Enhance Sustainable Logistics with Automatic Data Capture

Growth in retail and logistics is creating strong demand for the sustainability of all supply-chain activities, with global parcel shipments expected to reach 220 billion in 2027. End applications such as machine vision, data capture scanning, asset tracking, and object dimensioning are central to addressing the eCommerce boom. Secure authentication and robust protection of these edge node devices is critical. In automatic data capture devices, ADI’s industry leading technology in depth sensing and fast battery charging enables the collection and management of logistics data quickly and securely, bringing unparalleled levels of automation into the field.

Improved Edge Node Authentication  
Sustainable Logistics  
Superior Battery Management  
Increased Warranty Protection

Input Power Prioritization

Battery Charging, Backup & Authentication

Optical, Inertial & Audio Interfaces

Battery Chargers
USB PD Controllers
Supercapacitor Chargers & Backups
Fuel Gauge & Authenticators

PowerPath Controller

WALL ADAPTER
USB CHARGER
WIRELESS CHARGER

SUPPLY 1
SUPPLY 2
SUPPLY 3

LTC4417 / LTC4418
LTC4450 / LTC4451

MAX77860
MAX77961
MAX17301

MAX17320
MAX38888

High-G Accelerometers
Barcode Illuminators
Micro-speaker Amplifiers
Time of Flight Object Dimensioning

ADXL372
ADXL373
MAX98390
ADTF3175

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Input Power Prioritization

Whether a hand-held device needs to be powered by a fast-charging USB cable, a wall adapter or a fixed charging cradle, ADI’s ideal diodes and power source prioritizers enable the most energy efficient and convenient options for supply and charge. The LTC4450/LTC4451 ideal diodes allow up to 12 A current with the lowest voltage dropout. For a prioritized input supply selection, the LTC4417/LTC4418 connects up to three valid power supplies to a common output based on priority and validity.

Battery Charging, Backup & Authentication

Removable batteries play a fundamental role in mobile computers and hand-held barcode scanners. The MAX77961/MAX77860 battery chargers are compatible with 1-cell and 2-cell batteries for maximum charging flexibility. Authentic batteries are safer and provide the best power performance. ADI’s portfolio includes industry leading battery authenticators (MAX17301 1-cell/MAX17320 multi-cell) with integrated fuel gauge and battery protection. While swapping out batteries on the fly, the MAX38888 reversible buck/boost regulator and the LTC4041 power manager with supercapacitor backup will keep the system running until a fresh battery pack is re-inserted.

Optical, Inertial & Audio Interfaces

Warehouses and logistic centers can be tough environments. Noise can compromise effective communications, moving machinery can cause objects to fall or be subject to accidental damage, while changing light levels requires excellent illumination for barcode scanners and displays. ADI’s innovative solutions help solve all of these problems. The MAX98390 audio amplifier with integrated Dynamic Speaker Management™ (DSM) enhances volume from the smallest speakers for maximum bass and clearer sound. The ADXL372/ADXL373 accelerometers can detect accidental falls at up to 400 G acceleration levels. The LT1618 boost converter helps illuminate barcodes and displays with up to 20 LEDs at once while providing programmable input/output current limits.

Box Dimensioning with Time of Flight (ToF)

The dimensions and weight of billions of parcels are measured each day while transiting through warehouses, trucks and couriers’ hands. Measuring tapes are slowing down the supply chain and distribution of goods, while fixed automatic measuring systems are expensive and limited to selected locations. ADI brings real-time parcel dimensioning in hand-held computers and scanners into the field with the ADTF3175 1 Megapixel time of flight module. Parcels are accurately measured with a single snapshot in an instant and then ready to go.

MAX17301 Battery Authenticator

- Industry leading fuel gauge accuracy
- Programmable safety and protection
- Dynamic power functionality

ADXL372 Impact Detection

- Ultra low power event monitoring
- ± 200g measurement range
- Interrupt driven wake-up and instant on modes

MAX98390 Audio Amplifier

- Integrated dynamic speaker management
- Programmable 10 V boost converter
- Patented active emissions limiting control circuitry

Box Dimensions with Time of Flight (ToF)

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<thead>
<tr>
<th>Dimension</th>
<th>Unit</th>
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<tbody>
<tr>
<td>Length</td>
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<tr>
<td>Width</td>
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</tr>
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 GOODS ARE PACKAGED IN BOXES THAT ARE 40% LARGER THAN THEY NEED TO BE LEADING TO INEFFICIENCIES & SUSTAINABILITY ISSUES

Check out the EVAL-ADTF3175 Time of Flight evaluation kit. A turnkey system to support rapid implementation of 3D ToF, showcasing the ADTF3175 module with ADI’s depth Image Signal Processor (ADSD3500)

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