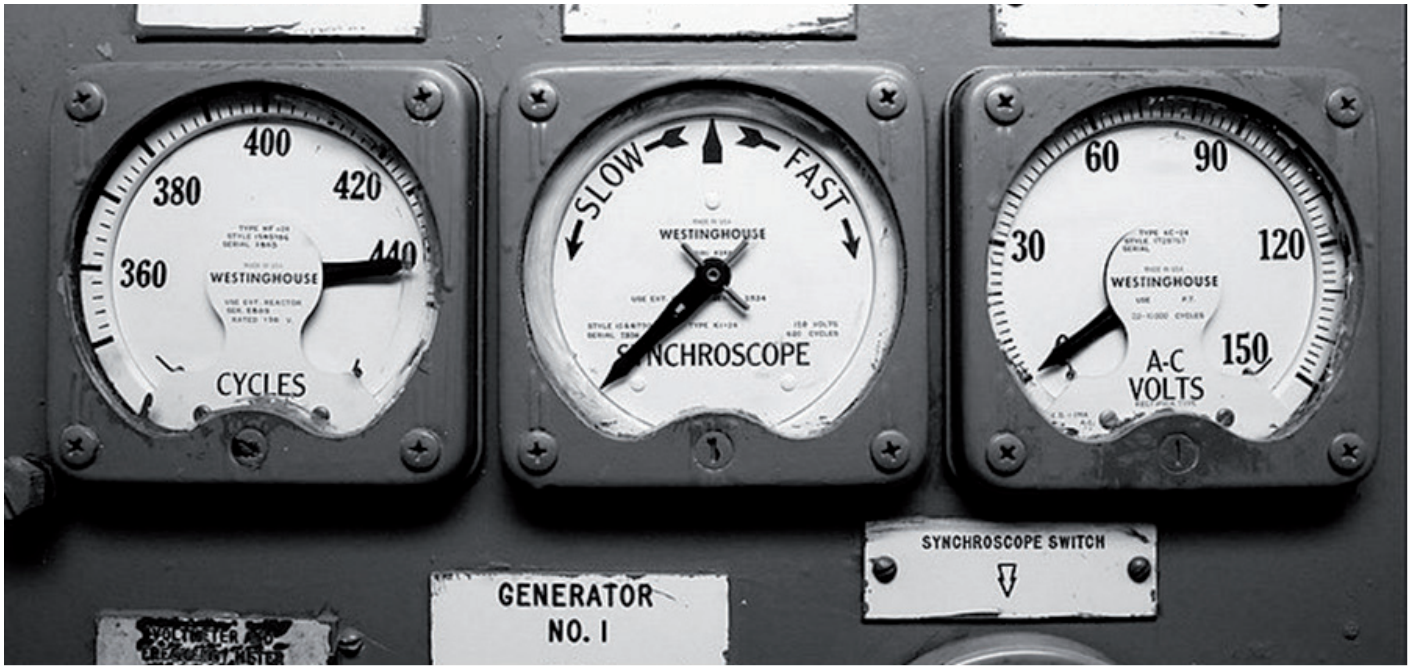
One device – multiple functions
Circuit breakers with built-in sync-check function



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You don't have to look very far to find an example of several devices being rolled into one. Your cell phone is probably the best example of marrying many functions that used to require separate devices into a single device. Think about all the things you use your cell phone for: address book, calculator, GPS, alarm clock, and so many more. All those devices you used to have to buy are now bundled into one. For most people, making calls is one of the least-often-used functions for their phone!

There aren't too many other examples of that level of convergence, but combined-function devices are all around you. If you have a printer at home, there's a good chance it's also a scanner and copier. If you still have a land-line phone, it probably has an answering machine built in. The benefits of device convergence are obvious: fewer things to buy, maintain, and take up space in your home or office.

There are also examples of this device convergence happening with electric equipment. Utilities and process and manufacturing facilities are increasingly adding intelligence to their systems, making it possible to remotely assess and diagnose the health of loads like motors or pumps, and of power control equipment like circuit breakers and transformers. Those sensors used to be bolt-on additions but are now typically integrated with the asset.

In switchgear and control panels, a recent example of device convergence is the combination of circuit breakers with synchronism-checking relays. Whether to synchronize sources in multiple-generator networks or between switchgear frames in multiple-source-switchgear applications.

Traditionally, synchronism required the use of external meters or relays to monitor two sources for proper phase angle, frequency, and voltage in order to ensure synchronism before closing tie circuit breakers. Now, at least in low voltage applications, the function of these devices can be built in to a power circuit breaker. ABB is currently the only manufacturer offering this device convergence, available in our ABB Emax 2 breaker combined with the Ekip Synchrocheck module.

Combining many devices in your cell phone means you don't have to buy and carry around a separate phone, calculator, GPS, alarm clock, etc. Including synchronism checking in a circuit breaker has some different, but still impressive, benefits.

Fewer external components: This simplifies the installation, reduces total installation space, and improves system reliability because you reduce the number of components and required wiring.

Cleaner, simpler switchgear: There are fewer door cutouts and less-confusing instrumentation on the face of your switchgear. Cleaner controls mean simpler, safer operation.

Reduced component count: For integrators and panel builders, there are fewer components to buy, stock, and install. Traditional sync-check relays need two potential transformers: one to monitor each side of the tie breaker. The Ekip Synchrocheck module needs only one, eliminating a transformer and the fuses and fuse blocks that protect it.

Reduced panel space: The reduction in the number of components required by the system allows equipment manufacturers to free up additional space on the mounting panel in the instrument compartment, further reducing the cost and footprint of the asset. This space saving combined with other features of the Emax 2 breaker enable panel builders to reduce switchboard sizes and material costs by as much as 25 percent[1].

The many benefits of combining multiple functions in a single device provide a compelling reason for device convergence. At home, at work ... and now in power control equipment like switchgear and panels ... the benefits are impressive. Where OEMs and panel builders need synchronizing capability, it makes a lot of sense to take a look at the benefits of selecting breakers that include the features of synchronizing relays.

References

[1] http://www.abb-conversations.com/2016/10/stop-building-the-brooklyn-bridge-into-your-switchgear/?_ga=1.93850964.852842433.1424183971

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