Integrated gear shifting with CAN

E-Shift is an integrated gear shifting solution for e-bikes by Bosch. For its development, Bosch collaborated with gear system manufacturers Fallbrook (Nu Vinci), Shimano, and SRAM.

Starting next year, E-Shift, the Bosch solution for automatic and integrated gear shifting, can be used with Nyon, Bosch’s e-bike board computer. For more efficient cycling, a gearshift recommendation appears on the display as user’s pedal away. The company will present the new model and its benefits at the Eurobike fair in Friedrichshafen, Germany from August 31 to September 4, 2016 (hall A6 booth 202).

For comfortable e-biking, users need to be able to shift gears comfortably, which is why Bosch e-bike Systems is integrating three gear shifting options with its Bosch e-bike drive system in technology partnership with Fallbrook, Shimano, and SRAM. What the solutions have in common is that the components are not only supplied with electricity and operated electronically but that a genuine data interchange takes place via a CAN network. This data interchange enables coordinated and optimized gear shifting and shows the gear or cadence that is currently in use on the Intuvia display. All three solutions are intuitive to use and enhance the biker’s comfort and safety, says Bosch.

Starting in 2017, automatic integrated E-Shift gear shifting will be available for speed pedelec e-bikers – in combination with Nu Vinci Cycling’s step-less, automatic Harmony H|Sync system. With the Nu Vinci H|Sync combined with the Bosch e-bike system, e-bikers can choose between automatic gear shifting based on their cadence and manual gear shifting with pre-set gears. An automatic mode can be set at the touch of a button on the Intuvia display. Cadences from 30 rotations per minute to 100 rotations per minute can be selected, with nine fixed settings in manual mode. The gear of choice can be set via the Bosch handlebar remote control. Changing gear in the usual way is then no longer required.
The integrated Shimano transmission solution consists of the manually operable electronic Di2 in combination with selected Alfine or Nexus gear hubs. The number of gears depends on the hub. If the e-biker comes to a halt at a set of traffic lights, the system shifts automatically into a predefined starting gear (auto downshift). So when bikers restart, they are automatically in the right gear, making it more comfortable to get going again. E-bikers can set the starting gear themselves or ask their dealer to set it for them. With its swift and dynamic gear shifting, the Di2 solution is aimed mainly at e-bikers who enjoy shifting gear in a sporting manner.

The integrated SRAM DD3 Pulse solution was originally designed to be fully automatic but it can also be operated manually in combination with the Dual Drive hub. Using the remote control, both the cassette and the Dual Drive’s hub gears can be shifted manually. When drivers come to a halt, the hub shifts down into first gear, enabling it to restart.