DEWETRON

PRODUCT GUIDE

DATA ACQUISITION SYSTEMS & 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?

SYSTEM SERIES = CHASSIS + MODULES

DEWE2

& TRION™

[up to 2 MS/s]

DEWE2

DEWE2-A4

DEWE2-M13

TRIONet

TRION™

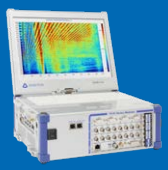
DEWE3

& TRION3™

& TRION™

[up to 10 MS/s via TRION3™]

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]

POWER Modules

+ TRION™ / TRION3™

Power Modules plus additional TRION™/TRION3™

CUSTOMER CARE CENTER

CALIBRATION

MAINTENANCE

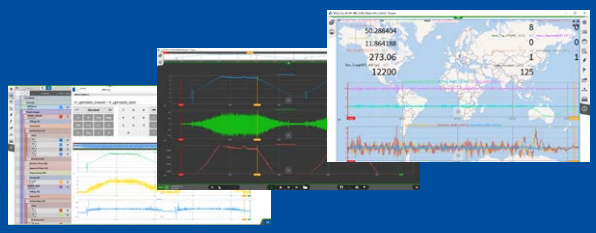
SYSTEM UPGRADE

REPAIR

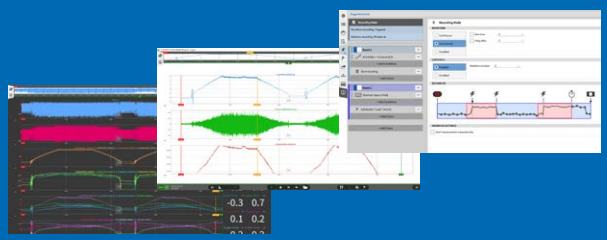
+ SOFTWARE

WHICH SIGNALS ARE PROCESSED?

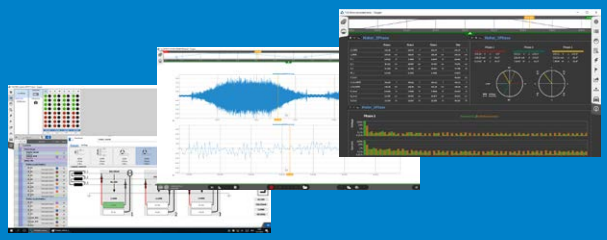
OXYGEN



OXYGEN



OXYGEN + POWER Option



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

DEWETRON TRAINING ACADEMY

WARRANTY EXTENSION

FIRST LEVEL SUPPORT

SECOND LEVEL SUPPORT

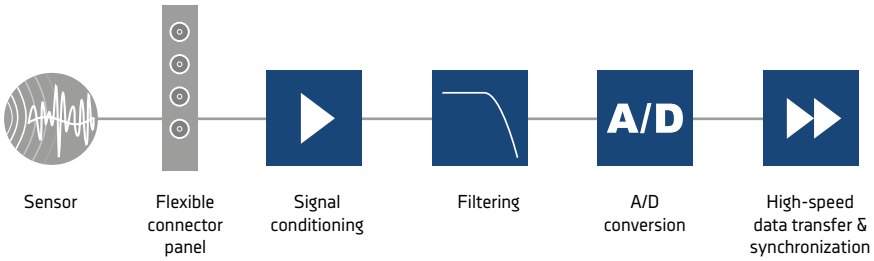
QUICK START

RENTAL SERVICE

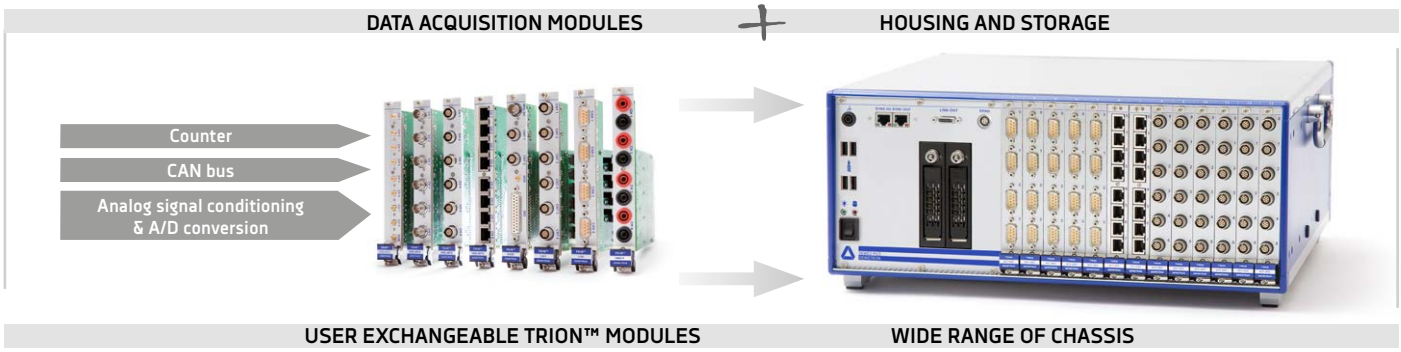
INSTRUMENT FAMILIES

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



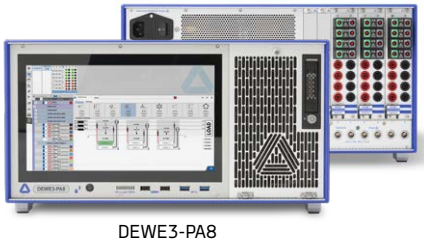
> Fully modular: user exchangeable modules for analog, digital, counter, CAN
> High precision recording
> High channel density
> Rugged chassis

DEWE3 SERIES WITH TRION™ AND TRION3™ MODULES

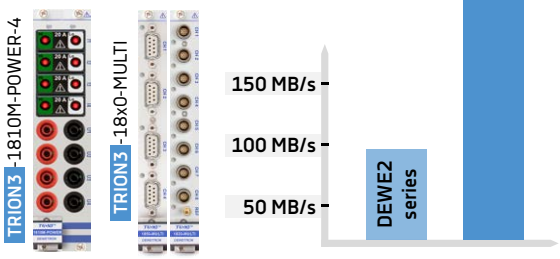
PCI EXPRESS SSD DRIVES

> High-speed modules with up to 10 MS/s per channel
> 1 GB/sec continuous high-speed data storage rate

DEWE3-RM16



DEWE3-PA8



SYSTEM OVERVIEW

Signal Conditioning Amplifier

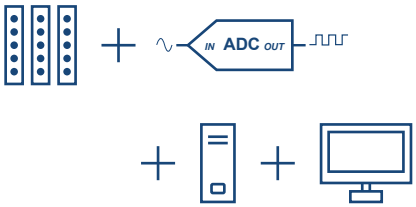
A/D Conversion

Computer inside

Display

POWER ANALYZER

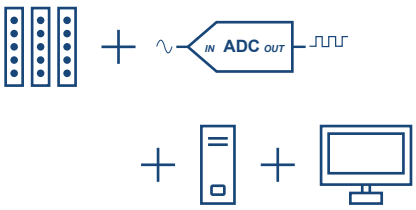
> 16 power phases
> 0.03 % measurement error (1 to 1000 Hz)
> Mixed Signal Analyzer
> Multi-touch screen (up to 11.6")
> Integrated (redundant) current transducer supply



DEWE3-PA8

ALL-IN-ONE

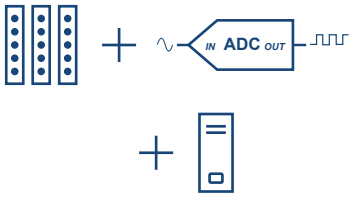
> Built-in display
> Compact and flexible configuration
> Powerful PC inside for fast online displays and analysis
> Convenient for mobile applications
> Battery power option

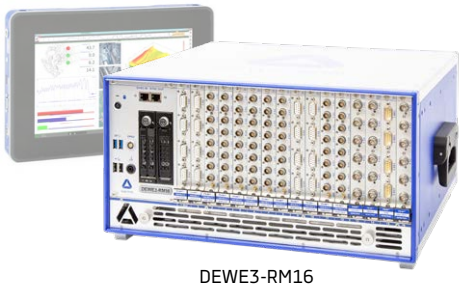


DEWE3-A4

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

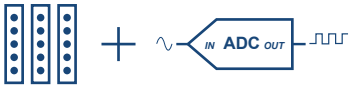


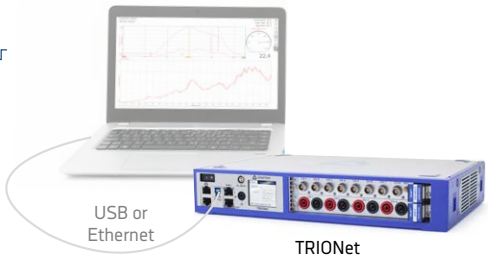


DEWE3-RM16

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 ...

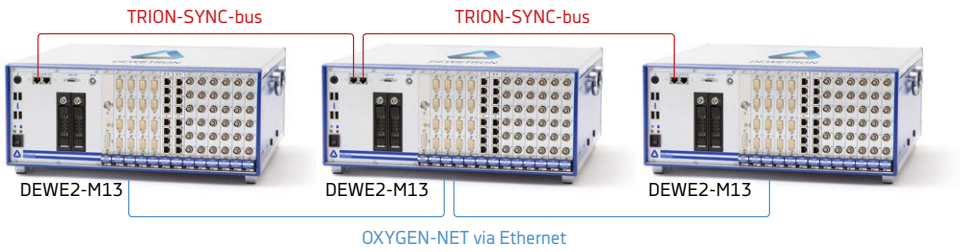
DEWE-30-16

UNLIMITED MEASUREMENTS

MORE CHANNELS

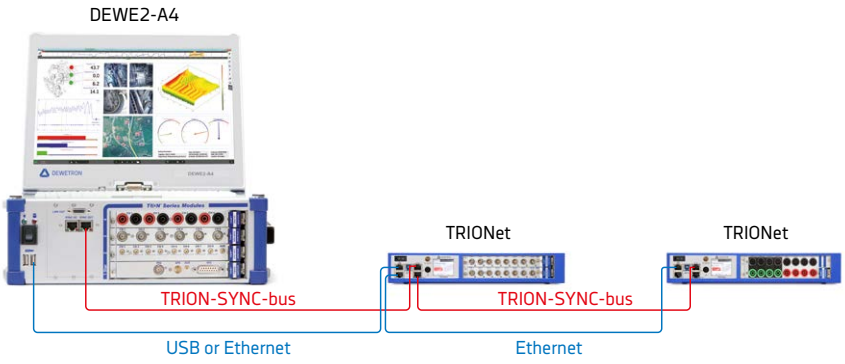
OXYGEN-NET EXPANSION

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.



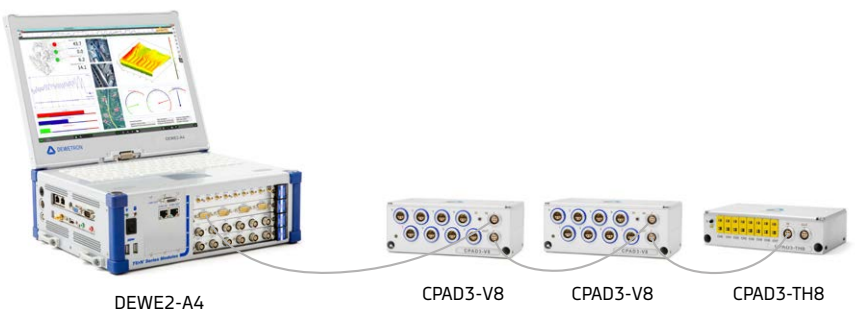
FRONT-END EXPANSION

Add one or more Front-end chassis for high-speed expansion. Up to 100 m between units possible.



STATIC EXPANSION
UP TO 100 HZ

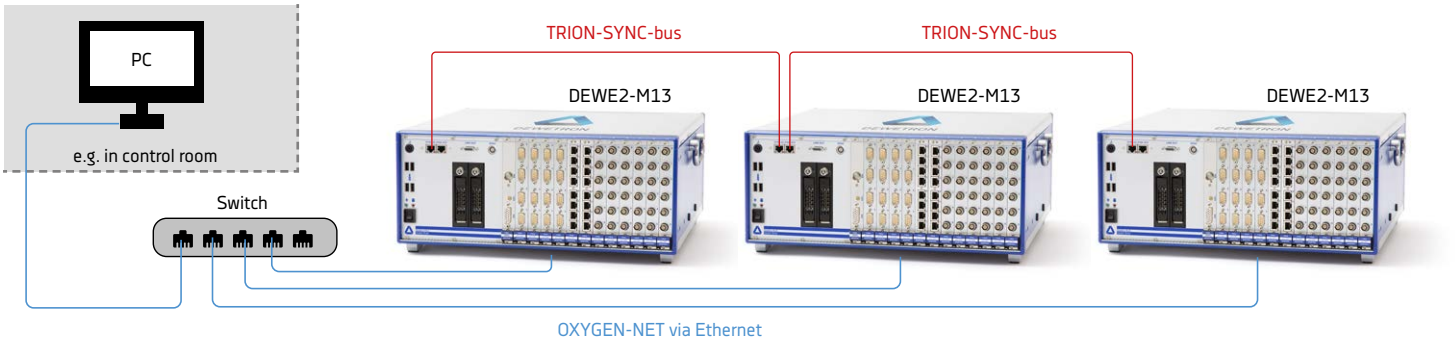
Add CPAD2 or CPAD3 modules with CAN interface or EPAD2 modules with RS485 interface



NETWORKED SYSTEMS

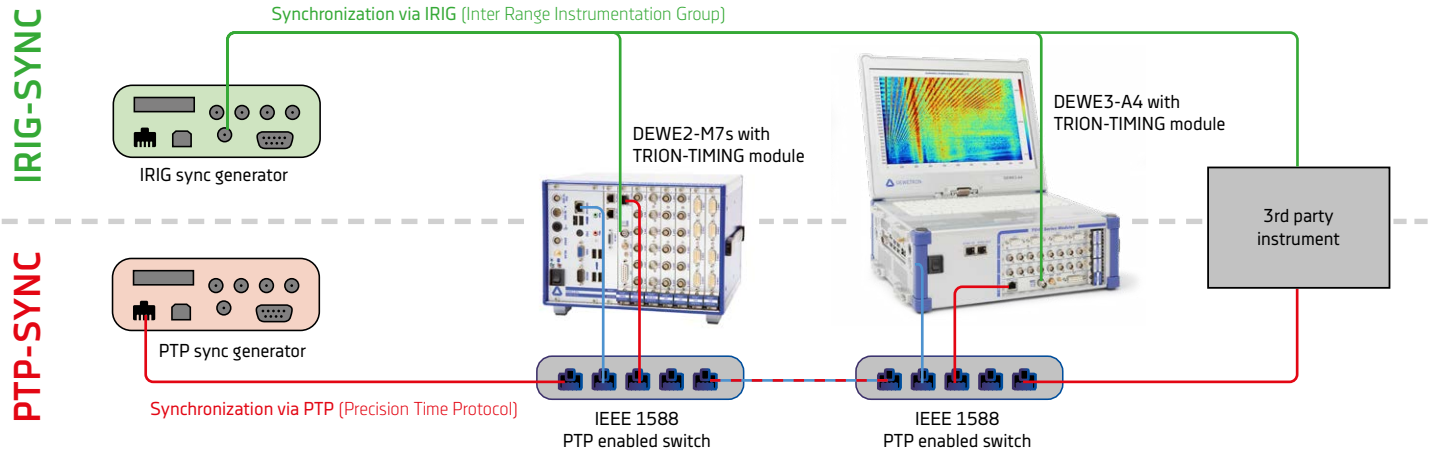
TRION-SYNC

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



PTP-SYNC / IRIG-SYNC

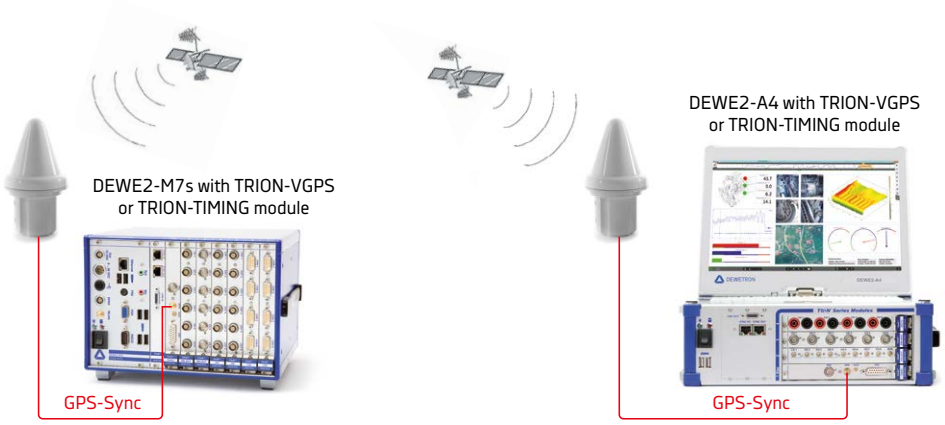
Various instruments from DEWETRON or 3rd party instruments synchronized via PTP or IRIG.
Data transmission via Ethernet and local data storage possible.



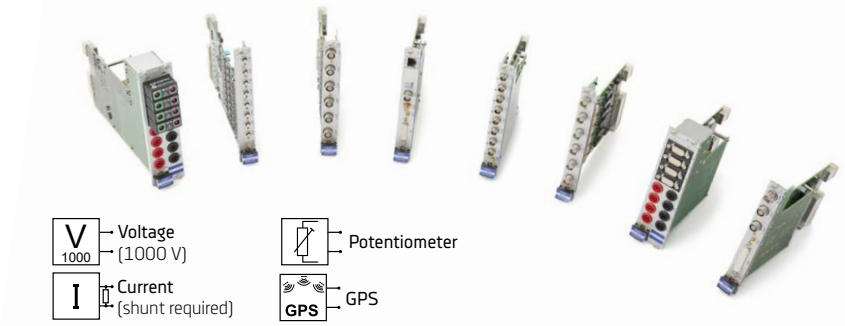
GPS-SYNC

Two or more instruments synchronized via GPS

Data transmission via Ethernet and local data storage possible.



TRION™/ TRION3™



- Voltage (1000 V)
- Current (shunt required)
- Current (with shunt inside)
- IEPE® (vibration)
- Bridge (strain gauge)
- Potentiometer
- GPS
- RTD
- Absolute Time (PTP, IRIG, GPS)
- Counter Inputs
- CAN
- Modular Smart Interfaces (e.g. for thermocouple)
- 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
TRION-1620-LV	6	2 MS/s	24-bit >1 MS/s: 16-bit	yes	6 BNC
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 1000V
TRION-1603-LV	6	250 kS/s	16-bit	yes	6 BNC
TRION-2402-dSTG [2]	6 or 8	200 kS/s	24-bit	-	6 BNC or 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

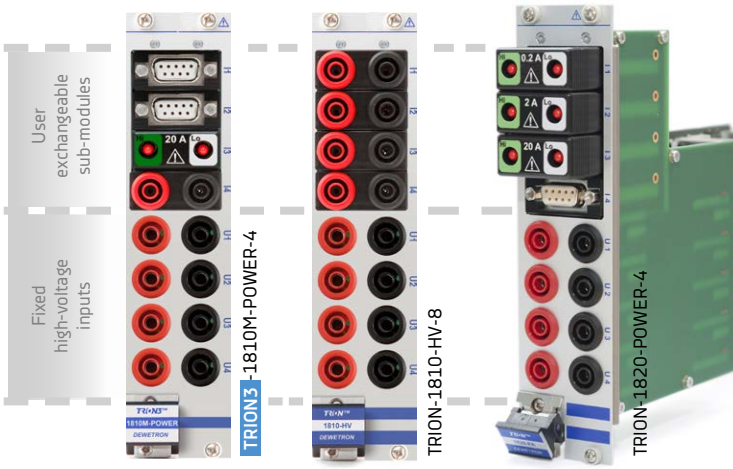
DIGITAL MODULES	CHANNELS	SAMPLE RATE PER CHANNEL	RESOLUTION	ISOLATION	FEATURES
TRION-CNT	6	2 MS/s	80 MHz	yes	6 channel advanced counter
TRION-DI-48	48	2 MS/s	500 nsec	yes	48 high-speed ditigal IN
TRION-BASE	-	2 MS/s	80 MHz	-	Basic IO card with simple IRIG sync and 2 counter
TRION-VGPS-V3	-	2 MS/s	0.01 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

DEDICATED MODULES	CHANNELS	SAMPLE RATE PER CHANNEL	RESOLUTION	ISOLATION	CONNECTOR TYPES
TRION-CAN	2 or 4	1 MBit	-	yes	DSUB
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

DIFFERENTIAL MODULES	CHANNELS	SAMPLE RATE PER CHANNEL	RESOLUTION	ISOLATION	INPUT TYPES
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

[1] Requires DEWE3 express chassis
[2] Some versions of this module occupy 2 TRION™ slots

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 sub-modules or voltage sub-modules to connect almost any kind of current or voltage transducer. All sub-modules are user-exchangeable at any time.

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

Examples for user exchangeable sub-modules

		RANGE	SAFETY	BANDWIDTH	CONNECTOR	USER EXCHANGEABLE	SUB-MODULE
	Voltage input U1, U2, U3, U4	1000 V ($\pm$2000 V_{PEAK})	CAT IV 600 V / CAT III 1000 V	5 MHz	Safety banana	No	
VOLTAGE	**1 V module**	1 V_{RMS} ($\pm$2 V_{PEAK})	Not isolated. Depending on connected clamp	5 MHz	DSUB-9 socket	Yes	
VOLTAGE	**5 V module**	5 V_{RMS} ($\pm$10 V_{PEAK})		5 MHz	DSUB-9 socket		
VOLTAGE	**Clamp input module**	5 V ($\pm$10 V_{PEAK})		150 kHz	DSUB-9 socket		
VOLTAGE	**600 V module**	600 V_{RMS} ($\pm$1500 V_{PEAK})	CAT II 600 V, isolated	300 kHz	Safety banana		
VOLTAGE	**5 V module**	5 V_{RMS} ($\pm$10 V_{PEAK})		300 kHz	Safety banana		
CURRENT	**20 A module**	20 A ($\pm$40 A_{PEAK})	CAT II 600 V, unfused	300 kHz	Safety banana (male)		
CURRENT	**2 A module**	2 A ($\pm$4 A_{PEAK})					
CURRENT	**1 A module**	1 A ($\pm$2 A_{PEAK})					
CURRENT	**0.2 A module**	0.2 A ($\pm$0.4 A_{PEAK})					

EXAMPLES

DEWE2-PA7

TRIONet

DEWE3-A4
Compatible with TRION3™

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™ (up to 12 phases)	8 TRION™ / TRION3™ (up to 16 phases)
High-speed 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 Solid State Disk dedicated for data storage	
Optional data storage	1 TB hard disk dedicated for data storage 120 GB SSD for operating system and application software	(SSD-PCIe-1T-2T) Upgrade from 1 TB to 2 TB industrial grade, PCIe attached Solid State Disk
Gap free storing rate	Typ. 90 MB/s	Typ. 1 GB/s
Display	9" multi-touch wide-screen	11.6" multi-touch wide-screen 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) without handle/feet	441 x 427 x 177 mm (4 u plus 1 u for cooling in cabinet required) (17.4 x 16.8 x 7 in.)	441 x 435 x 222 mm (5 u) (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

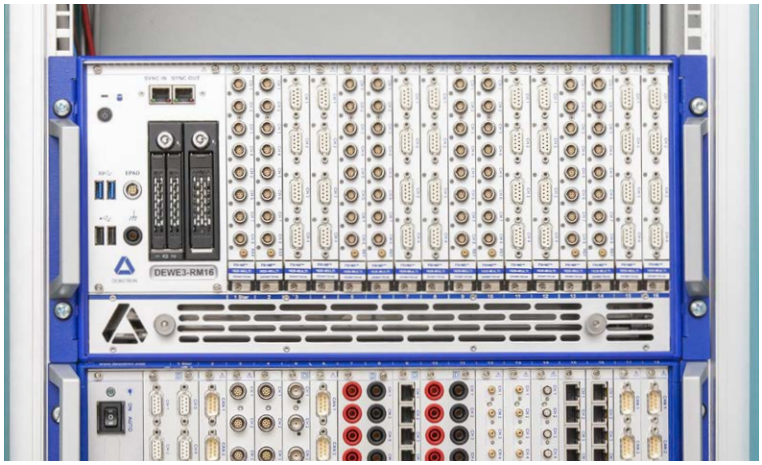
FOR TRION3™ MODULES

> 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™
High-speed 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 high-speed PCIe Solid State Disk dedicated for data storage (removable)			
Optional data storage	(SSD-PCIe-1T-2T) 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) without handle/feet	442 x 435 x 222 mm (5 u) (17.4 x 17.1 x 8.7 in.)			
Weight 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

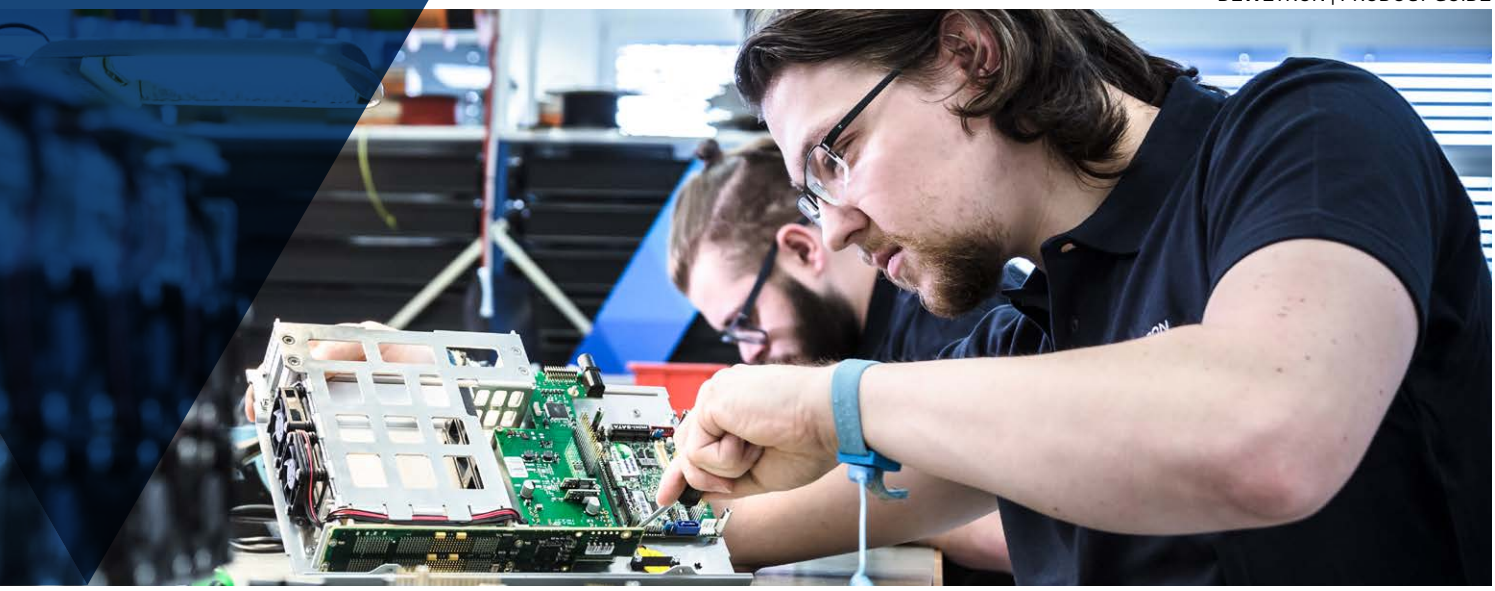
	DEWE2-M4 / DEWE3-M4	DEWE2-M7s
Slots for TRION™/TRION3™ modules	DEWE2-M4: 4 TRION™ DEWE3-M4: 4 TRION™ / TRION3™	7 TRION™
High-speed channel expansion	Add TRIONet or OXYGEN-NET	
Low-speed channel expansion 100 Hz	CPAD3 via TRION-CAN	
Quasi-static channel expansion	EPAD2 or CPAD2 via TRION-CAN	
Data storage	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 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) Internal buffer battery for ~ 5 min. operation	
Option 2	(DW2-UPS-250-DC) Ext. battery pack, 3 battery slots	
DIMENSIONS		
Dimensions (W x D x H) without handle/feet	318 x 253 x 108 mm (12.5 x 10 x 4.3 in.)	258 x 230 x 177 mm (4 u) (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.)

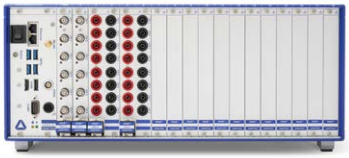
[1] Weight of one battery: 540 g (1.20 lb.)

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 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; incl. external AC power supply	90 to 264 V_{AC}	90 to 264 V_{AC}
Internal buffer battery for ~ 2 min. operation	Redundant AC power supply	n/a
Battery powered, 4 battery slots for ~2 hours operation	n/a	n/a

441 x 230 x 177 mm (4 u) (17.4 x 9.1 x 7 in.)	441 x 427 x 177 mm (4 u) (17.4 x 16.8 x 7 in.)
Typ. 7.3 kg (16 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™ DEWE3-A4: 4 TRION™ / TRION3™	4 TRION™	7 / 13 TRION™
High-speed channel expansion	Add TRIONet or OXYGEN-NET		
Low-speed channel expansion 100 Hz	CPAD3 via TRION-CAN		
Quasi-static channel expansion	EPAD2 or CPAD2		
Data storage	256 GB removable Solid State Disk	1 TB hard disk dedicated for data storage 120 GB SSD for operating system and application software	1 TB hard disk dedicated for data storage 120 GB SSD for operating system and application software
Optional data storage	Up to 1 TB SSD		
Gap free storing rate	DEWE2-A4: typ. 90 MB/s DEWE3-A4: typ. 400 MB/s	Typ. 90 MB/s	Typ. 90 MB/s
Display	13“ wide-screen display	15.4“ multi-touch wide-screen display full HD	17“ wide-screen display full HD
POWER SUPPLY			
Input voltage (max.)	10 to 36 V_{DC} isolated incl. external AC power supply	90 to 264 V_{AC}	90 to 264 V_{AC}
Option 1	Internal buffer battery for ~ 5 min. operation	-	DC power supply (DW2-PS-DC-300) 10 to 36 V_{DC}
Option 2	(DW2-UPS-250-DC) Ext. battery pack, 3 battery slots for ~2 hours operation	-	(DW2-PS-BAT) Battery powered, 4 battery slots for ~2 hours operation
DIMENSIONS			
Dimensions (W x D x H) without handle/feet	318 x 253 x 128 mm (12.5 x 10 x 5 in.)	462 x 320 x 135 mm (18.2 x 12.6 x 5.3 in.)	450 x 246 x 303 mm (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.)			

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

DE-POWERBOX-11
DC power distribution box

Car seat mounting kit
for DEWE2-A4

FRONT-END

WITH USB & ETHERNET INTERFACE

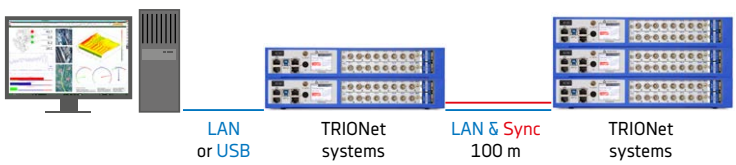
> Up to 100 m distance between the TRIONet systems
> Gigabit LAN and USB3
> Distributable / stackable
> Touch display

	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-FLEXRAY

LOW CHANNEL-COUNT APPLICATION

DISTRIBUTED APPLICATION

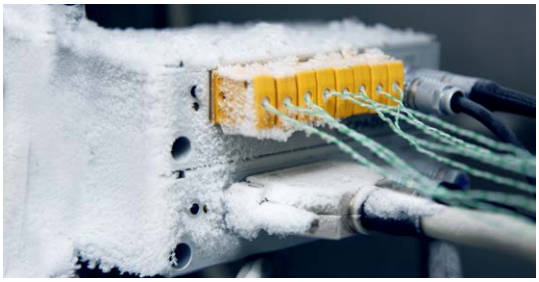


STATIC MEASUREMENT MODULES

> -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

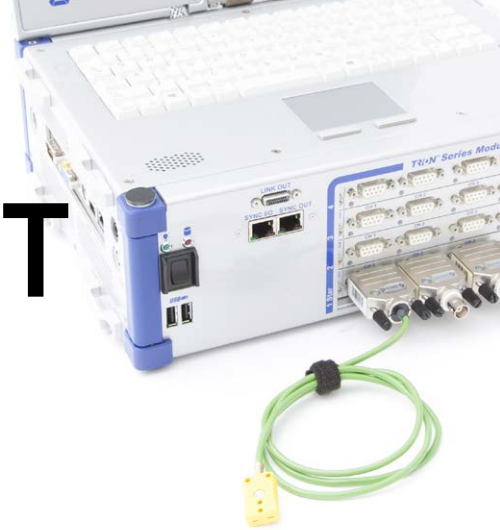
MODULE	CHANNELS	INPUT RANGES	SAMPLE RATE PER CHANNEL	ISOLATION
CPAD3-TH8-x 	8 thermocouple inputs	Types K, T, J, E, R, S, B, N, C, U	100 S/s	1500 V_{DC}
EPAD2/CPAD2-TH8-x 	8 thermocouple inputs	Types K, T, J, E, R, S, B, N, C, U	10 S/s	350 V_{DC}
CPAD3-V8 	8 isolated voltage inputs	Max. ±50 V	100 S/s	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 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 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	±0.2 %	Miniature spring terminals
MSI2-LVDT 	LVDT and RVDT sensors, 5 wire connection	AC supply 1 to 3.5 V at 2.5, 10 or 20 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
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 ±200 V.

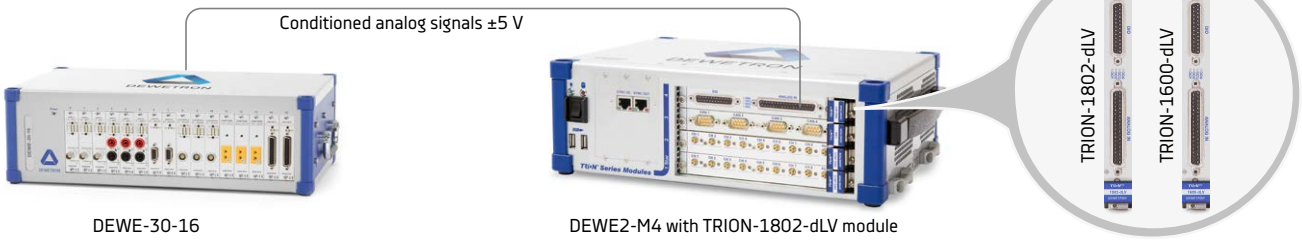
ANALOG SIGNAL CONDITIONING

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	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



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 Internal completion for ½ and ¼ bridge uV amplifier with high bandwidth 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} 10 MOhm input resistance	300 kHz	1800 V_{RMS}	Safety banana
VOLTAGE				
DAQP-LV	High input protection 12 ranges from 10 mV to 50 V Direct sensor supply with DSUB version	300 kHz	1000 V_{RMS}	Safety banana, BNC, DSUB
CARRIER FREQUENCY AMPLIFIER				
DAQP-CFB2	600 Hz to 20 kHz carrier frequency Very robust and stable bridge measurement Supports LVDT sensors	9.6 kHz	-	DSUB
TEMPERATURE				
DAQP-MULTI	PT1000 to PT2000 TC types: K, J, T, R, S, N, E, B, L, C, U Integrated CJC and linearization	1 kHz	1000 V_{RMS}	DSUB, universal mini TC
DAQP-THERM	TC types: K, J, T, R, S, N, E, B, L, C, U 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 Supports quasi-static charge sensors 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

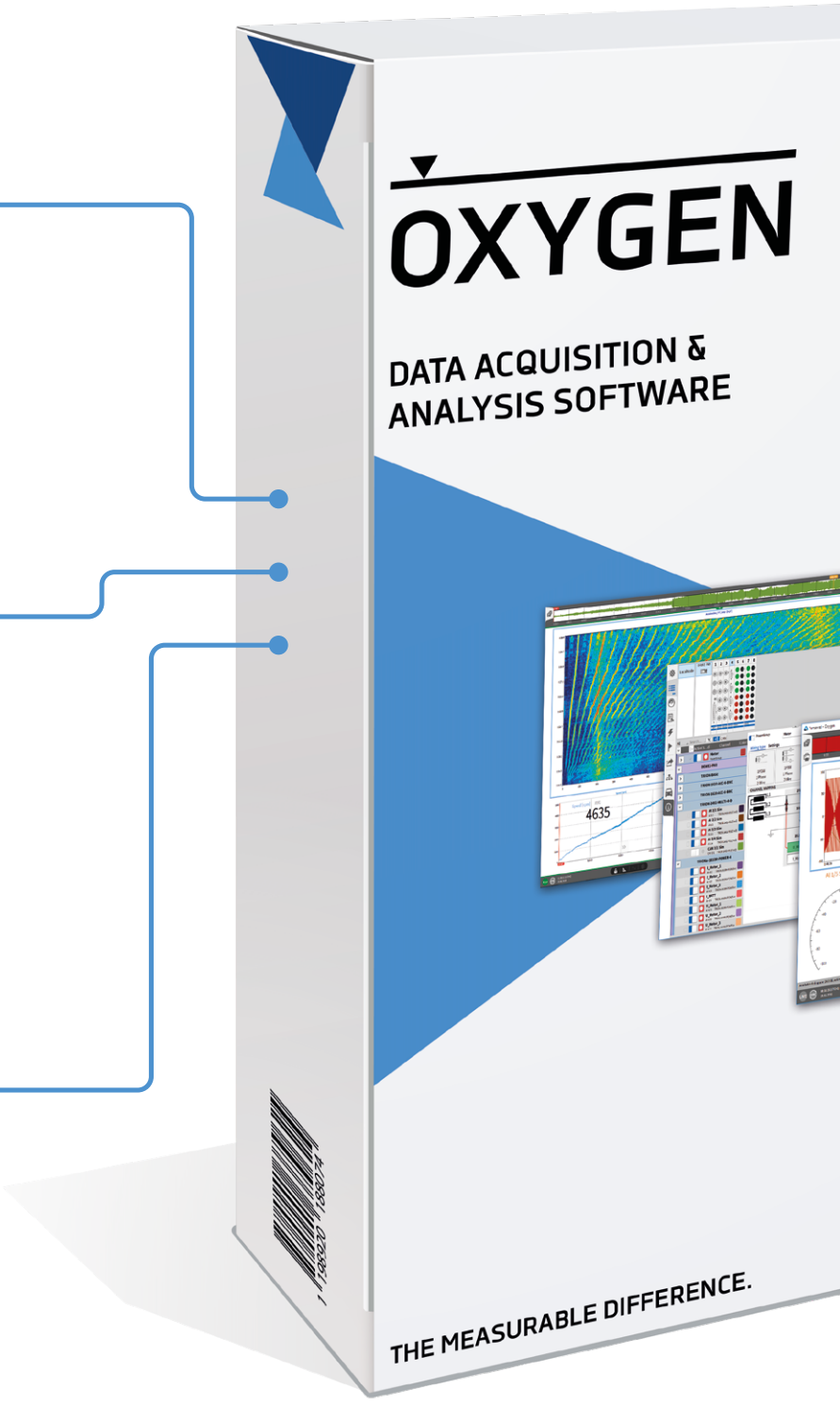
> Organize your instruments on multiple screens
> Simply create new screens with drag'n'drop

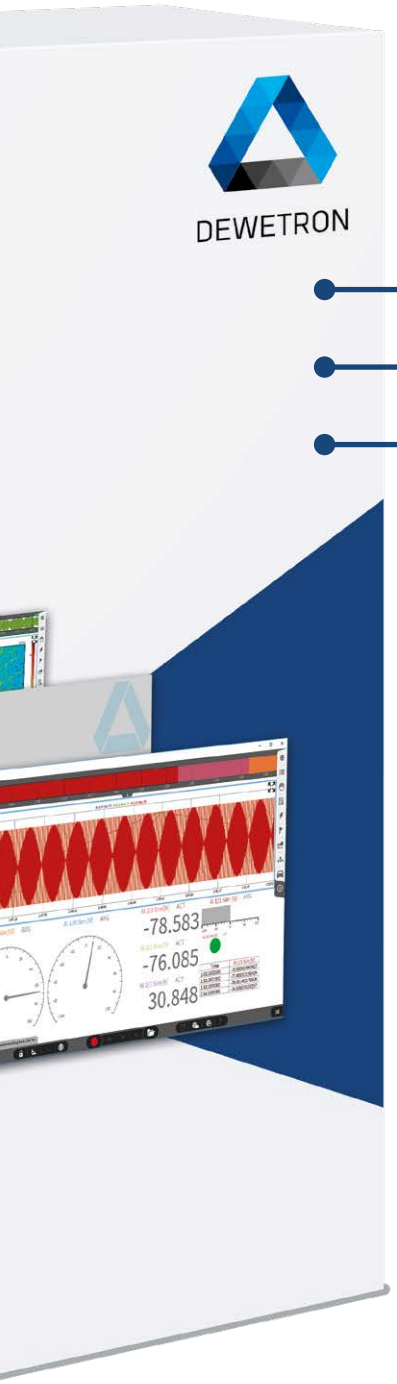
EFFICIENCY & PERFORMANCE

> 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

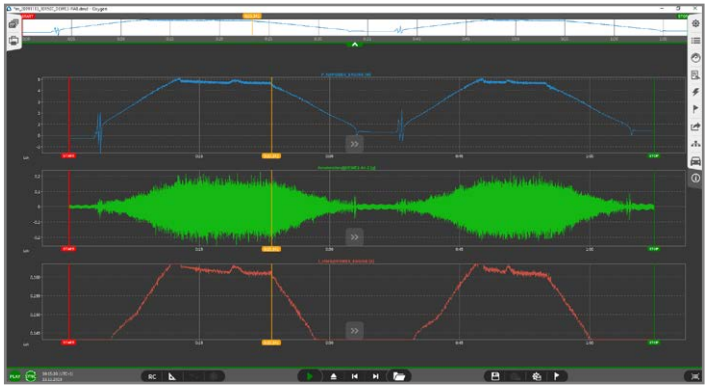
Multiple precision measurement instruments and analysis functions increase the value of your measurements:

> 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.

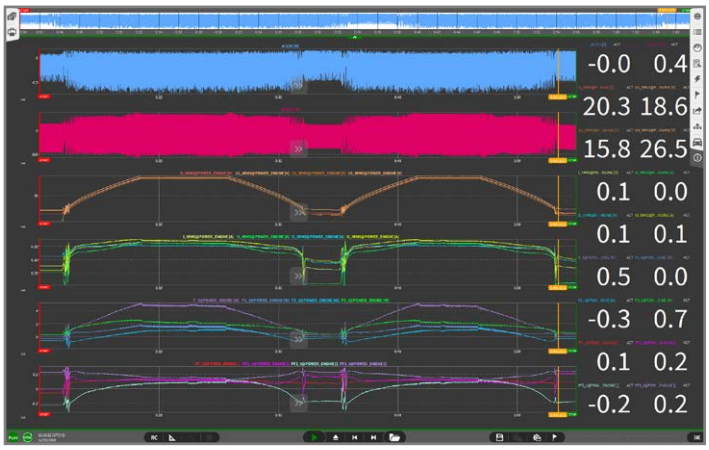
> Analog data with up to 10 MS/s via TRION3™
> Digital and encoder data with automatic rpm and angle calculation
> CAN(-FD) decoding via dbc, including J1939. Compatible with Vector VN-series (option)
> Ethernet receiver for external sensors (option)
> Video data from USB or GigE camera
> Precision GPS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



RECORDING

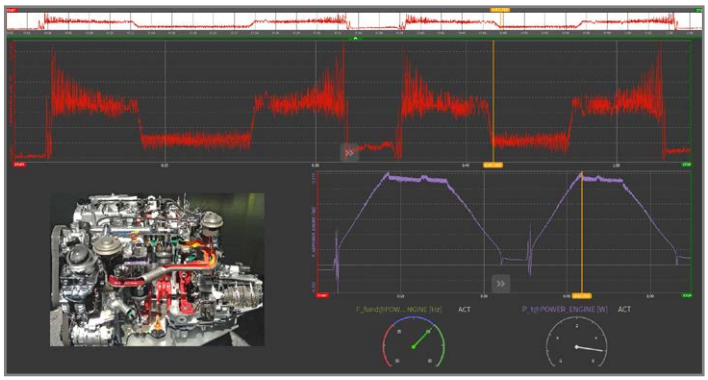
The second core feature of OXYGEN is powerful data recording. All the acquired data can be stored in one data file with a simple touch on the record button. With the right hardware, you can achieve data rates up to 1 GB/s, you don't have to bother to lose anything.

> 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 INCL. VIDEO

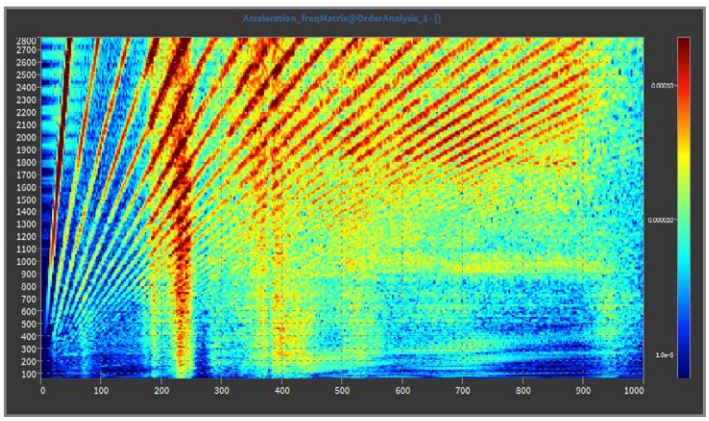
> The right visualization gives the data its value. Attractively designed visualization instruments with intuitive and smooth operation.
> 16 different visualization instruments for every purpose
> Highly customizable screens, perfect for your application
> Multi-monitor support for best overview



ORDER ANALYSIS (OPTIONAL)

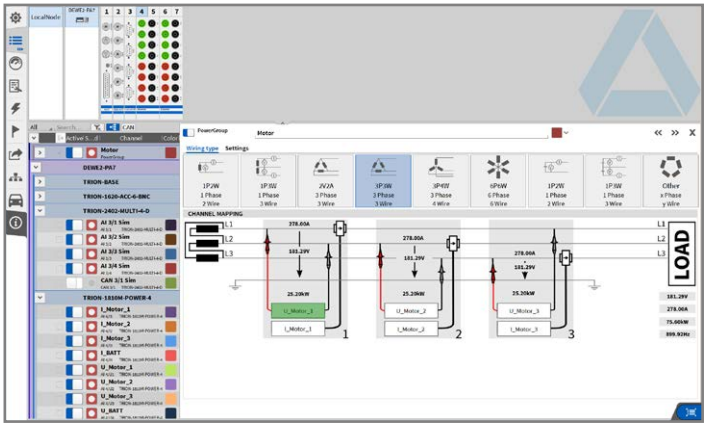
Noise and vibration analysis module for rotating machines. This feature turns your OXYGEN into a full order analysis instrument for calculation and visualization of frequency and order spectra vs. speed.

> 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)

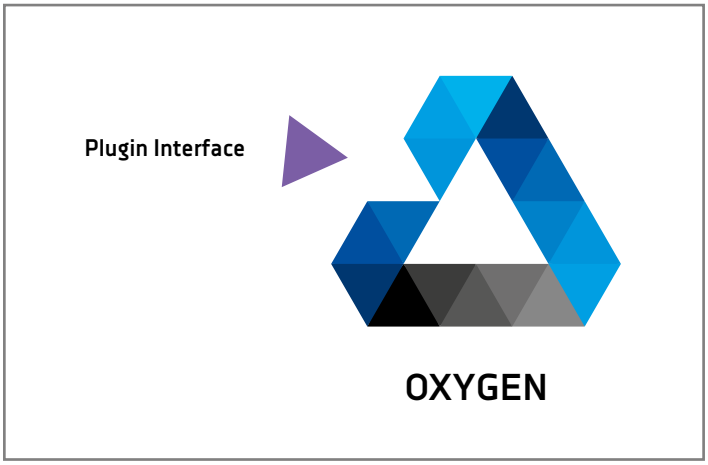
> Analysis of 1-9 phase power systems (1P2W, 2V2A, 3P3W, 3P4W, 6P6W, ...)
> Several power systems are logically summarized into Power Groups
> Gapless cycle-by-cycle calculation, no blind spots
> Unique fundamental frequency detection with delay compensation for highest accuracy and reliability of the 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)



OXYGEN SDK (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.

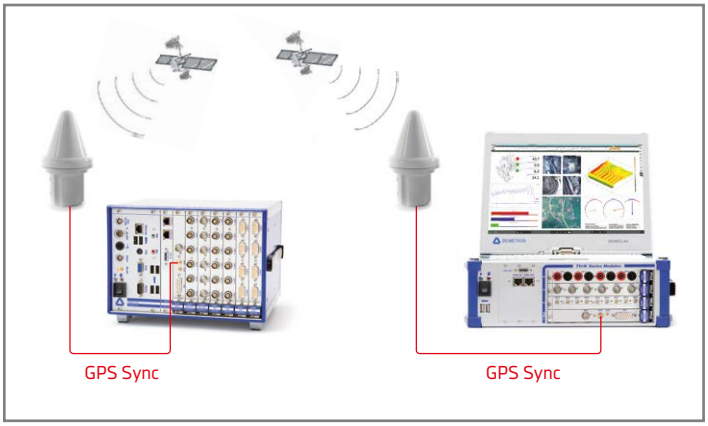
> C++ Plugin Interface for customization
> Add complex mathematical calculations, which are not supported by built-in functions
> Use 3rd-party sensors and data sources and bring them into OXYGEN
> Output data from OXYGEN via not supported interfaces
> Visit us on GitHub and download example code: https://github.com/DEWETRON



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.

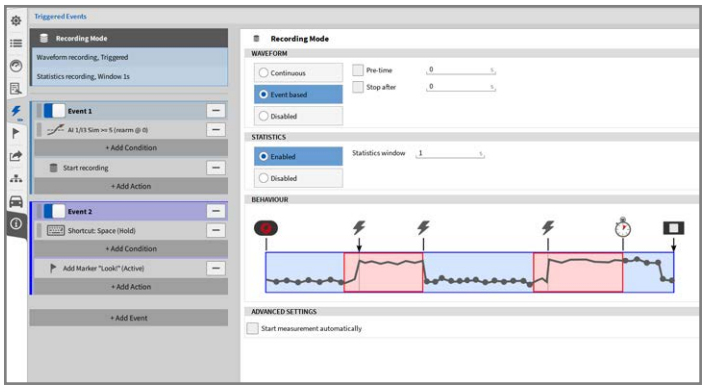
> Absolute time synchronization via PTP (IEEE 1588), GPS and IRIG
> Relative time synchronization via PPS and TRION-SYNC-BUS
> Optional synchronization of operating system time



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.

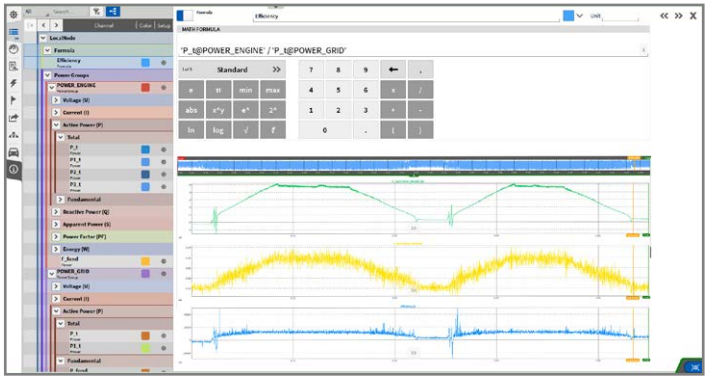
> Many different trigger conditions: signal level (positive/negative edge, window) with optional rearm level, keyboard or time
> Powerful actions like start/stop of recording, set an alarm with optional digital output, set a marker with pre-defined text or make a snapshot of the actual measured data.



MATH AND CALCULATION

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

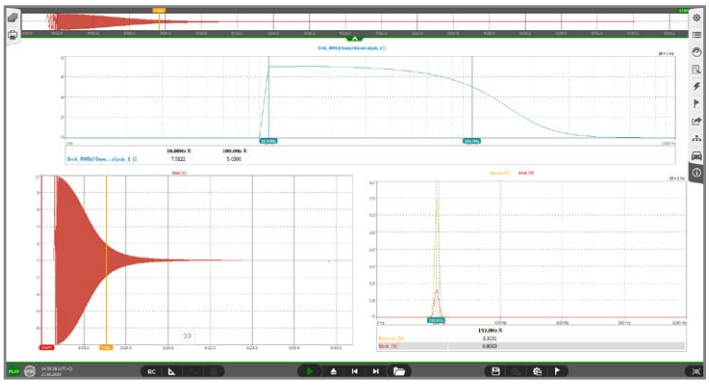
> Formula for arithmetic and more advanced calculations (trigonometric, logical and measurement functions)
> Block-wise statistics to calculate average, rms, min and max values
> High, low, bandpass and bandstop IIR-filter up to the 10th order
> DMS-rosette calculation module for 45°, 60°, and 90° setups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

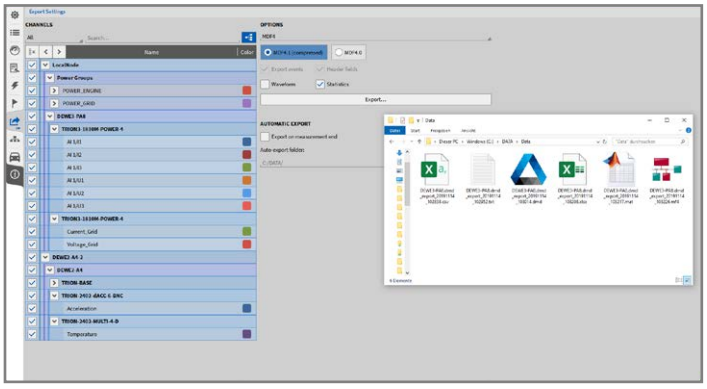
> Use many of the math and calculation (also incl. FFT) features to refine your measurement results
> Create new visualizations and measurement screens
> Quick navigation through the data with well-known gestures and intuitive zoom and scrolling mechanisms
> Create reporting pages (see below)
> Export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



EXPORT FEATURES

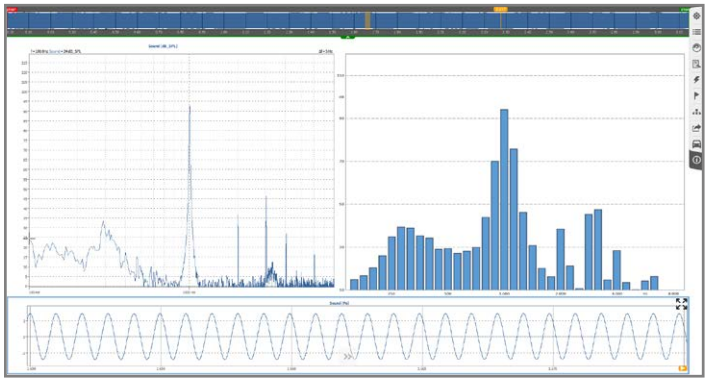
If you need to use other analysis software for further data processing, we offer data export for the most common applications and formats.

> 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) and DMD
> Select channels and/or time-range of the exported data
> Optional automatic export at measurement end



FFT, OCTAVE & SOUND LEVEL ANALYSIS

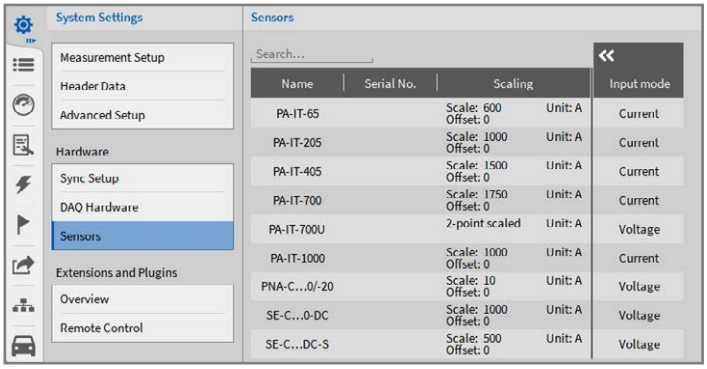
> Freely selectable (not only 2^N) number of input samples or line resolution
> Optional zero-padding for higher line resolution
> Spectrum analyzer instrument with 18 different scaling types (amplitude, RMS, PSD, decibel, ...)
> Average and overlap feature
> Spectrogram instrument for time-dependent analysis with selectable color map



SENSOR DATABASE

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

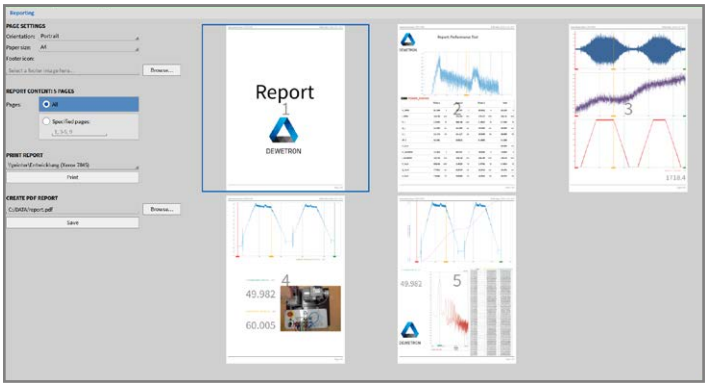
> Simple edit of the sensors with a workflow similar to the channel list
> Store name, serial number and scaling information of each sensor you want to use, including optional settings of the used input channel like measurement mode, filter, and excitation
> Independent from the measurement setup, you 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 post-processing and finally reporting the data.

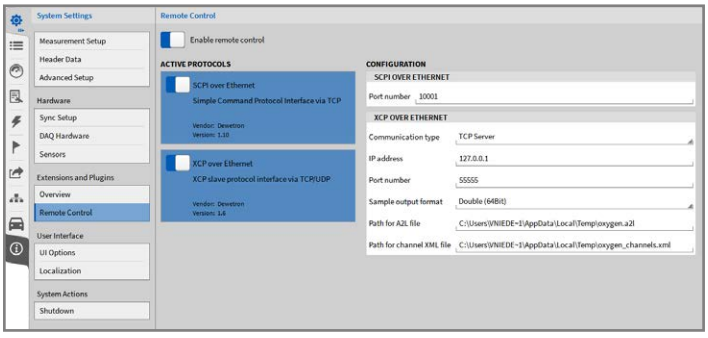
> Separate reporting pages (additional to the measurement screens) with typical printing layouts
> Just duplicate a measurement screen or create new pages with a simple click
> Use all instruments and visualizations also in the reporting pages
> Separate time-cursor on each page available to report different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

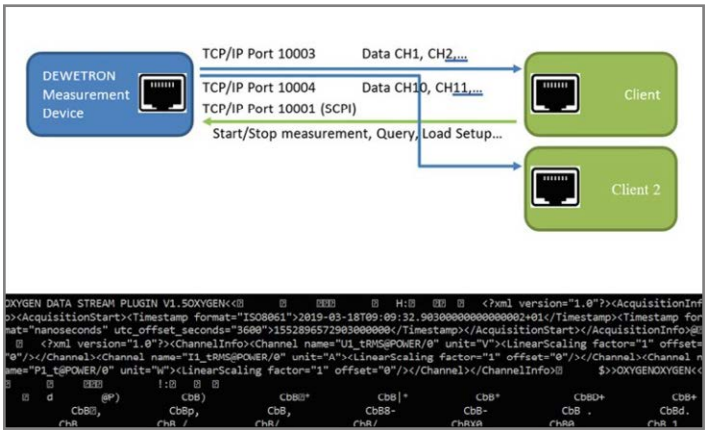
> SCPI over Ethernet (included) for loading setup, recording control, and data transfer
> XCP over Ethernet for recording control and data transfer (ASAM standard) to testbed controller (Vector CANape or ETAS INCA) with up to 10 kS/s
> EtherCAT in combination with TRION-EtherCAT
> CAN input and output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

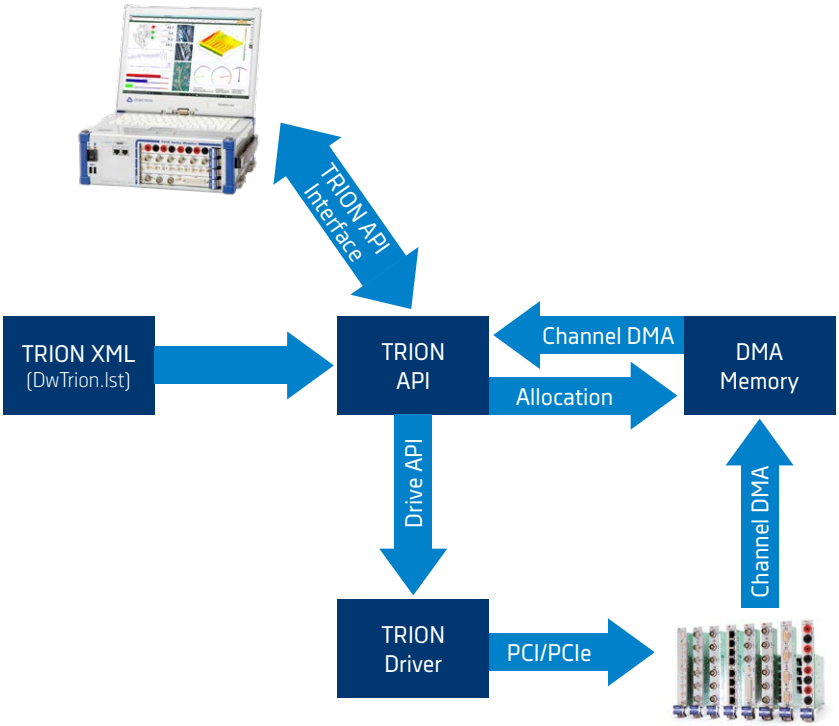
With DEWETRON, you get an open platform to develop your own measurement application or extension. Depending on your requirements, you can choose between two Software Development Kits: TRION-SDK and OXYGEN-SDK.

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.

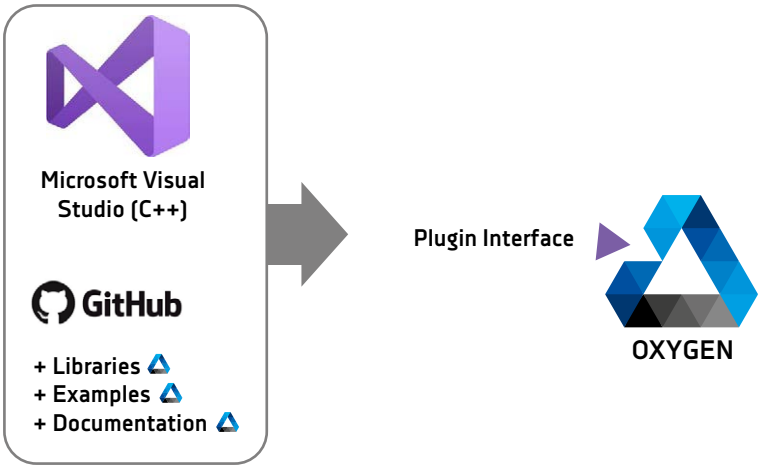
We support Windows 7 (32-bit/64-bit), Windows 10 (64-bit), Ubuntu 1604 LTS, 1804 LTS, and Redhat/CentOS Enterprise Linux.
C/C++ are the natively supported programming languages, additional bindings to Python, C#, and Delphi.



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

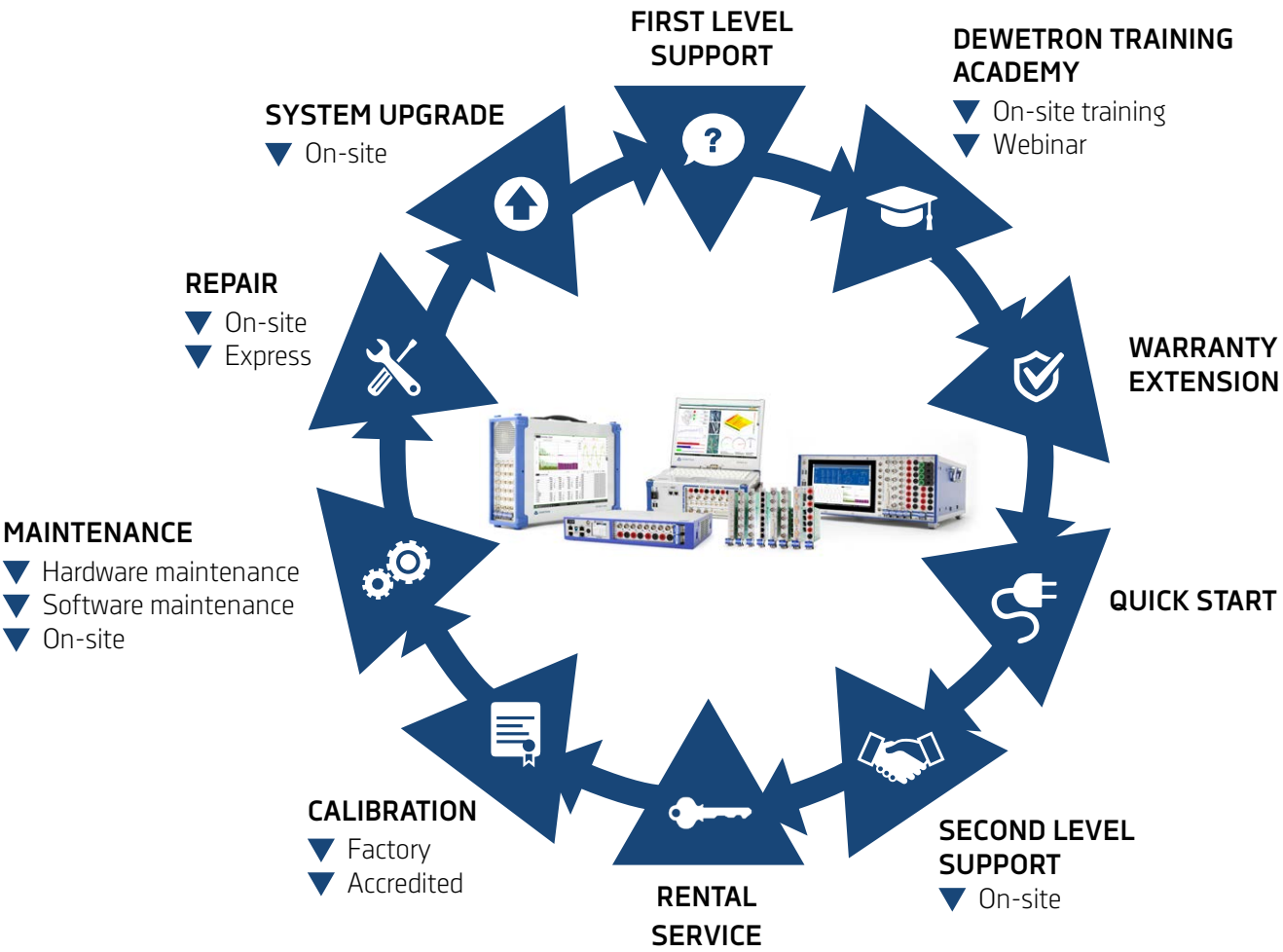
Several solutions for current measurement from simple shunts to current clamps and high-precision zero flux transducers.

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.



ACCREDITED SCOPE

Akkreditierung Austria A 0632 ISO/IEC 17025 C

ilac-MRA

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)

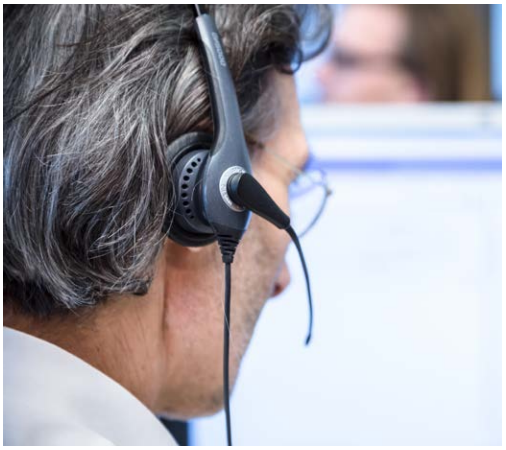
CUSTOMER CARE PACKAGE OFFERING

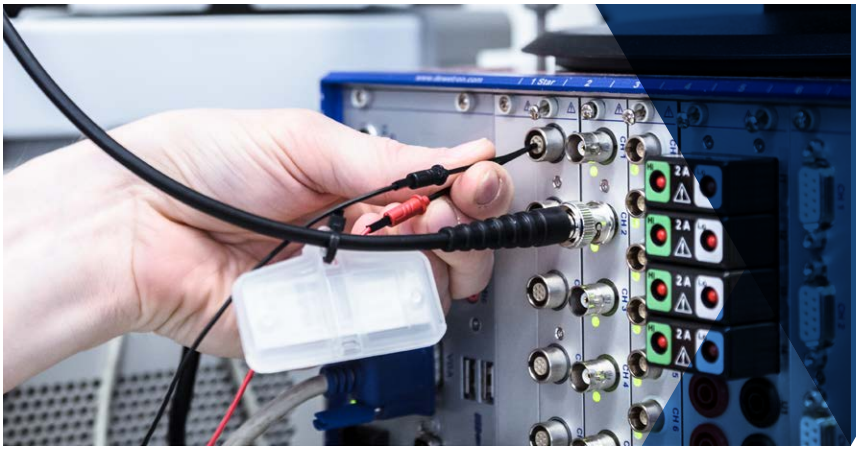
All Customer Care Packages are customized, so you receive the services that are best suited to your needs.

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				✓





DEWETRON

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THE MEASURABLE DIFFERENCE.

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