



# USB Type-C

The Universal “Swiss Army Knife”  
Interface for POS Systems

# Introduction

As retailers strive for smarter, more frictionless solutions to satisfy both their own and their customers' needs, the industry must constantly evolve to keep pace: from old-fashioned manual cash registers to smart computer-based point-of-sale (POS) systems, from handwritten receipts to automatic printed bills, from printed bills to e-receipts and from cash payments to contactless payment transactions.

The more efficient the solution, the better; retailers are on an endless quest to reduce their total cost of ownership while employing new and unique solutions to enhance shopping experiences and increase their revenue. Therefore, the IT infrastructure in stores is in constant transformation and technology plays a key role in preparing retailers for the future!

In recent years, consumer PC technologies and standards have become very common in POS solutions. Bulky, legacy POS systems including peripheral devices, such as displays and printers, are being replaced by smaller and more powerful devices with enhanced functionalities. For that reason, older connectors are being superseded by more modern interfaces with enhanced and universal functionalities. Without question, cables still remain an important part of today's retail store infrastructure, even though the digital world has gone wireless. The USB-C interface (officially known as USB Type-C) is a perfect example of how this interface evolution at the POS is taking place.

This white paper offers an in-depth explanation of a USB-C solution—from its look and design, to how it works and why your retail organization should consider employing POS systems with USB-C interfaces. You'll learn how Diebold Nixdorf's new, slim and extremely fast USB-C interface turns your POS system into an "enhanced productivity hub" by tidying up your checkout countertop, simplifying the cable complexity and reducing costs at the same time.



# USB-C Facts at a Glance: How You Benefit From USB-C

POS systems today have a wide array of different interfaces to allow the connection of diverse peripheral devices to the system. Typically, you'll find a selection of standard PC interfaces, such as COM ports, USB ports, audio connectors and interfaces to connect displays (DVI, VGA, etc.). In addition, many POS systems also have retail-specific interfaces like a cash drawer, PoweredUSB or our unique DN PanelLink2™ connector.

The new USB-C interface is a PC-standard interface that has the capability to replace everything I just listed—welcoming in a new era for your POS system and peripherals. Quite simply, USB-C can be the Swiss army knife in your retail arsenal.

USB-C offers a much better and easier way to connect a broad range of powered and non-powered devices. With its added reliability and cost reduction effects, it is bound to become the new standard not only for consumer electronics but also for POS systems and peripherals as well.

More of everything: **the USB-C interface does it all.**



Universal



Powerful



Reliable



Reduced TCO



### Maximum user-friendliness: the reversible connector

We've all had the experience of trying to plug a USB cable in upside down. With USB-C there is no wrong way anymore. The double-sided symmetrical connector is reversible, so you no longer have to flip the connector around looking for the right orientation. This same reversible connector is at both ends of the cable. The USB-C connector is designed for frictionless usage, ensuring you never plug in the cable incorrectly.



### Highest flexibility: one connector fits all

USB-C is an interface which allows you to connect nearly any device (e.g. USB thumb drive, display, scanner, mobile POS tablet, POS printer, etc.). The need to have an array of cables with different connectors—like micro/mini USB or video cables—is a thing of the past. Now, there is no need to have different interfaces to connect your peripheral devices. USB-C can replace them all! It also makes the setup and servicing of your systems much easier.



### Diverse protocols and backward compatibility

USB-C is very versatile. It works with nearly all market-relevant Linux and Windows operating systems without any special drivers, and is backwards compatible to older interfaces (e.g. USB-A or -B), even interfaces that do not use USB protocols (e.g. DisplayPort).



### Compact, future-ready and simple design

Due to the modern interface design, the extremely small connector doesn't require much space, which allows system designers to develop much thinner, more compact POS solutions. The fact that the interface has no pin connectors inside makes it virtually unbreakable and ideal for the retail market.



### High performance: extremely high data transfer rates

USB-C has much higher data transfer speeds (up to 10Gbps) than USB-A (up to 5Gbps). This allows you, for example, to backup store data more efficiently or connect an I/O hub with several peripheral devices attached running simultaneously.



### More pixels: enhanced functionality with video support

USB-C doesn't just replace legacy connectors like RS-232 or USB-A interfaces; it also replaces video connectors. For example, the DN USB-C implementation supports Full HD video resolutions and an alternative mode allows DisplayPort support.



### Power delivery: power your peripherals via the POS

USB-C is far more powerful than USB-A, which has just enough power to charge your smartphone. USB-C can supply peripheral devices with power up to 100W. This allows you to connect much more power-demanding peripherals such as POS printers, a second customer POS display, and additional I/O hubs or scanners and scales—all with just one cable. This eliminates the need for extra power supplies and reduces overall power consumption.



### Bi-directional use of power and data

USB-C is bi-directional, which means a device can receive and send data and power simultaneously. An I/O hub connected via USB-C can, for instance, charge the batteries of connected devices (e.g. wireless Bluetooth scanner or mobile POS tablet), and at the same time print and interact with a user via the touch display.

Quite simply, USB-C can be the Swiss army knife in your retail arsenal.



# The Future of USB-C in Retail

Since its introduction in 2014, USB-C has promised to be the connection of the future. Six years later, the future has arrived. USB-C has worked its way to the top of the wired world and is now available in all electronic devices, from low-budget to high-end products.

But will USB-C become the new standard interface in POS systems overnight? Likely not. The success story of USB-C in retail has only just begun, as the retail industry adapts to new technologies more slowly than the consumer electronic industry—primarily due to the fact that retailers have always been reluctant to exchange existing POS peripheral devices just because they buy a new POS system. The transition from legacy interfaces to USB-C will evolve over a period of several years.

**We have identified a 2-Phase USB-C implementation strategy to support retailers' diverse requirements:**



## **Prepare Existing POS Systems for the Upcoming USB-C Standard.**

DN BEETLE POS models released in 2018 and 2019 were equipped with a standard USB-C interface.

These systems are ready for the connection of peripheral devices with USB-C interfaces.



## **Launch New POS Systems and POS Displays with More Powerful USB-C Interfaces.**

With the introduction of the new DN Series™ BEETLE models and new displays in 2020, we have begun the second stage of our USB-C strategy. These new systems and touch displays are based on a common modular hardware platform consisting of interchangeable touch panels, display controllers, motherboards, I/O hubs and integrated peripherals. They are supported by standard-based system software and middleware, and smarter services to ensure a more seamless integration into your channel ecosystem.

In this phase, Diebold Nixdorf also provides adapter cables (e.g. USB-C to PUSB cable) for certain devices, such as the POS printer TH250. With these cables, you can continue to use your legacy device together with your new DN Series BEETLE.



The USB-C connector will eventually replace everything from the RS-232 to USB-A, PoweredUSB, PS/2, VGA, DVI, Ethernet, the 3.5 mm audio jack and even the cash drawer.

# The New Power Couple: DN Series BEETLE + USB-C

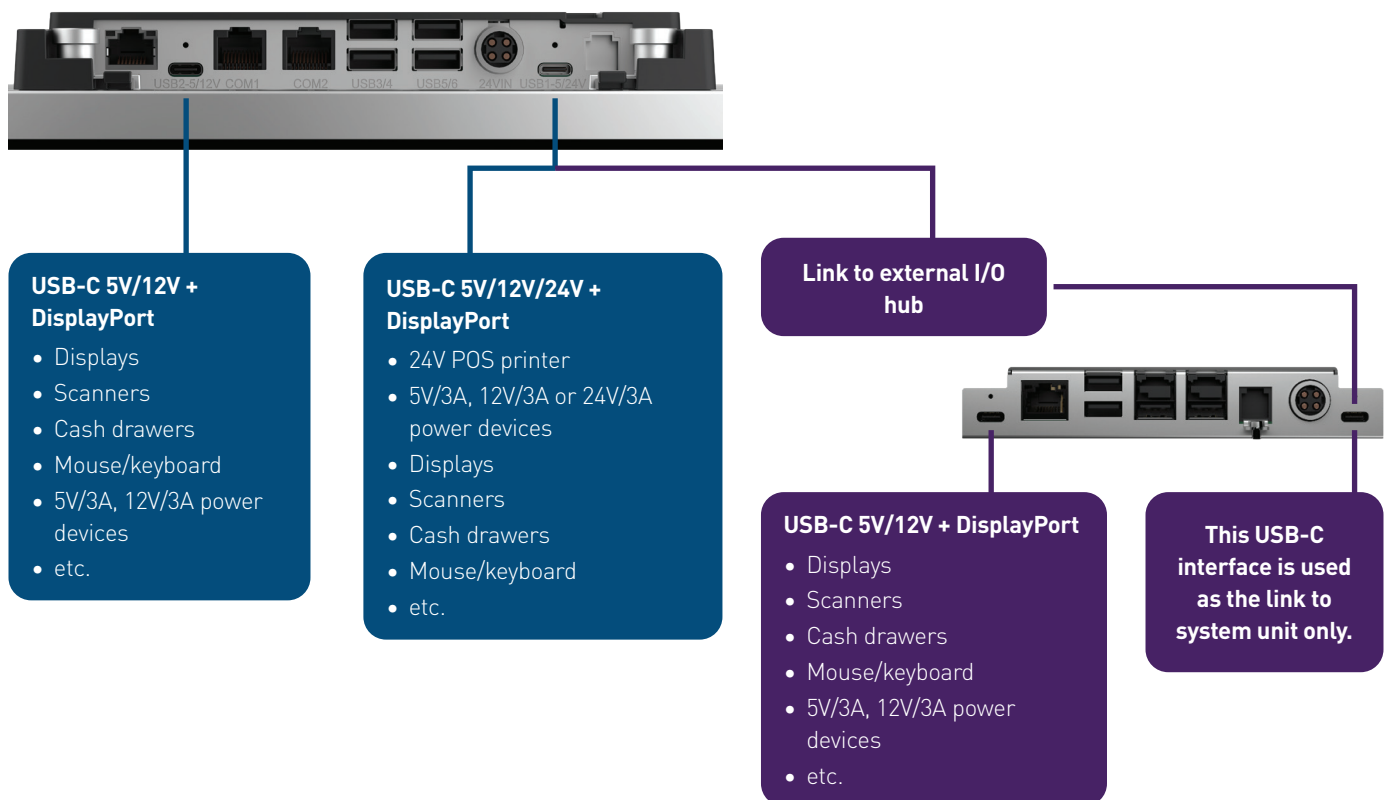
As one of the world's top POS manufacturers, our organization is committed to leading the industry in offering future-focused solutions that are innovative, efficient and safe. That philosophy applies to even the smallest components—which led us to create two varieties of USB-C interfaces. They can both be found on our modern and stylish DN Series BEETLE POS systems as well as an optional, external I/O hub.

Both USB-C interfaces supply 5V or 12V of power, support an alternate video mode (DisplayPort) and can be used to run a second display with just one cable. Of course, they can also be used to connect a wide range of other peripheral devices that don't require more than 12V. One of the USB-C interfaces can also supply 24V and is primarily used to connect the external I/O hub, a 24V POS printer, or other 24V peripherals with just one cable.

***This integrated, one-cable solution cleans and streamlines store countertops.***



## DN SERIES BEETLE CONNECTION CAPABILITIES



### DIEBOLD NIXDORF'S SMART USB-C IMPLEMENTATION POWERS YOUR 24V POS DEVICES

Normally, USB-C is restricted to a power delivery of 20V/5A (100W). Diebold Nixdorf's USB-C implementation offers the ability to connect 24V POS printers like the TH250 to new DN Series BEETLE models with just one single cable\* for power and data. This DN-specific smart USB-C interface implementation supports up to 24V/3A and can automatically detect if a 24V POS peripheral is connected to the interface. No additional power supply is needed. This smart interface is designed to reduce the overall power consumption, decrease potential error sources and increase system availability. Our smart USB-C solution complies with the USB standard and offers seamless integration with any other retail-specific or standard USB device.

The smart USB-C interface is clearly marked with "USB1-5/24V".



### SECURED USB-C INTERFACES UNDERLINE DIEBOLD NIXDORF'S RETAIL-HARDENED DESIGN PHILOSOPHY

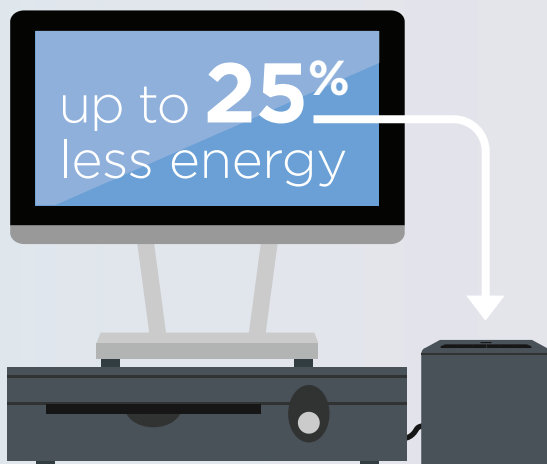
Retail installations cannot be compared to PC installations in offices. Retail environments are much harsher and demanding than many other environments. For decades, Diebold Nixdorf has been well-known for our retail-hardened design philosophy.

The USB-C interfaces of our POS systems and POS peripherals come with a threaded hole to secure the USB-C cable with a single locking thumbscrew. This serves as strain relief and prevents the USB-C cable from accidentally popping off the interface, increasing the availability of the overall configuration.



\* DN's USB-C to PUSB cable needed

### Did You Know?



A POS printer connected to a powered interface of the system consumes up to 25% less energy than the same printer running off a separate power supply.



### **OUR USB-C SOLUTION OPTIMIZES SERVICEABILITY AND REDUCES TCO**

Retail IT infrastructure usually consists of heterogeneous cables, which can cause headaches and frustration, and create unnecessary support calls.

In order to react quickly, retailers' IT departments often stock up on different cables, power supplies, adapters and other accessories.

Our USB-C solution dramatically reduces the need for heterogeneous cables, enabling a primarily homogenous cable environment that reduces setup time and minimizes service calls. In addition, your initial set-up investment costs are reduced, because USB-C eliminates the need for additional accessories like power supplies for printers, adapters, and cables. This reduced complexity ensures a fully optimized inventory. And with a smaller hardware budget, you can divert funds into other smart investments.

### ***The DN Series BEETLE reduces setup time and minimizes service calls***

It saves setup and installation time because you don't have to deal with diverse cables, connectors, and adapters. Moreover, the power delivery function eliminates the need for external power supplies. This makes the overall configuration more available. The IT team can be more productive.

### ***The DN Series BEETLE makes maintenance easier***

You benefit from more efficient manageability because you have a consistent USB-C cable landscape in your stores.

### ***The DN Series BEETLE optimizes your inventory***

As USB-C is as universal as a Swiss Army Knife, additional adapters, power supplies, and other accessories are not needed anymore. Due to that, you can optimize your unwanted and expensive inventory because you will only need USB-C cables to stock up.

Our smart USB-C solution complies with the USB standard and offers seamless integration with any other retail-specific or standard USB device.





# The Ongoing Evolution of Cables Leads to USB-C

Since its introduction in 2014, USB-C has promised to be **the connection of the future.**

The success of USB-C in retail has just begun. In today's retail environment, there are relatively few POS systems and peripheral devices currently installed that support USB-C, but that is rapidly changing.

As the benefits of USB-C become more clear, we expect to see more POS systems and peripherals with the new USB-C interface become available soon.

Subsequently, as more POS peripheral devices with USB-C support become available, POS systems and peripherals with legacy connectors will gradually fade away. The USB-C connector will eventually replace everything from the RS-232 to USB-A, PoweredUSB, PS/2, VGA, DVI, Ethernet, the 3.5 mm audio jack and even the cash drawer.

**We predict that over the next few years, USB-C will become the new interface standard for POS installations, on the road to fully wireless capabilities.**

## Benefits of Diebold Nixdorf's USB-C solution

- Known PC standard interface backed by important IT companies
- Compact interface and simple connectivity
- Multi-functional, designed to connect virtually any peripheral device
- Smart 24V USB-C implementation to connect the 24V POS printer
- Supplies peripherals with power
- Reduces power consumption
- Eliminates the need for external power supplies
- Reduces cable complexity
- Secured physical connection increases system availability
- Bi-directional combined with high data transfer rates
- Better serviceability and maintenance
- Backwards compatibility to certain legacy interfaces
- Cleaner countertops due to less cable complexity
- Future-proof interface and technology

Switch now to the new DN Series BEETLE, with USB-C interfaces that support the connection of future and legacy peripherals with ONE cable and cover MANY tasks. For more information, **visit [DieboldNixdorf.com/BEETLE](https://www.DieboldNixdorf.com/BEETLE).**



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To learn more, **visit [DieboldNixdorf.com](https://www.DieboldNixdorf.com).**