the outside, at the neck, so they're more practical. You can buy a second battery, that you can swap for the original while you're out, and continue the conversation. Weight at size L is 1,742 g.

"HIDDEN" SYSTEM

Everything is integrated into the helmet's lines but the two control buttons are inside the visor: you have to open it every time, or use the optional remote control (which we strongly recommend, even if it's extra expense). The microphone is very compact, it never gets in the way when you open or close the helmet. The main unit with battery and aerial is hidden beneath the helmet's neck padding.

Shark

Evo One 2

+ Sharktooth

Price helmet + intercom: from €648.40

Price intercom: from €240.40

OFFICIAL DATA

- **MATERIALS** Thermoplastic resin (2 sizes)
- **CLOSURE** Micrometric
- **SIZES** From XS to XL
- **FUNCTIONS** Bluetooth intercom for 2 users, voice controls for answering calls, A2DP and AVRCP, background noise reduction, automatic volume, parallel audio with satnav in the background.

KEY DATA

- **RANGE** (in real conditions) 340 m
- **BATTERY LIFE** 13 h 30 mins
- **INTERCOM WEIGHT** 98 g
- **TOTAL HELMET WEIGHT** size M 1,725 g, size L 1,840 g

OUR RATINGS

- **AUDIO QUALITY** ●●●○○
- **FUNCTIONALITY** ●●◐○○
- **EASE OF USE** ●●●●○
- **BATTERY LIFE** ●●●◐○

POSITIVES

ease of connection

NEGATIVES

few functions

Shark

Evo One 2

+ Sharktooth

Price helmet + intercom: from €648.40

Price intercom: from €240.40

IMMEDIATE CONTROLS

Simple and functional. It has no great pretence regarding functionality, it's not as advanced as its competitors: there's no radio, no music sharing, no group communication with more than two users, no universal connection with other intercoms, no smartphone app. But what it does, it does very well. The audio quality is very good, and it's easy to switch on and connect with the second user. You can make up for the lack of radio by using your smartphone's radio. However, if you're listening to the instructions from your smartphone's satnav, you can't communicate with your pillion, while you can with a Bluetooth satnav.

MINIMAL STYLE

It's simple and efficient, more substance than style. Battery and aerial are inserted in the recess in the EPS shell, but they don't have a proper attachment system. The main unit – control panel is stuck to the side of the helmet, like a universal intercom, but it's not very big and doesn't get in the way. It's not easy to pass the cable under the lower collar of the padding. Flexible gooseneck microphone, without a channel in the cheek-piece.

THE PODIUM

NAME	SCORE
Nolan N104 Absolute + N-COM B5L	27
Schuberth C3 PRO + SC10U	19.5
Shark Evo One + Sharktooth	19

FINAL RATINGS

	LS2	NOLAN	SCHUBERTH	SHARK
AUDIO QUALITY	2.5	4.5	3	3
FUNCTIONALITY	3.5	4	4	2.5
EASE OF USE	2.5	4.5	2.5	4
BATTERY LIFE	3	5	4	3.5

OUR CALCULATIONS

Our final scores for each integrated intercom tested are made up of the total votes obtained under the rating headings, giving Audio Quality a value equivalent to the other three together. So, for a product that got 3 for Group Communication, 3 for Ease of Use, 3 for Battery Life and 3 for Audio Quality, the calculation would be $3+3+3+(3 \times 3)$.

GLOSSARY

A2DP-AVRCP – These are audio profiles through which a device (in this case a smartphone, tablet or MP3 player) can send a high-quality stereo signal through a Bluetooth channel (A2DP), and be remotely controlled (AVRCP, skip tracks, play-pause).

Parallel audio – During an intercom conversation, each member of the group can listen to another device in the background (music, radio, satnav). This is especially useful for listening to satnav instructions without interrupting the conversation each time.

Music sharing, satnav, calls – You can decide to share some of these functions with other members of the group, including a telephone call (normally with a range of 10 metres, therefore only with a pillion).

Voice commands – All the intercoms tested will accept voice commands. Normally, you press a button and say the command. You need to memorise the list of voice commands, which aren't customisable.

Universal intercom – All the intercoms tested can communicate with other makes and models.

Automatic volume – The control unit automatically regulates volume in response to background noise, so it turns it up at higher speed, and in windy conditions.