DEWETRON

# PRODUCT GUIDE

## MEASUREMENT INSTRUMENTS & TECHNICAL DATA

THE MEASURABLE DIFFERENCE.

# PREFACE

In a world where being different isn't easy why would you shout that you ARE different?
Probably BECAUSE you are different.
Every business lays claim to Innovation. Ingenuity. Reliability. We do too.

Without these attributes you don't STAY in business. The DIFFERENCE is what you do with your Innovation, your Ingenuity and your Reliability.

DEWETRON Innovation is inspired by the real needs of real customers, not by the need to be featured on the cover of a tech publication.

DEWETRON Ingenuity is dedicated to making the world a safer place before making a world's greatest list.

DEWETRON Reliability starts and ends with real names, real voices, and real people behind the logo.

Our DEWE2 and DEWE3 series of hardware and OXYGEN Measurement Software measures and analyzes the visible and the invisible beyond normal hearing, seeing, tasting, touching or feeling, in every major industrial market.
ONE Data Acquisition System and ONE Data Analysis Software customized to the unique and dynamic needs of every customer and every application simply by changing the TRION series signal conditioners.

Effortlessly operate our Power Analyzers using the most advanced engineering technology known to humankind – the fingers.  Pinch, Zoom, Swipe and Configure our intuitive OXYGEN Software through the integrated touch screen.

That is evolution.

That is The Measurable Difference.

Klaus Quint
CEO

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# PORTFOLIO & SERVICES

## WHAT DO YOU NEED?

INSTRUMENT SERIES = CHASSIS + MODULES

### DEWE2
& TRION

*[up to 2 MS/s]*

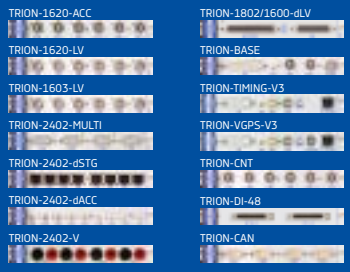
**DEWE2**


DEWE2-A4


DEWE2-M13


TRIONet

**TRION**




### DEWE3
& TRION3
& TRION

*[up to 10 MS/s]*

**DEWE3**


DEWE3-A4

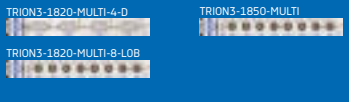

DEWE3-RM16


DEWE3-M4

**TRION**

*Same modules as DEWE2 above plus additional TRION3*

**+ TRION3**




### POWER ANALYZER
& TRION3
& TRION

**DEWE2-PA7 & DEWE3-PA8**

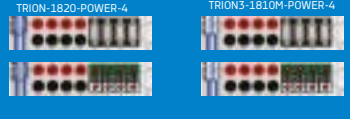

DEWE2-PA7
*[up to 2 MS/s]*


DEWE3-PA8
*[up to 10 MS/s]*

**TRION / TRION3**

*Same modules as DEWE3 above plus additional Power Modules*

**+ POWER Modules**




## CUSTOMER CARE CENTER

CALIBRATION

MAINTENANCE

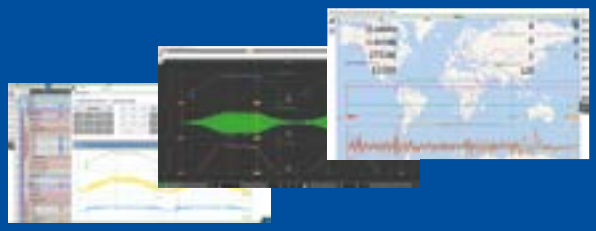
SYSTEM UPGRADE

REPAIR

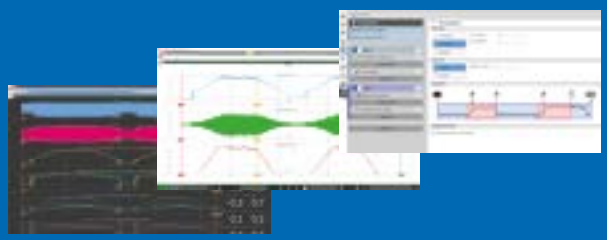
# WHICH SIGNALS ARE PROCESSED?

\+ SOFTWARE

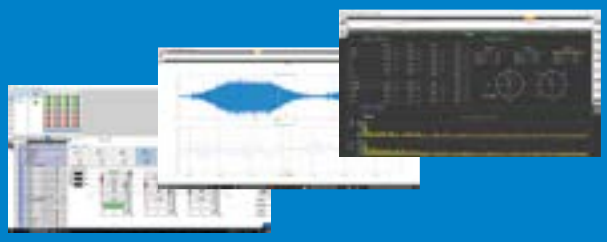
## OXYGEN



## OXYGEN



## OXYGEN + POWER Option



V
I
IEPE
Charge
SYNC
GPS
LVDT
ANALOG OUT
DIG. IN OUT
MSI
CAN
CAN FD
CAN J1939
MSI 600 V
MIL
P Power
SCPI Interface
Flex Ray
ARINC
XCP Slave
Ether CAT Slave

DEWETRON TRAINING ACADEMY

WARRANTY EXTENSION

FIRST LEVEL SUPPORT

SECOND LEVEL SUPPORT

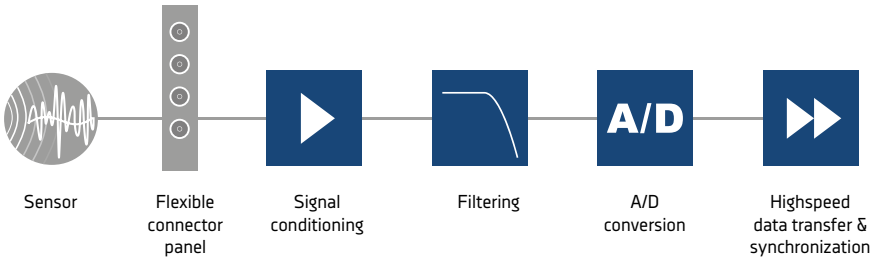
QUICK START

RENTAL SERVICE

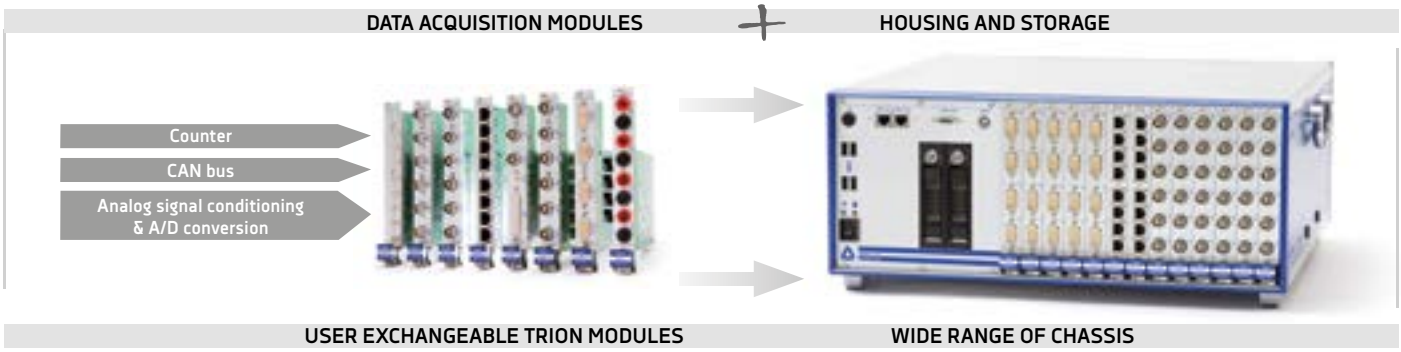
# INSTRUMENT FAMILIES

**DEWETRON data acquisition systems are categorized into two families, the DEWE2 (TRION) and DEWE3 (TRION3) express series.**

The systems of both series can record vastly different signal sources in perfect sync. The analog input modules are leading technology and guarantee precise and robust results while offering the right input for almost any sensor.




## DEWE2 SERIES WITH TRION MODULES

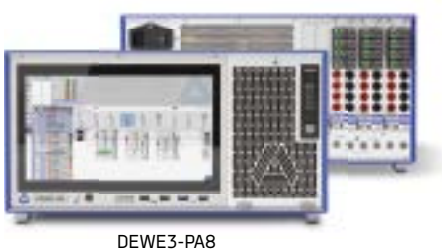


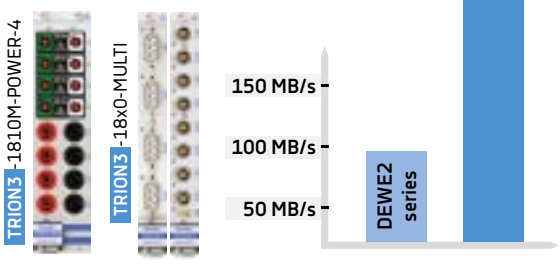

> Fully modular: user exchangeable modules for analog, digital, counter, CAN
> High-precision recording
> High channel density
> Rugged chassis

## DEWE3 SERIES WITH TRION AND TRION3 MODULES

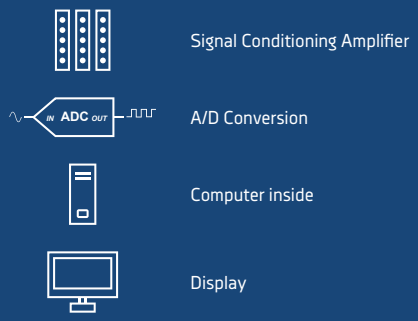
> Highspeed modules with up to 10 MS/s per channel
> 1 GB/s continuous highspeed data storage rate


DEWE3-RM16


DEWE3-PA8

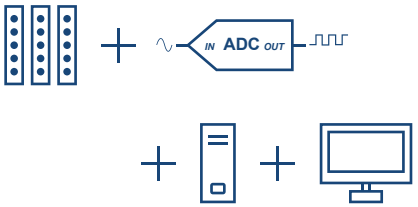


# SYSTEM OVERVIEW




## POWER ANALYZER

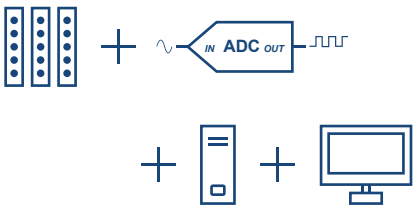
> 16 power phases
> 0.03 % measurement error (1 to 1000 Hz)
> Mixed signal analyzer
> Multi-touch screen (up to 11.6")
> Integrated (redundant) current transducer supply




DEWE3-PA8

## ALL-IN-ONE

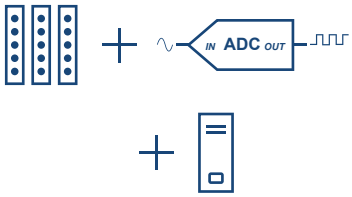
> Built-in display
> Compact and flexible configuration
> Powerful PC inside for fast online displays and analysis
> Convenient for mobile applications
> Battery power option




DEWE3-A4

## MAINFRAME

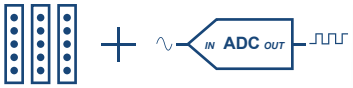
> Powerful PC inside for fast online displays and analysis
> Can be used with external display
> Very popular for applications where the instrument is installed in a poorly accessible place for the user

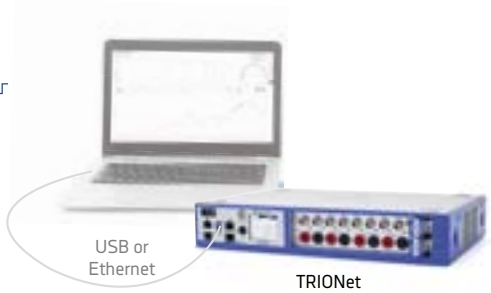



DEWE3-RM16

## FRONT-END

> Used with an external computer
> Fully synchronized expansion for All-in-one or Mainframe instruments
> Multiple units can be daisy-chained
> Connected via USB3.0 or GBit-Ethernet




TRIONet

## SIGNAL CONDITIONING

> Stand-alone signal conditioning
> Front-ends for existing recorders, A/D boards ...

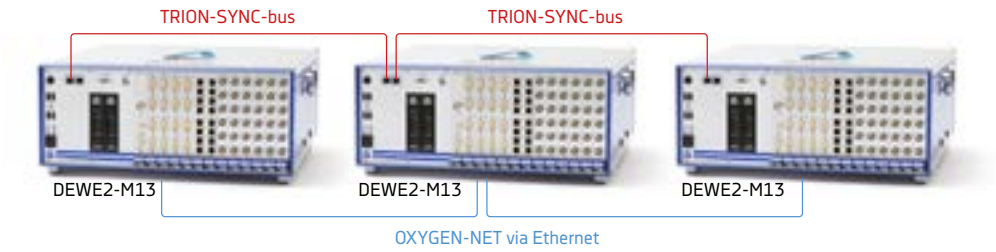
DEWE-30-16

# UNLIMITED MEASUREMENTS

## MORE CHANNELS

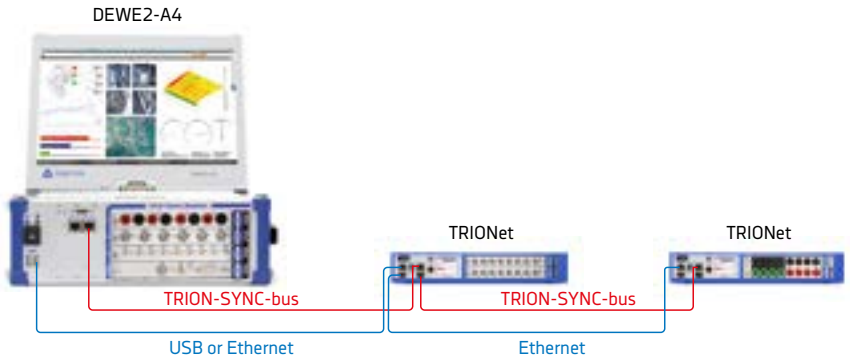
### OXYGEN-NET EXPANSION

The software option OXYGEN-NET: Easy-to-use synchronized measurement for hundreds of input channels from 10 S/s to 10 MS/s per channel.



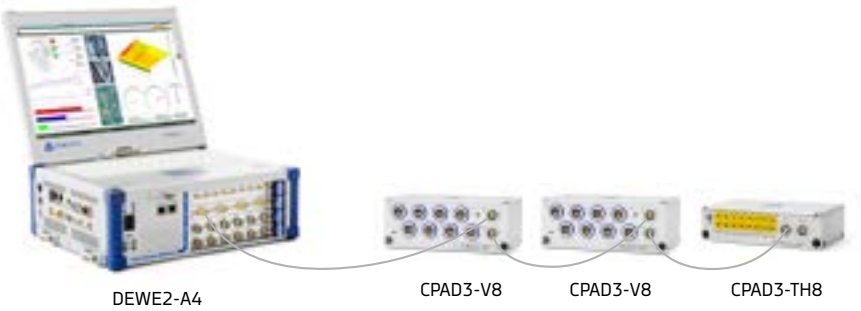

### FRONT-END EXPANSION

Add one or more front-end chassis for highspeed expansion. Up to 100 m between units possible.




### STATIC EXPANSION
### UP TO 100 HZ

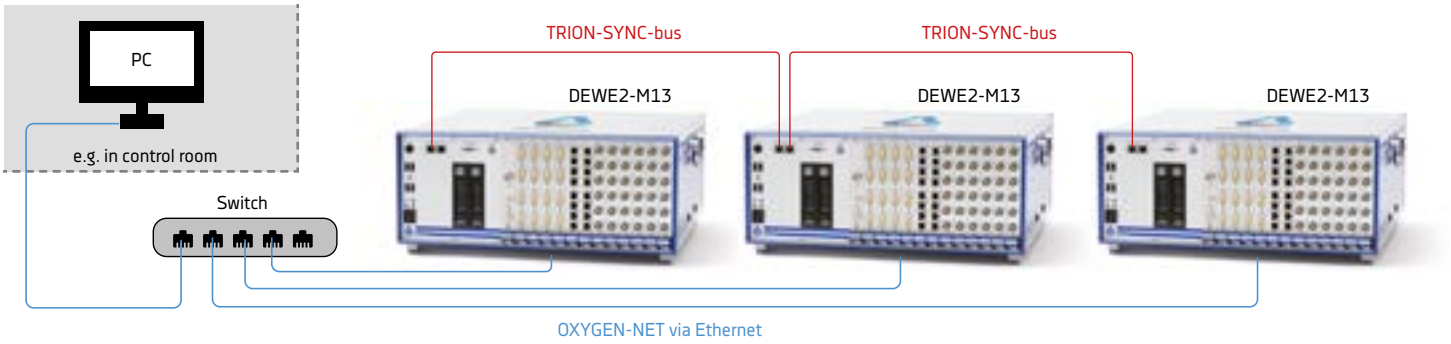
Add CPAD2 or CPAD3 modules with CAN interface or EPAD2 modules with RS485 interface



# NETWORKED SYSTEMS

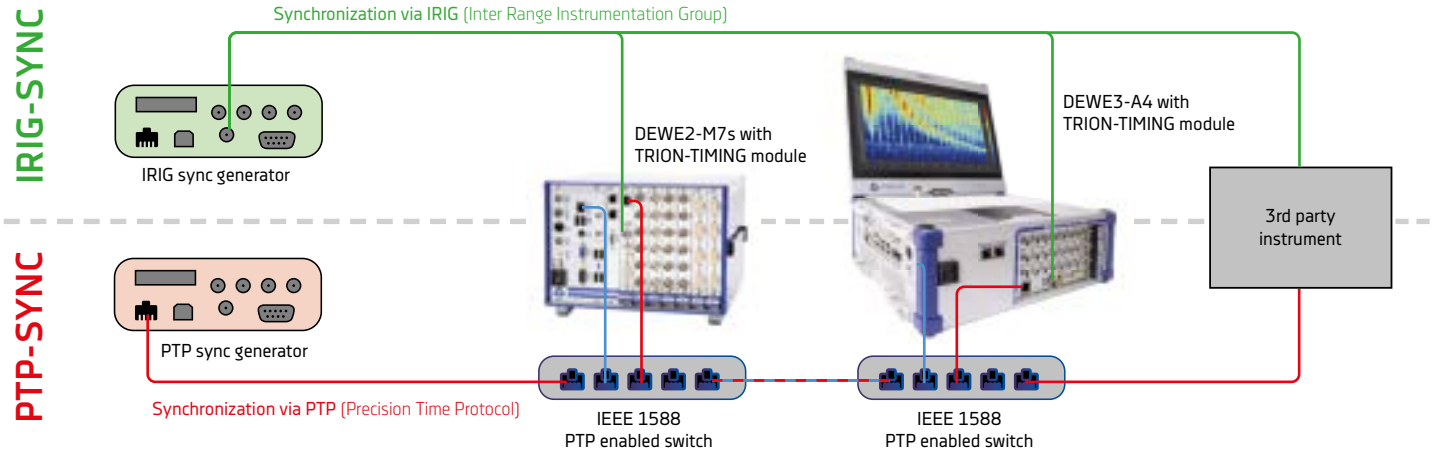
## TRION-SYNC

Multiple DEWE2-M13, distributed high channel-count system, featuring OXYGEN with OXYGEN-NET software option




## PTP-SYNC / IRIG-SYNC

Various instruments from DEWETRON or 3rd party instruments synchronized via PTP or IRIG.
Data transmission via Ethernet and local data storage possible.




## GPS-SYNC

Two or more instruments synchronized via GPS

Data transmission via Ethernet and local data storage possible.

# TRION / TRION3

Voltage (1000 V) · Potentiometer · Current (shunt required) · Current (with shunt inside) · RTD · CAN · GPS
IEPE® (vibration) · Absolute Time (PTP, IRIG, GPS) · Modular Smart Interfaces (e.g. for thermocouple) · Bridge (strain gauge) · Counter Inputs · Digital I/O

| ANALOG MODULES | CHANNELS | SAMPLE RATE PER CHANNEL | RESOLUTION | ISOLATION | CONNECTOR TYPES |
|---|---|---|---|---|---|
| TRION3-1850-MULTI [1] TRION3-1820-MULTI [1] TRION-1820-MULTI | 4 or 8 | 1850: 5 MS/s 1820: 2 MS/s | 24-bit >2MS/s: 18-bit | yes | 4 DSUB or 8 LEMO 0B |
| TRION-2402-MULTI | 4 or 8 | 200 kS/s | 24-bit | yes | 4 DSUB or 8 LEMO 0B |
| TRION-1620-ACC | 6 | 2 MS/s | 24-bit >1 MS/s: 16-bit | yes | 6 BNC or LEMO 1B |
| TRION-1620-LV | 6 | 2 MS/s | 24-bit >1 MS/s: 16-bit | yes | 6 BNC or LEMO 1B |
| TRION-2402-V [2] | 4 or 8 | 200 kS/s | 24-bit | yes | Safety banana |
| TRION-1810-HV [2] | 4 to 8 | 1 MS/s | 18-bit | yes | Safety banana, CAT III 1000 V [3] |
| TRION3-1810-SUB-8 | 8 | 1 MS/s | 20-bit | yes | Safety banana |
| TRION-1603-LV | 6 | 250 kS/s | 16-bit | yes | 6 BNC or LEMO 1B |
| TRION-2402-dSTG [2] | 6 or 8 | 200 kS/s | 24-bit | - | LEMO 1B, 8 LEMO 0B, 8 RJ45, 8 DSUB |
| TRION-2402-dACC | 6 or 8 | 200 kS/s | 24-bit | - | 6 BNC or 8 SMB |
| TRION-1802-dLV | 16 or 32 | 200 kS/s 100 kS/s | 18-bit 24-bit | - | DSUB |
| TRION-1600-dLV | 16 or 32 | 20 kS/s | 16-bit | - | DSUB |

| DIGITAL MODULES | CHANNELS | SAMPLE RATE PER CHANNEL | RESOLUTION | ISOLATION | FEATURES |
|---|---|---|---|---|---|
| TRION-CNT | 6 | 2 MS/s | 80 MHz | yes | 6 channel advanced counter |
| TRION-DI-48 | 48 | 2 MS/s | 500 nsec | yes | 48 highspeed digital IN |
| TRION-BASE | - | 2 MS/s | 80 MHz | - | Basic IO card with simple IRIG sync and 2 counter |
| TRION-VGPS-V3 | - | 2 MS/s | 0.01 km/h <10 cm | - | 100 Hz GNSS receiver for automotive applications |
| TRION-TIMING-V3 | - | 2 MS/s | 12.5 nsec | - | Applies precision absolute time to measured data |
| TRION-CAN | 2 or 4 | 1 MBit | - | yes | DSUB |
| TRION-ARINC | 4 or 16 | | | - | Decoding of ARINC 429 signals, export of decoded signals |
| TRION-MIL1533 | 1 or 4 | | | - | Decoding of MIL-STD 1553 signals, export of decoded signals |
| TRION-EtherCAT-1-SLAVE | 100 | 500 S/s | - | - | Measurement data output |

| POWER MODULES | CHANNELS | SAMPLE RATE PER CHANNEL | RESOLUTION | ISOLATION | CONNECTOR TYPES |
|---|---|---|---|---|---|
| TRION3-1810M-POWER [1] [2] | 8 (4 U / 4 I) | 10 MS/s | 18-bit | yes | Safety banana, DSUB |
| TRION-1820-POWER [2] | 8 (4 U / 4 I) | 2 MS/s | 18-bit | yes | Safety banana, DSUB |

| ANALOG OUTPUT MODULES | CHANNELS | SAMPLE RATE PER CHANNEL | RESOLUTION | ISOLATION | CONNECTOR TYPES |
|---|---|---|---|---|---|
| TRION3-1820-MULTI-AOUT [1] | IN 8 OUT 8 | IN 2 MS/s OUT 2.5 MS/s | IN 24-bit OUT 32-bit | IN yes OUT yes | IN Lemo 0B OUT DSUB, BNC |

[1] Requires DEWE3 express chassis
[2] Some versions of this module occupy 2 TRION slots
[3] CAT III 1000 V only applicable for 1000 V inputs; SUB-600V has CAT II 600 V / CAT III 300 V

# POWER MODULES




## TRION3-1810M-POWER-4
## TRION-1820-POWER-4
## TRION-1810-HV-8

Choose between two types of power modules or one high-voltage module with 4 slots for flexible voltage inputs, each with 18-bit resolution.

The 4 slots of each module can be equipped with different direct current measurement modules or voltage modules to connect almost any kind of current or voltage transducer.
All components are user-exchangeable.

All three modules offer a different sampling rate:

> TRION3-1810M-POWER-4
up to 10 MS/s/ch

> TRION-1820-POWER-4
2 MS/s/ch

> TRION-1810-HV-8
1 MS/s/ch

| | | RANGE | SAFETY | BANDWIDTH | CONNECTOR | USER EXCHANGEABLE | |
|---|---|---|---|---|---|---|---|
| | **Voltage input U1, U2, U3, U4** | 1000 V ($\pm 2000\ V_{PEAK}$) | CAT IV 600 V / CAT III 1000 V | 5 MHz | Safety banana | - |  |
| VOLTAGE | **1 V module** | 1 $V_{RMS}$ ($\pm 2\ V_{PEAK}$) | Not isolated. Depending on connected clamp | 5 MHz | DSUB-9 socket | Yes |  |
| | **5 V module** | 5 $V_{RMS}$ ($\pm 10\ V_{PEAK}$) | | 5 MHz | DSUB-9 socket | |  |
| | **Clamp input module** | 5 V ($\pm 10\ V_{PEAK}$) | | 150 kHz | DSUB-9 socket | |  |
| | **600 V module** | 600 $V_{RMS}$ ($\pm 1500\ V_{PEAK}$) | CAT II 600 V, isolated | 300 kHz | Safety banana | |  |
| | **5 V module** | 5 $V_{RMS}$ ($\pm 10\ V_{PEAK}$) | | 300 kHz | Safety banana | |  |
| CURRENT* | **20 A module** | 20 A ($\pm 40\ A_{PEAK}$) | CAT II 600 V, unfused | 300 kHz | Safety banana (male) | |  |
| | **2 A module** | 2 A ($\pm 4\ A_{PEAK}$) | | | | |  |
| | **1 A module** | 1 A ($\pm 2\ A_{PEAK}$) | | | | |  |
| | **0.2 A module** | 0.2 A ($\pm 0.4\ A_{PEAK}$) | | | | |  |

* Current inputs are not supported by TRION-1810-HV

## EXAMPLES

TRIONet

DEWE2-A4

DEWE2-PA7

# POWER ANALYZER

> Modular precision Mixed Signal Power Analyzer
> Up to 16 power phases (U, I @ channel) - expandable
> Number of power groups user definable
> Wiring of power groups fits all applications: 1-phase, 2-phase, 3-phase, 6-phase, polyphase up to 9 phases
> 0.03 % measurement error

| | DEWE2-PA7 | DEWE3-PA8 |
|---|---|---|
| **Slots for TRION/ TRION3 modules** | 7 TRION<br>(up to 12 phases) | 8 TRION / TRION3<br>(up to 16 phases) |
| **Highspeed channel expansion** | Add TRIONet or OXYGEN-NET | |
| **Lowspeed channel expansion 100 Hz** | CPAD3 via TRION-CAN | |
| **Quasi-static channel expansion** | EPAD2 or CPAD2 via TRION-CAN | |
| **Data storage** | 1 TB Solid State Disk dedicated for data storage | |
| **Optional data storage** | 1 TB hard disk dedicated for data storage<br>120 GB SSD for operating system and application software | (SSD-PCIe-1T-2T)<br>Upgrade from 1 TB to 2 TB industrial grade, PCIe attached Solid State Disk |
| **Gapless storing rate** | Typ. 90 MB/s | Typ. 1 GB/s |
| **Display** | 9" multi-touch wide-screen | 11.6" multi-touch wide-screen<br>full HD |
| **POWER SUPPLY** | | |
| **Input voltage (max.)** | 90 to 264 $V_{AC}$ | |
| **Sensor power supply** | 8 x (±15 V / +9 V) | |
| **Integrated current transducer supply** | Yes | Yes, with redundant supply |
| **DIMENSIONS** | | |
| **Dimensions (W x D x H)**<br>without handle/feet | 441 x 427 x 177 mm<br>(4 u plus 1 u for cooling in cabinet required)<br>(17.4 x 16.8 x 7 in.) | 441 x 435 x 222 mm<br>(5 u)<br>(17.4 x 17.1 x 8.7 in.) |
| **Weight** without modules and batteries | Typ. 13 kg (28.6 lb.) | Typ. 14 kg (30.9 lb.) |

# RACK-MOUNT MAINFRAMES

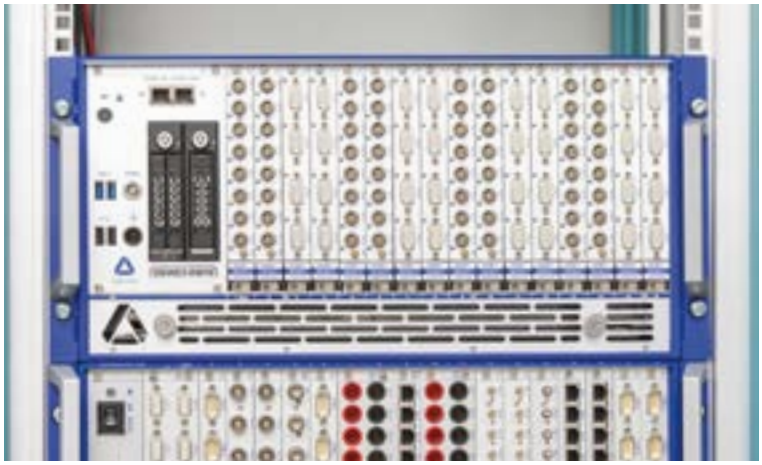
## FOR TRION3 MODULES

> Rack-mount or benchtop data acquisition mainframe
> Silent cooling, easy to maintain fan slot
> Gapless storage of raw data up to 1 GB/s




| | DEWE3-RM4 | DEWE3-RM8 | DEWE3-RM12 | DEWE3-RM16 |
|---|---|---|---|---|
| **Slots for TRION/TRION3 modules** | 4 TRION / TRION3 | 8 TRION / TRION3 | 12 TRION / TRION3 | 16 TRION / TRION3 |
| **Highspeed channel expansion** | Add TRIONet or OXYGEN-NET | | | |
| **Low-speed channel expansion 100 Hz** | CPAD3 via TRION-CAN | | | |
| **Quasi-static channel expansion** | EPAD2 or CPAD2 via TRION-CAN | | | |
| **Data storage** | 1 TB highspeed PCIe Solid State Disk dedicated for data storage (removable) | | | |
| **Optional data storage** | (SSD-PCIe-1T-2T)<br>Upgrade from 1 TB to 2 TB industrial grade, PCIe attached Solid State Disk | | | |
| **Gap free storing rate** | Typ. 1 GB/s | | | |
| **POWER SUPPLY** | | | | |
| **Input voltage (max.)** | 90 to 264 $V_{AC}$ | | | |
| **DIMENSIONS** | | | | |
| **Dimensions (W x D x H)**<br>without handle/feet | 442 x 435 x 222 mm<br>(5 u)<br>(17.4 x 17.1 x 8.7 in.) | | | |
| **Weight**<br>without modules | Typ. 15.8 kg (34.8 lb.) | | | |

Exchangeable fan slot



19" mounting kit available

# MAINFRAMES

## FOR TRION / TRION3 MODULES

> Compact and flexible configuration
> Powerful PC inside for fast online displays and analysis
> Convenient for mobile applications

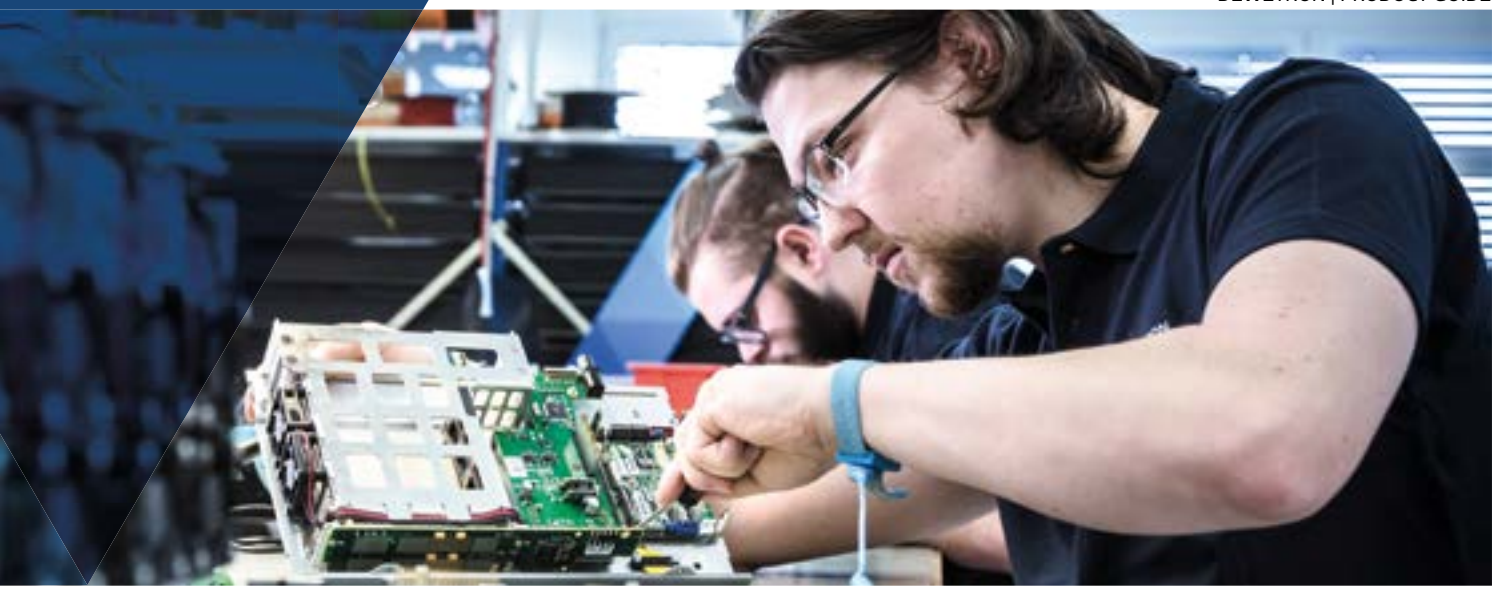
| | DEWE2-M4 / DEWE3-M4 | DEWE2-M7s |
|---|---|---|
| **Slots for TRION / TRION3 modules** | DEWE2-M4: 4 TRION<br>DEWE3-M4: 4 TRION / TRION3 | 7 TRION |
| **Highspeed channel expansion** | Add TRIONet or OXYGEN-NET | |
| **Low-speed channel expansion 100 Hz** | CPAD3 via TRION-CAN | |
| **Quasi-static channel expansion** | EPAD2 or CPAD2 via TRION-CAN | |
| **Data storage** | 256 GB removable Solid State Disk | 256 GB Solid State Disk |
| **Optional data storage** | Up to 1 TB | |
| **Gap free storing rate** | DEWE2-M4: typ. 90 MB/s<br>DEWE3-M4: typ. 400 MB/s | Typ. 90 MB/s |
| **POWER SUPPLY** | | |
| **Standard (max.)** | 10 to 36 $V_{DC}$ isolated; incl. external AC power supply | |
| **Option 1** | (DW2-PS-DC-Buffer)<br>Internal buffer battery for ~ 5 min. operation | |
| **Option 2** | (DW2-UPS-250-DC)<br>Ext. battery pack, 3 battery slots | |
| **DIMENSIONS** | | |
| **Dimensions (W x D x H)**<br>without handle/feet | 318 x 253 x 108 mm<br>(12.5 x 10 x 4.3 in.) | 258 x 230 x 177 mm (4 u)<br>(10.2 x 9.1 x 7 in.) |
| **Weight** without modules and batteries [1] | Typ. 3.9 kg (8.6 lb.) | Typ. 4.9 kg (10.8 lb.) |

[1] Weight of one battery: 540 g (1.20 lb.)

CAM-SPLIT-BOX

BAT-CHARGER-4
Desktop battery charger for 4 batteries

MOB-DISP-12
External display



| DEWE2-M13s | DEWE2-M7 / DEWE2-M13 | DEWE2-M18 |
|---|---|---|
| 13 TRION | 7 / 13 TRION | 18 TRION |
| Add TRIONet or OXYGEN-NET | | |
| CPAD3 via TRION-CAN | | |
| EPAD2 or CPAD2 via TRION-CAN | | CPAD2 via TRION-CAN |
| 256 GB Solid State Disk | 120 GB Solid State Disk<br>1 TB Solid State Disk (optional plus two 3.5“ bays) | 256 GB Solid State Disk |
| Up to 1 TB | Up to 4 TB | Up to 1 TB |
| Typ. 90 MB/s | Typ. 90 MB/s | Typ. 90 MB/s |

| | | |
|---|---|---|
| 10 to 36 $V_{DC}$ isolated;<br>incl. external AC power supply | 90 to 264 $V_{AC}$ | 90 to 264 $V_{AC}$ |
| Internal buffer battery<br>for ~ 2 min. operation | Redundant AC power supply | n/a |
| Battery powered, 4 battery slots<br>for ~2 hours operation | n/a | n/a |

| | |
|---|---|
| 441 x 230 x 177 mm (4 u)<br>(17.4 x 9.1 x 7 in.) | 441 x 427 x 177 mm (4 u)<br>(17.4 x 16.8 x 7 in.) |
| Typ. 8.3 kg (18 lb.) | Typ. 13 kg (28.6 lb.) |

DEWE2-M13s with 4 battery slots

DEWE2-M13 with 2 hard disks
(2x option DW2-M13-BAY35-SATA)

19” mounting kit available

# ALL-IN-ONE

## FOR TRION / TRION3 MODULES

> Built-in display
> Compact and flexible configuration
> Powerful PC inside for fast online displays and analysis
> Convenient for mobile applications

| | DEWE2-A4 / DEWE3-A4 | DEWE2-A4L | DEWE2-A7 / DEWE2-A13 |
|---|---|---|---|
| **Slots for TRION/ TRION3 modules** | DEWE2-A4: 4 TRION<br>DEWE3-A4: 4 TRION / TRION3 | 4 TRION | 7 / 13 TRION |
| **Highspeed channel expansion** | Add TRIONet or OXYGEN-NET | | |
| **Lowspeed channel expansion 100 Hz** | CPAD3 via TRION-CAN | | |
| **Quasi-static channel expansion** | EPAD2 or CPAD2 | | |
| **Data storage** | 256 GB<br>removable Solid State Disk | 1 TB hard disk dedicated for data storage<br>120 GB SSD for operating system and application software | 1 TB hard disk dedicated for data storage<br>120 GB SSD for operating system and application software |
| **Optional data storage** | Up to 1 TB SSD | | |
| **Gap free storing rate** | DEWE2-A4: max. 90 MB/s<br>DEWE3-A4: max. 400 MB/s | max. 90 MB/s | max. 90 MB/s |
| **Display** | DEWE2-A4: 13“ wide-screen display<br>DEWE3-A4: 13“ wide-screen display, full HD | 15.4“ multi-touch wide-screen display<br>full HD | 17“ wide-screen display<br>full HD |
| **POWER SUPPLY** | | | |
| **Input voltage (max.)** | 10 to 36 $V_{DC}$ isolated<br>incl. external AC power supply | 90 to 264 $V_{AC}$ | 90 to 264 $V_{AC}$ |
| **Option 1** | Internal buffer battery<br>for ~ 5 min. operation | - | DC power supply (DW2-PS-DC-300)<br>10 to 36 $V_{DC}$ |
| **Option 2** | (DW2-UPS-250-DC)<br>Ext. battery pack,<br>3 battery slots for ~2 hours operation | - | (DW2-PS-BAT)<br>Battery powered, 4 battery slots<br>for ~2 hours operation |
| **DIMENSIONS** | | | |
| **Dimensions (W x D x H)**<br>without handle/feet | 318 x 253 x 128 mm<br>(12.5 x 10 x 5 in.) | 462 x 320 x 135 mm<br>(18.2 x 12.6 x 5.3 in.) | 450 x 246 x 303 mm<br>(17.7 x 9.7 x 11.9 in.) |
| **Weight** without modules and batteries [1] | Typ. 5.9 kg (13 lb.) | Typ. 8.5 kg (18.7 lb.) | Typ. 15 kg (33 lb.) |

Weight of one battery: 540 g (1.20 lb.)

DE-POWERBOX-11
DC power distribution box

DW2-UPS-250-DC,
250 W UPS with 3 battery slots

# FRONT-END


## WITH USB & ETHERNET INTERFACE

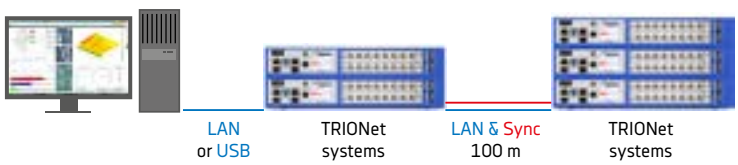
> Up to 100 m distance between the TRIONet systems
> Gigabit LAN and USB3
> Distributable / stackable
> Touch display

| | TRIONet |
|---|---|
| **Slots for TRION modules** [1] | 2 TRION |
| **LINK TO DAQP/HSI SERIES SIGNAL CONDITIONING MODULES** | |
| **Low-speed channel expansion 100 Hz** | CPAD3 via TRION-CAN |
| **Quasi-static channel expansion** | CPAD2 via TRION-CAN or TRION-MULTI (no EPAD) |
| **LAN** | 2 x 1000BASE-TX Gigabit Ethernet |
| **LAN configuration** | DHCP or Static IP |
| **USB** | USB 2.0; USB 3.0 |
| **Synchronization** | TRION-SYNC-Bus up to 100 m between nodes |
| **System bandwidth** | 90 MB/s with one connected TRIONet (up to 50 MB/s with more than one) |
| **Display** | Status display with touch-screen |
| **Cooling** | 2 temperature controlled ultra silent fans |
| **HOST SYSTEM REQUIREMENTS** | |
| **Supported operating systems** | Windows 7 & 10; 64-bit |
| **Supported interfaces** | USB 3.0; USB 2.0; 1000BASE-TX Gigabit Ethernet |
| **POWER SUPPLY** | |
| **Isolated power supply (max.)** | 10 to 32 $V_{DC}$ (9 to 36 $V_{DC}$) |
| **Power consumption** | Without modules 15 W, totally equipped max. 55 W |
| **External power supply (included)** | 100 to 240 V ~50 to 60 Hz / 65 W |
| **Option** | (DW2-UPS-250-DC) Ext. battery pack, 3 battery slots for ~4 hours operation |
| **DIMENSIONS** | |
| **Dimensions (W x D x H)** | 320 x 205 x 55 mm (12.6 x 8 x 2.2 in.) |
| **Weight** without modules | Typ. 1.9 kg (4.2 lb.) |
| **ENVIRONMENTAL SPECIFICATIONS** | |
| **Operating temperature** | -20 °C to +60 °C (with pre-warmed unit) |
| **Storage temperature** | -20 to +70 °C |
| **Humidity** | 10 to 90 % non cond., 5 to 95 % rel. humidity |
| **Max. altitude** | 3000 m (9840 ft) |
| **Sine vibration (EN 60068-2-6)** | 20 m/s² |
| **Shock (EN 60028-2-27)** | 30 g |
| **Random vibration (EN 60721-3-2)** | Class 2M3 |

[1] Unsupported module: TRION-ARINC, TRION-MIL1553, TRION-EtherCAT-1-Slave

## LOW CHANNEL-COUNT APPLICATION


## DISTRIBUTED APPLICATION



# STATIC MEASUREMENT MODULES

> -40...+85 °C operating temperature (option)
> Rugged, stackable and multiple mounting options
> Fully isolated: channel to channel and channel to bus, power and chassis
> EPAD: RS-485 interface - optional converter module to USB
> CPAD: CAN interface

| MODULE | CHANNELS | INPUT RANGES | SAMPLE RATE PER CHANNEL | ISOLATION |
|---|---|---|---|---|
| **CPAD3-TH8-x**  | 8 thermocouple inputs | Types K, T, J, E, R, S, B, N, C, U | 100 S/s | 1500 $V_{DC}$ |
| **EPAD2/CPAD2-TH8-x**  | 8 thermocouple inputs | Types K, T, J, E, R, S, B, N, C, U | 10 S/s | 350 $V_{DC}$ |
| **CPAD3-V8**  | 8 isolated voltage inputs | Max. ±50 V | 100 S/s | 1500 $V_{DC}$ |
| **EPAD2/CPAD2-V8**  | 8 isolated voltage inputs | Max. ±50 V | 10 S/s | 350 $V_{DC}$ |
| **EPAD2/CPAD2-RTD8**  | 8 isolated Resistance Temperature Detector inputs | RTD: Pt100, Pt200, Pt500, Pt1000, Pt2000<br>Resistance: 0 - 999.99 Ohm | 10 S/s | 350 $V_{DC}$ |
| **EPAD2/CPAD2-LA8**  | 8 isolated current inputs | Max. ±30 mA | 10 S/s | 350 $V_{DC}$ |
| **EPAD2-AO4**  | 4 voltage or current outputs | Max. ±10 V<br>or max. 20 mA | 10 S/s | 350 $V_{DC}$ |

CPAD = CAN-bus interface; EPAD = RS-485 interface

Frozen EPAD Modules - still operating at -40 °C

# MODULAR SMART INTERFACES

> Expand the functionality of TRION inputs
> Automatically detected and set up
> Supported on TRION-x-MULTI and TRION-1802/TRION-1600 with TRION-X-dLV-CB16-D9 connector box

| MODULAR SMART INTERFACES | INPUT | SENSOR EXCITATION | BANDWIDTH (MAX.) CONSIDER LIMIT OF USED TRION MODULE | ACCURACY (TYP.) | SENSOR CONNECTION |
|---|---|---|---|---|---|
| **MSI2-250R-20mA** | 4 to 20 mA sensors | 5 to 48 V AUX PWR | DC to 100 kHz | ±0.1 % | Miniature spring terminals |
| **MSI2-STG** | Bridge type sensors Full-bridge, half-bridge, quarter bridge 120 Ω and 350 Ω | 5 V and 10 V | 100 kHz | ±0.1 % | Miniature spring terminals |
| **MSI2-LVDT** | LVDT and RVDT sensors, 5- or 6-wire connection | 3 V at 2.5, 5 or 18 kHz | 1 kHz | ±0.1 % | Soldering pads |
| **MSI-BR-ACC** | IEPE® sensors, typ. accelerometer, microphone | 4 mA | 1.4 Hz to 100 kHz | ±0.2 % | BNC |
| **MSI2-CH-x** | Charge type sensors up to 100 000 pC | n/a | 0.08 Hz to 300 kHz | ±0.5 % | BNC |
| **MSI2-TH-x** | Thermocouple sensors Standard models for type K, J, T, others on request | n/a | DC to 100 kHz | ±1 °C | Mini TC socket |
| **MSI-BR-V-200** | Voltage up to 200 V | n/a | DC to 100 kHz | ±0.1 % | BNC |
| **MSI2-V-600** | Voltage up to 600 V | n/a | 60 kHz | DC to 1 kHz: ±0.1 % of reading ±100 mV >1 kHz-5 kHz: ±0.5 % of reading ±100 mV >5 kHz-10 kHz ±1 % of reading ±100 mV | Safety banana |
| **MSI-BR-RTD** | RTD sensors PT100, Pt200, Pt500, PT1000, PT2000; 2, 3 and 4 wire connection | 1.25 mA | DC to 10 kHz | ±0.1 % | Binder 712 series 5-pin socket |

# CONNECTOR PANELS FOR TRION-dLV

## TRION-CB16-B

Banana socket connector panel for TRION-1802-dLV or TRION-1600-dLV

## TRION-X-dLV-CB16-D9

Feature expansion box for TRION-1802-dLV-32 and TRION-1600-dLV-32 by MSI support. Enables measurement of strain gauge and bridge sensors, IEPE®, LVDT and RVDT, thermocouple, charge, RTD and voltage up to ±600 V.

# ANALOG SIGNAL CONDITIONING

Chassis for isolated signal conditioning amplifiers, suitable for a wide variety of sensors, including strain gauges, accelerometers, force sensors, pressure, load and flow sensors, thermocouples, as well as voltages and currents.

| | DEWE-30-16 | DEWE-30-32 |
|---|---|---|
| **Slots for DAQP modules** | 16 | 32 |
| **Interfaces** | RS232, RS485, EPAD | |
| **Conditioned signal output** | ±5 V (±10 V as option) | |
| **Output connector standard** | DSUB37 | |
| **Output optional** | ORION, BNC | |
| **Power supply** | 100 to 240 $V_{AC}$ | |
| **Optional power supply** | 10 to 32 $V_{DC}$ | |
| **Dimensions** | 438.5 x 253 x 133 (17.3 x 10 x 5.2 in.) | 438.5 x 253 x 253 mm (17.3 x 10 x 9.6 in.) |
| **Weight** depending on configuration | 4.5 kg (9.9 lb.) | 7 kg (15.4 lb.) |
| **ENVIRONMENTAL SPECIFICATIONS** | | |
| **Operating temperature** | 0 to +60 °C | |
| **Storage temperature** | -20 to +70 °C | |
| **Humidity** | 10 to 90 % non cond., 5 to 95 % rel. humidity | |
| **Vibration** | EN 60068-2-6, EN 60721-3-2 Class 2M2 | |
| **Shock** | EN 60068-2-2 | |

## ANALOG SIGNAL CONDITIONING WORKS PERFECTLY WITH

| DIFFERENTIAL MODULES | CHANNELS | SAMPLE RATE PER CHANNEL | RESOLUTION | ISOLATION | INPUT TYPES |
|---|---|---|---|---|---|
| **TRION-1802-dLV** V 10 · 007 · DIG. IN OUT · CAN · MSI CB16 | 16 or 32 | 200 kS/s<br>100 kS/s | 18-bit<br>24-bit | - | DSUB |
| **TRION-1600-dLV** V 10 · 007 · DIG. IN OUT · CAN · MSI CB16 | 16 or 32 | 20 kS/s | 16-bit | - | DSUB |


DEWE-30-16

DEWE2-M4 with TRION-1802-dLV module

# MODULES FOR ANALOG SIGNAL CONDITIONING

> Isolation up to 1.8 $kV_{RMS}$
> Bandwidth up to 300 kHz
> Configuration via push buttons or RS-485 interface
> Free configuration software

| ANALOG MODULES | FEATURES | BANDWIDTH | ISOLATION | CONNECTOR TYPE |
|---|---|---|---|---|
| **UNIVERSAL MEASUREMENT** | | | | |
| **DAQP-STG** | Auto sensor balance<br>Internal completion for ½ and ¼ bridge<br>uV amplifier with high bandwidth<br>Continuously variable gain from 0.5 to 10 000 | 300 kHz | 350 $V_{DC}$ | DSUB |
| **HIGH VOLTAGE** | | | | |
| **DAQP-HV** | 1000 $V_{RMS}$ / 1400 $V_{PEAK}$<br>10 MOhm input resistance | 300 kHz | 1800 $V_{RMS}$ | Safety banana |
| **VOLTAGE** | | | | |
| **DAQP-LV** | High input protection<br>12 ranges from 10 mV to 50 V<br>Direct sensor supply with DSUB version | 300 kHz | 1000 $V_{RMS}$ | Safety banana,<br>BNC, DSUB |
| **CARRIER FREQUENCY AMPLIFIER** | | | | |
| **DAQP-CFB2** | 600 Hz to 20 kHz carrier frequency<br>Very robust and stable bridge measurement<br>Supports LVDT sensors | 9.6 kHz | - | DSUB |
| **TEMPERATURE** | | | | |
| **DAQP-MULTI** | PT1000 to PT2000<br>TC types: K, J, T, R, S, N, E, B, L, C, U<br>Integrated CJC and linearization | 1 kHz | 1000 $V_{RMS}$ | DSUB,<br>universal mini TC |
| **DAQP-THERM** | TC types: K, J, T, R, S, N, E, B, L, C, U<br>Integrated CJC and linearization | 1 kHz | 1000 $V_{RMS}$ | Universal mini TC |
| **CHARGE / IEPE® MEASUREMENT** | | | | |
| **DAQP-ACC-A** | IEPE® sensors | 300 kHz | - | BNC |
| **DAQP-CHARGE-B** | Wide input range from ±100 to ±1 000 000 pC<br>Supports quasi-static charge sensors<br>Very low drift <0.03 pC/sec | 100 kHz | 350 $V_{DC}$ | Teflon BNC |

Voltage · IEPE® · Bridge · Potentiometer · RTD
Capacitance · Charge · Inductive sensors · Thermocouple · Resistance

# OXYGEN

**OXYGEN is the most comprehensive data acquisition & analysis software available.**

## MULTIPLE MEASUREMENT SCREENS

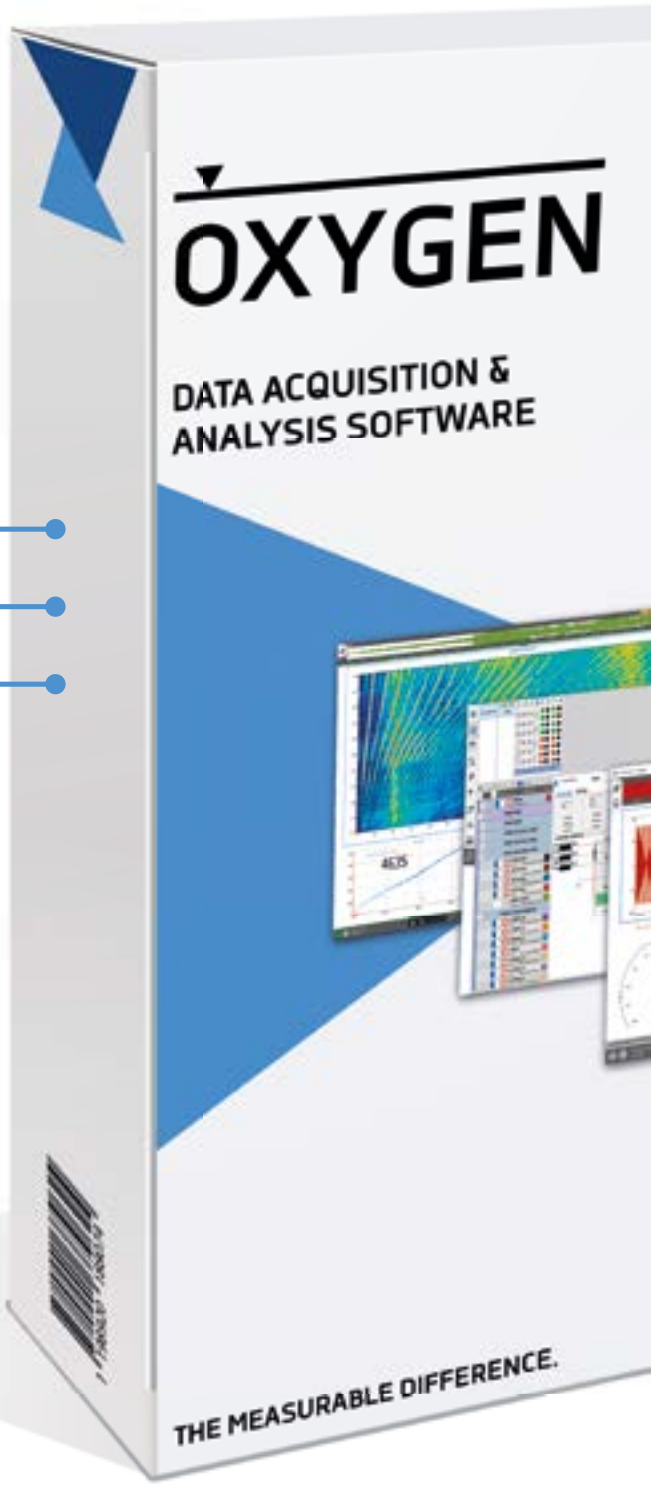
> Organize your instruments on multiple screens
> Simply create new screens with drag'n'drop

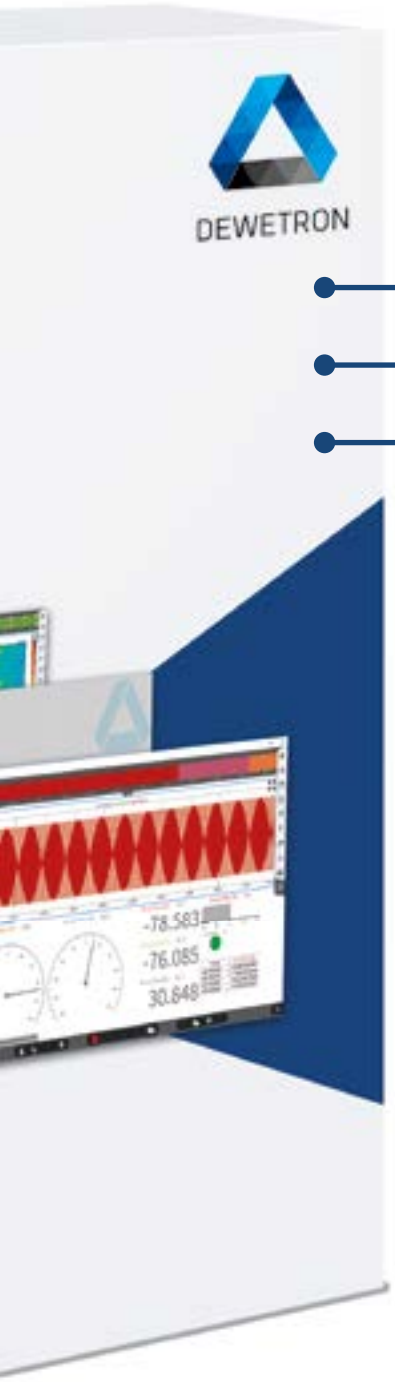
## EFFICIENCY & PERFORMANCE

> Easy-to-use and intuitive
> Efficient workflow that minimizes the time between setup and reporting
> High-performance through 64-bit technology

## OXYGEN-NET FOR NETWORKED MEASUREMENT

> High channel-count recording from 10 S/s to 10 MS/s per channel for local or distributed measurements
> Hundreds of input channels
> CPU load-distribution of online calculations and redundant storage
> Easy-to-use synchronized measurement
> Data transfer and remote channel setup






## ANALYZE WHILE RECORDING

**DejaView** allows you to view and analyze all data from the start of the test, while data is still being recorded – an especially useful feature for long term testing.
**Live View**: Live data is still visible at the same time on a different recorder, on the same or on a different screen.

## LOGGING & RECORDING

Freely define your measurement screen(s), up to hundreds of channels. Keep track of all your data by using multiple measuring screens.
Use trigger functions to immediately capture any anomaly in the data. Split data from one recording to seperate data files.
Record any input over a long period of time:

> Voltage, current
> Power
> Temperature
> Pressure
> Acceleration
> Strain gauge
> And many more

## VIEWING & ANALYZING

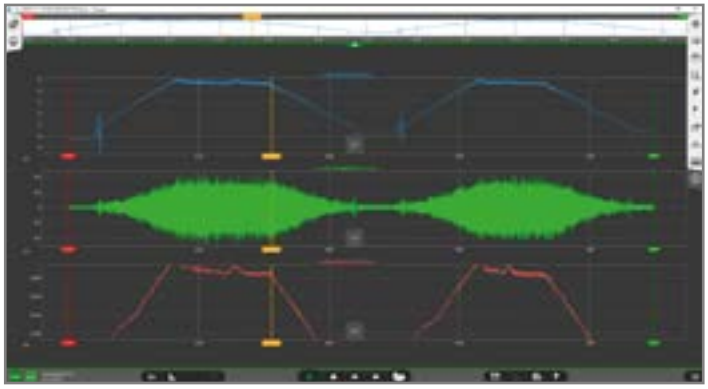
Multiple precision measurement instruments and analysis functions increase the value of your measurements:

> Scope
> FFT
> E-Power calculation (efficiency measurement)
> XY chart
> DMS-rosette strain gauge measurement
> And many more

## DATA ACQUISITION

Data acquisition is one of the core features of OXYGEN. It is capable of continuous and synchronous acquisition of data from several sources: analog, digital, encoder, CAN, Ethernet, video, GPS and much more.

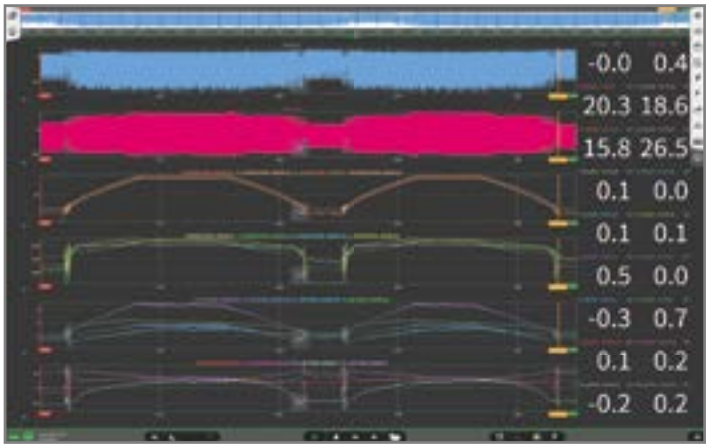
> Analog data with up to 10 MS/s via TRION3
> Digital and encoder data with automatic rpm and angle calculation
> CAN(-FD) decoding via dbc, including J1939. Compatible with Vector VN-series (option)
> Ethernet receiver for external sensors (option)
> Video data from USB or GigE camera
> Precision GPS position data via TRION, GeneSys ADMA or OxTS RT series



## RECORDING

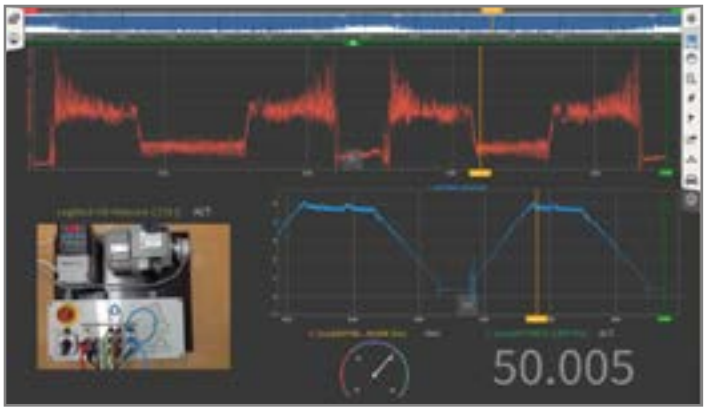
The second core feature of OXYGEN is powerful data recording. All the acquired data can be stored in one data file with a simple touch on the record button. With the right hardware, you can achieve data rates up to 1 GB/s, you don't have to bother to lose anything.

> DejaView to review data during recording
> File-split option for generating a new file after an amount of time or event occurrence
> DMD-file format for efficient storage
> Save data locally or remotely on a shared drive
> Open on any PC with the installed OXYGEN software (for FREE)




## VISUALIZATION

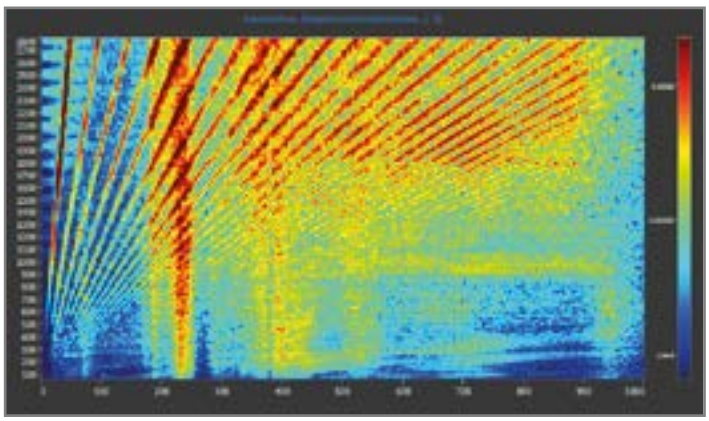
> The right visualization gives the data its value. Attractively designed visualization instruments with intuitive and smooth operation.
> 16 different visualization instruments for every purpose
> Highly customizable screens, perfect for your application
> Multi-monitor support for best overview
> Review several data files parallel to each other with the OXYGEN Viewer




## ORDER ANALYSIS (OPTIONAL)

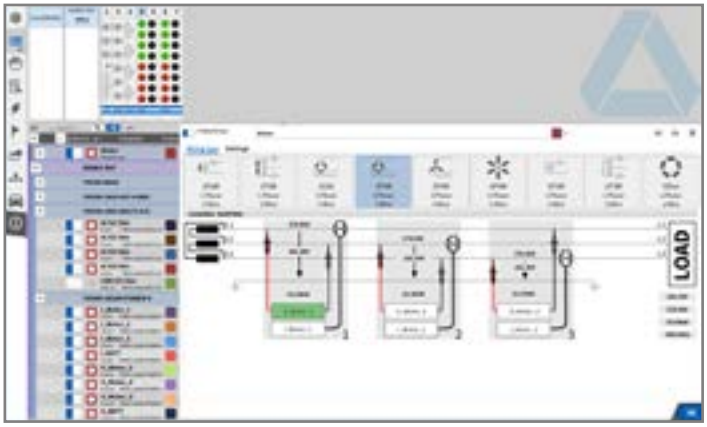
Noise and vibration analysis module for rotating machines. This feature turns your OXYGEN into a full order analysis instrument for calculation and visualization of frequency and order spectra vs. speed.

> Simultaneous frequency and order domain analysis
> Smart resampling algorithm for accurate and fast results
> Selectable speed ranges from 60 to 100.000 rpm
> Order resolution from 0.01 to 1, with up to 90 % overlapping
> Order extraction for selected orders for use in recorder or XY-instrument
> Visualization of the resulting matrix in intensity diagrams



## POWER ANALYSIS (OPTIONAL)

> Analysis of 1-9 phase power systems (1P2W, 2V2A, 3P3W, 3P4W, 2x 3P3W, ...)
> Several power systems are logically summarized into Power Groups
> Gapless cycle-by-cycle calculation, no blind spots
> Unique fundamental frequency detection with delay compensation for highest accuracy and reliability of the results
> BASIC: voltage, current RMS, AVG, fundamental and symmetrical components, active/reactive/apparent power total and fundamental, energy
> ADVANCED: harmonics (IEC 61000-4-7), flicker (IEC 61000-4-15), flicker emission (IEC 61400-21) and mechanical power/efficiency
> EXPERT: rolling calculation meets FGW-TG3 (TR3)




## PLUGIN INTERFACE

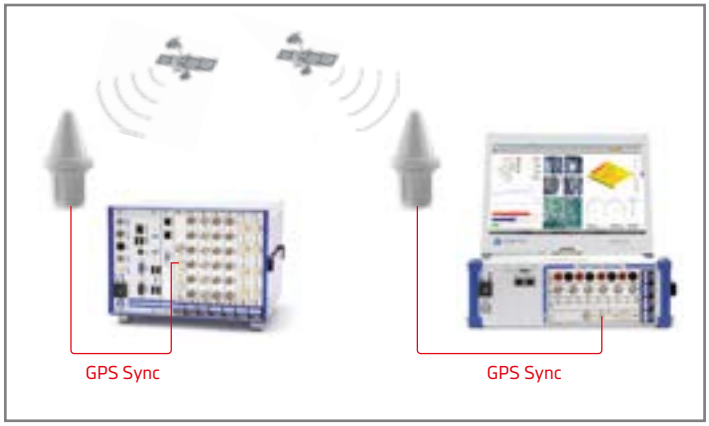
You like OXYGEN, but it does not cover all your needs? Customize it! We are proud to announce our new plugin interface, which gives you the possibility to add more software functions on your own.

> C++ Plugin Interface for customization
> Add complex mathematical calculations, which are not supported by built-in functions
> Use 3rd-party sensors and data sources and bring them into OXYGEN
> Output data from OXYGEN via not supported interfaces
> Visit us on GitHub and download example code: https://github.com/DEWETRON

## SYNCHRONIZATION

Use our TRION-BASE, TRION-TIMING or TRION-VGPS module to acquire data synchronously to other measurement devices. Relative time and absolute time synchronization are supported.

> Absolute time synchronization via PTP (IEEE 1588), GPS and IRIG
> Relative time synchronization via PPS and TRION-SYNC-BUS
> Optional synchronization of operating system time




## TRIGGER & EVENTS

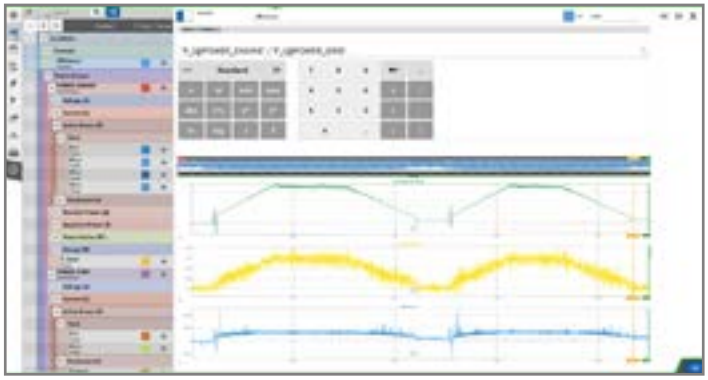
The powerful trigger and event system makes it easy to record data in case of events, create marker, set a digital output or make a snapshot of the actual measured data. The user can create different events, each consisting of one or more trigger conditions and one or more actions.

> Many different trigger conditions: signal level (positive/negative edge, window) with optional rearm level, keyboard or time
> Powerful actions like start/stop of recording, set an alarm with optional digital output, set a marker with pre-defined text or make a snapshot of the actual measured data.

## MATH AND CALCULATION

The highly customizable setup also allows the creation of several software channels to meet your purposes:

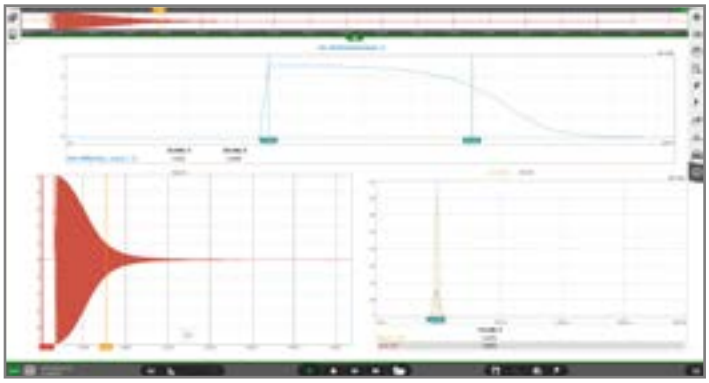
> Formula for arithmetic and more advanced calculations (trigonometric, logical and measurement functions)
> Block-wise statistics to calculate average, rms, min and max values
> High, low, bandpass and bandstop IIR-filter up to the 10th order
> DMS-rosette calculation module for 45°, 60°, and 90° setups
> Psophometric analysis for railway and telecommunication applications



## ANALYSIS AND POSTPROCESSING

The real work often begins after the live measurement. To complete this workflow, OXYGEN also supports postprocessing and analysis of the recorded data.

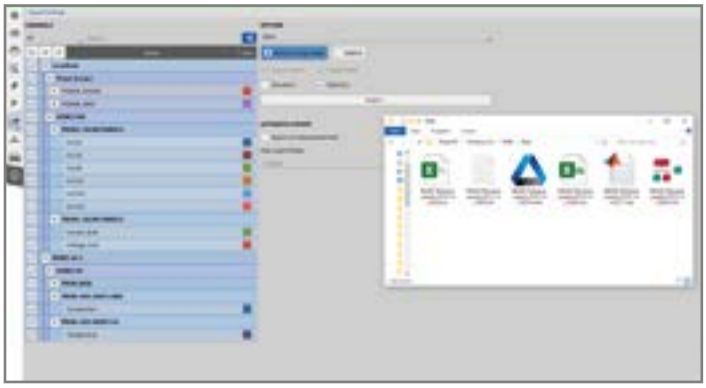
> Use many of the math and calculation (also incl. FFT) features to refine your measurement results
> Create new visualizations and measurement screens
> Quick navigation through the data with well-known gestures and intuitive zoom and scrolling mechanisms
> Create reporting pages (see below)
> Export data to complete your workflow
> And the best: you can do that also on your PC, license-free!
> Calculation of a Constant Percentage Bandwidth (CPB) spectrum



## EXPORT FEATURES

If you need to use other analysis software for further data processing, we offer data export for the most common applications and formats.

> Universal formats: CSV and TXT with selectable delimiter and timestamp format
> Advanced formats: Excel (.xlsx), Matlab (MAT ver. 7.2), ASAM MDF4 (4.0 and 4.1), DMD, wave and RPC III
> Select channels and/or time-range of the exported data
> Optional automatic export at measurement end



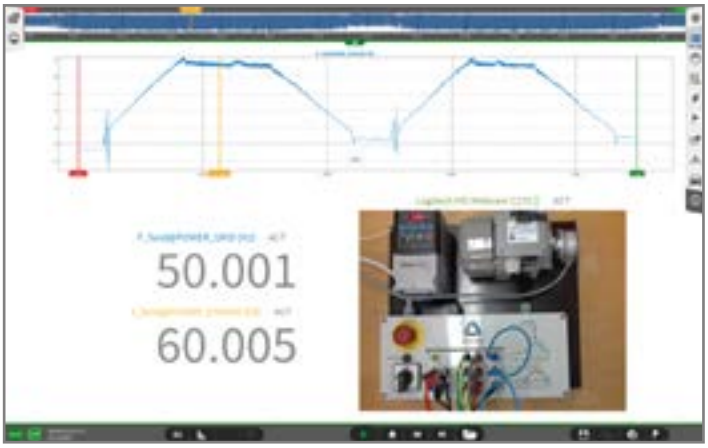
## VIDEO INPUT

Do you want to record video data additionally to your sensor inputs? No problem with OXYGEN! Use any USB-cam which is supported in Windows 10 or use our synchronized Manta GigE-cam for frame-by-frame synchronous acquisition.

> Support of USB-cams as well as Manta GigE-cam
> Separate video file for viewing and editing in other applications in MKV-format

## SOUND LEVEL (OPTIONAL)

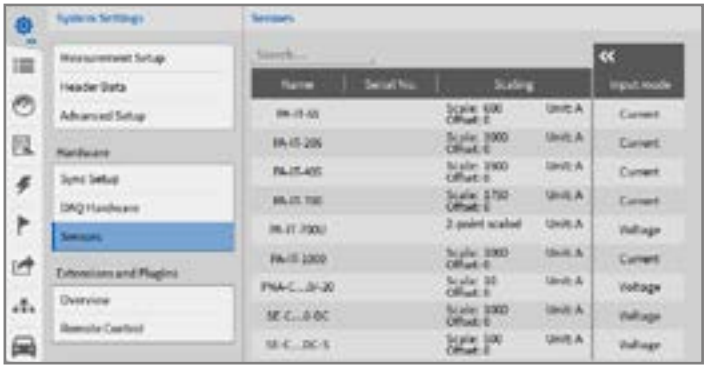
Provides the online determination of the time dependent sound pressure level, the energy equivalent sound pressure level, freely definable statistical sound pressure levels and many more.



## SENSOR DATABASE

The sensor database is your personal list of sensors which you can simply use in the channel setup

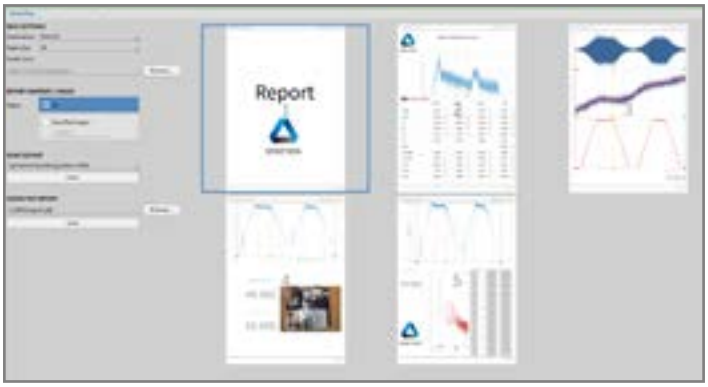
> Simple edit of the sensors with a workflow similar to the channel list
> Store name, serial number and scaling information of each sensor you want to use, including optional settings of the used input channel like measurement mode, filter, and excitation
> Independent from the measurement setup, you can create your personal sensor database once and use them on all your measurement devices by simply copy/paste of the database



## REPORTING

Use OXYGEN for your whole measurement workflow. From acquiring data to postprocessing and finally reporting the data.

> Separate reporting pages (additional to the measurement screens) with typical printing layouts
> Just duplicate a measurement screen or create new pages with a simple click
> Use all instruments and visualizations also in the reporting pages
> Separate time-cursor on each page available to report different time snippets in one report
> Directly print or save to pdf




## REMOTE CONTROL AND DATA TRANSFER

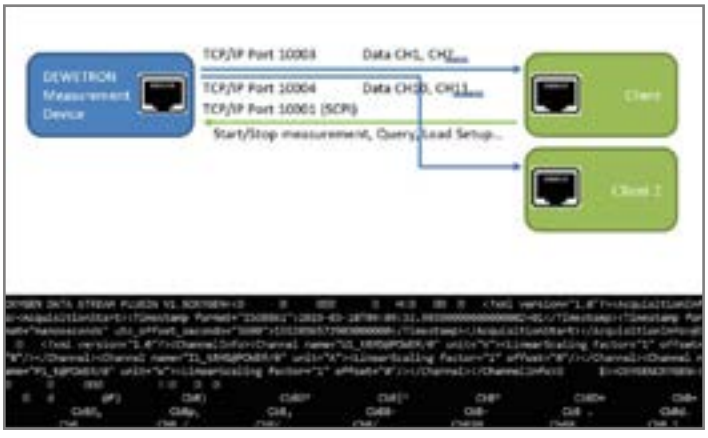
OXYGEN does not only support local operations like other measurement software, but also a remote control for setup, acquisition, and measurement. Different options are available:

> SCPI over Ethernet (included) for loading setup, recording control, and data transfer
> XCP over Ethernet for recording control and data transfer (ASAM standard) to testbed controller (Vector CANape or ETAS INCA) with up to 10 kS/s
> EtherCAT in combination with TRION-EtherCAT
> CAN input and output (trigger measurement or cyclically sent data)

## DATA STREAM (OPTIONAL)

Live data processing in your own application? The data stream feature makes it possible! Stream the acquired data (including calculated data like power or statistics) via TCP/IP with highspeed to one or even more applications.

> Stream the acquired data via TCP/IP
> Configure stream(s) via SCPI-interface for fully remote-control operation
> Supports 1 to N streams, individually configurable channel selection



# DEWETRON SDK FOR PROGRAMMERS

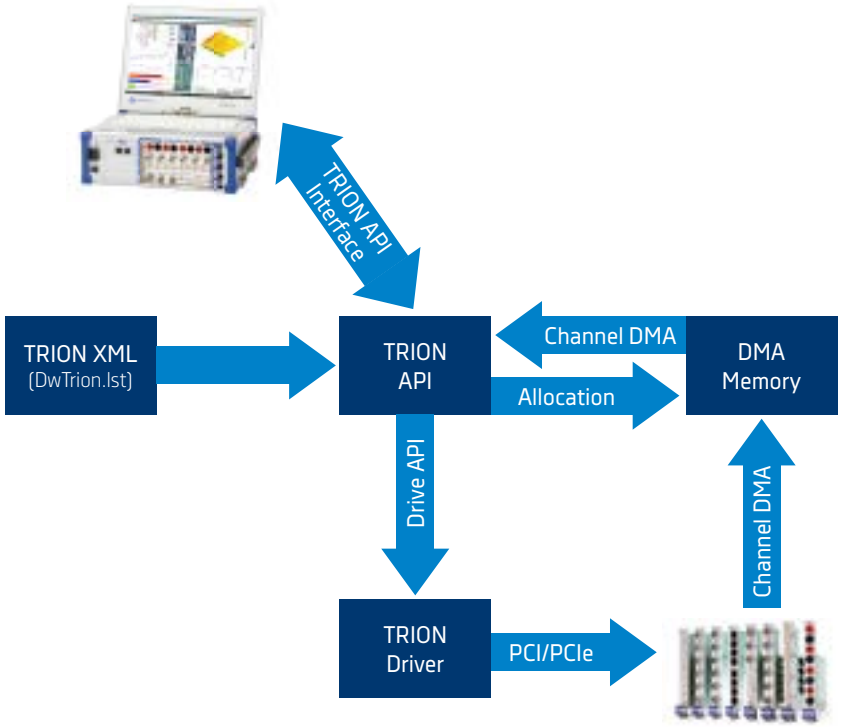
With DEWETRON, you get an open platform to develop your own measurement application or extension. Depending on your requirements, you can choose between two Software Development Kits: TRION-SDK and OXYGEN-SDK.

*Visit us on GitHub for more information*
*https://github.com/DEWETRON*

## TRION-SDK

The TRION-SDK helps you, to build your own measurement application based on the DEWE2/DEWE3 and TRION/TRION3 hardware platforms. It also supports the use of TRIONet.

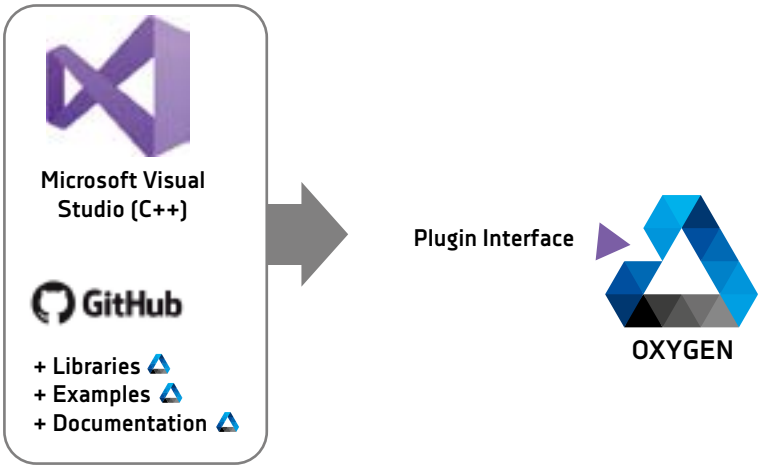
We support Windows 7 (32-bit/64-bit), Windows 10 (64-bit), Ubuntu 1604 LTS, 1804 LTS, and Redhat/CentOS Enterprise Linux.
C/C++ are the natively supported programming languages, additional bindings to Python, C#, and Delphi.




## OXYGEN-SDK

With OXYGEN-SDK, you are capable to develop your own plugins for the OXYGEN Measurement Software.

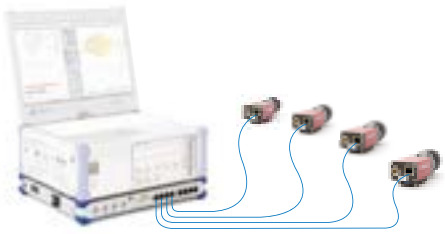
With the SDK, the following features are available for the plugin:
> Read and write data from/to numeric channels
> Create new channels
> Create config items for setup save/load and user config
> Numeric, text, channel list
> And much more...
This allows you, to extend OXYGEN with additional calculations and data I/O.



# ACCESSORIES

## CAMERAS

USB and Ethernet cameras;
Split-box for supplying and connecting Ethernet cameras



## MOBILE DISPLAY

External multi-touch display for mobile applications

## CARRYING CASES

Carrying cases and transportation systems are available for all systems

## POWER SUPPLY SOLUTIONS

Power supplies, battery and distribution boxes

## SENSOR SUPPLY SOLUTIONS

Different solutions for sensor supply from internal TRION-PSU-15W module to external boxes

## CURRENT TRANSDUCERS

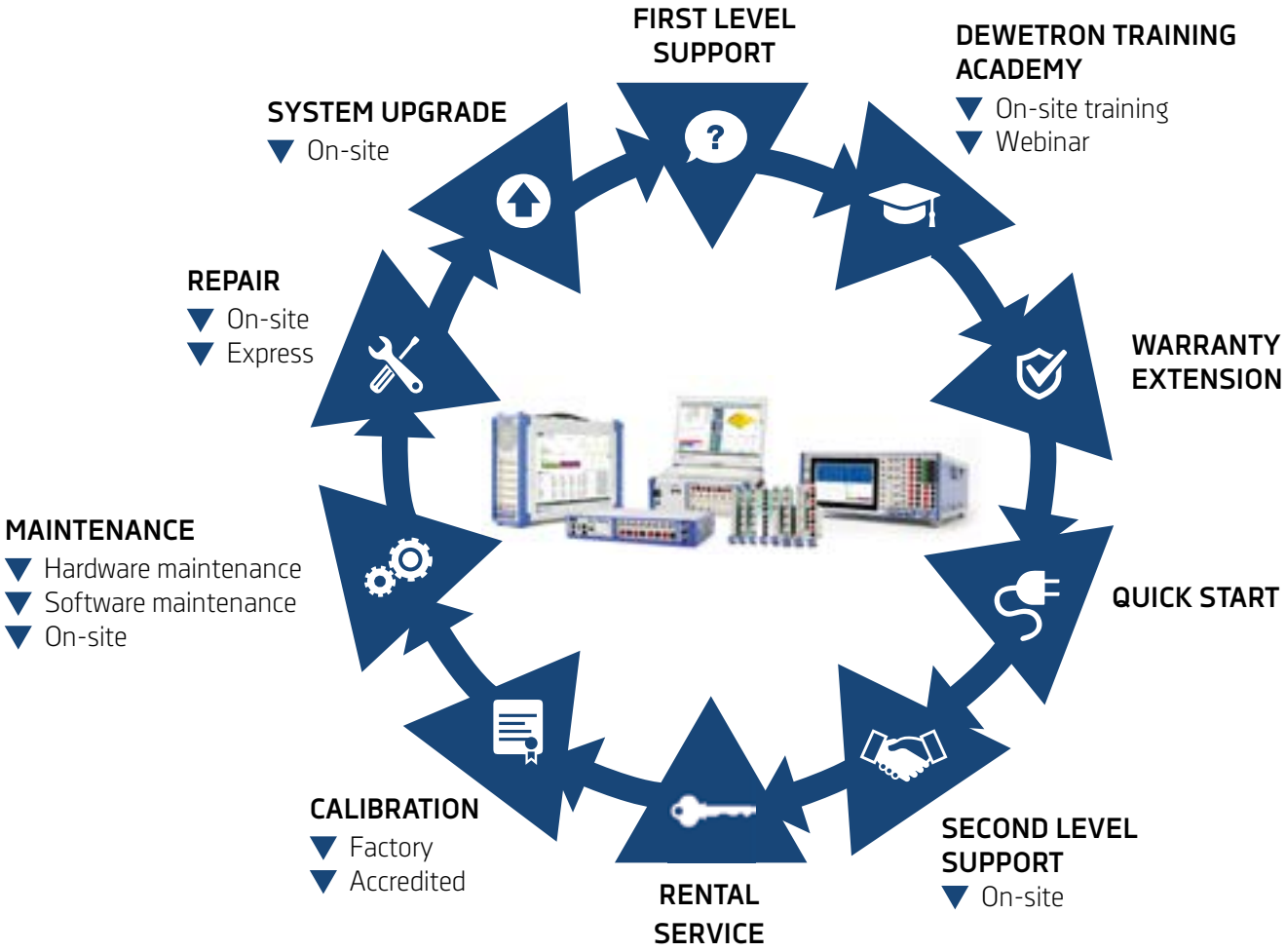
Several solutions for current measurement from simple shunts to current clamps and high-precision zero flux transducers.

# SERVICES

## OFFERED BY OUR CUSTOMER CARE CENTER


**The purchase of your DEWETRON system is the first step to collecting accurate and traceable measurement data. Customize your system with any or all of the available data acquisition modules and record vastly different signal sources in perfect sync.**

DEWETRON Customer Care Packages guarantee that you realize the maximum value from your investment. As a DEWETRON Customer Care Package customer, you will immediately benefit from instant access to our global network of professional support and service teams.




## Do you already know the DEWETRON Academy?

The DEWETRON Academy is a platform for measurement professionals as well as those who want to become one. With our Academy we want to simplify the knowledge transfer between customers and DEWETRON. The platform inludes a variety of short video clips where you can learn how to use our measurement software OXYGEN, explore hidden features and improve your know-how. Our whitepapers keep you up to date about the latest trends and technologies in the test and measurement sector.
Visit ***www.dewetron.com/academy*** or follow us on ***LinkedIn*** to never miss any update!

# ACCREDITED SCOPE

V 1000 DC — VOLTAGE (DC)

I 20 DC — CURRENT (DC)

Pt100 Pt200 Pt500 Pt1000 — TEMPERATURE SIMULATION (RTD)

V 1000 AC — VOLTAGE (AC)

I 20 AC — CURRENT (AC)

P 20.91 k DC — POWER (DC)

1 M DC — RESISTANCE (DC)

K, J, T — TEMPERATURE SIMULATION (DC)

P 20.66 k AC — ACTIVE POWER (AC)

# CUSTOMER CARE PACKAGE OFFERING

All Customer Care Packages are customized, so you receive the services that are best suited to your needs.

From Basic to Care+, DEWETRON has the right package for your business.

Customer Care packages are available for **up to 5 years** (incl. first year warranty) with different coverage levels.

| CUSTOMER CARE PACKAGES | WARRANTY EXTENSION | SOFTWARE PACKAGE | CARE PACKAGE | CARE+ PACKAGE |
|---|---|---|---|---|
| Customer support | ✓ | ✓ | ✓ | ✓ |
| Extended warranty | ✓ | | ✓ | ✓ |
| Software maintenance | | ✓ | | |
| Hardware maintenance | | | ✓ | ✓ |
| Factory calibration | | | ✓ | |
| Accredited calibration | | | | ✓ |

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## ABOUT DEWETRON

DEWETRON is an Austrian manufacturer of precision Test & Measurement systems designed to help our customers make the world more predictable, efficient and safe. Our strengths lie in customized solutions that are immediately ready for use while also being quickly adaptable to the changing needs of the test environment and sophisticated technology of the Energy, Automotive, Transportation and Aerospace industries.

More than 30 years of experience and innovation have awarded DEWETRON the trust and respect of the global market. There are more than 25,000 DEWETRON measurement systems and over 400,000 measurement channels in use in well-known companies worldwide. Choosing DEWETRON means, having a partner by your side who accompanies you every step of the way.

DEWETRON employs over 120 people in 25 countries and is part of the TKH Group, a global corporation, that specializes in the development and supply of innovative solutions worldwide. DEWETRON quality is certified in compliance with ISO9001, ISO14001 and ISO17025.

# THE MEASURABLE DIFFERENCE.

www.DEWETRON.com