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 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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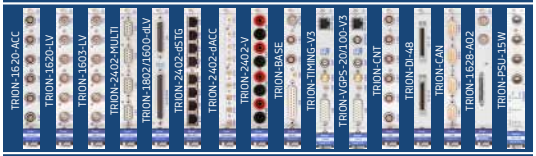
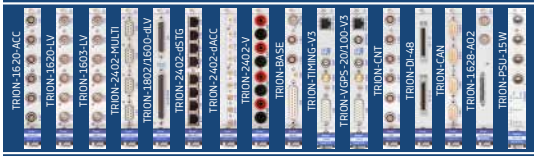
THE RIGHT TEST & MEASUREMENT SOLUTION

		DATA RECORDER - HIGHSPEED DAQ	MOBILE DAQ INSTRUMENTS
What do you need?		Chassis + DAQ modules + Software	Chassis + DAQ modules + Software
Which parameters are recorded/analyzed?		V, I, GPS, CNT, MSI, DIG. IN OUT, ANALOG OUT	V, I, GPS, CNT, MSI, DIG. IN OUT, ANALOG OUT
What are our typical products?	Chassis	 DEWE2-A4L  DEWE2-M13	 DEWE2-M4  DEWE2-A4  TRIONet
	DAQ modules	 TRION-1620-ACC, TRION-1620-LV, TRION-1603-LV, TRION-2402-MULTI, TRION-1802/1600-dLV, TRION-2402-dSTG, TRION-2402-dACC, TRION-2402-V, TRION-BASE, TRION-TIMING-V3, TRION-VGPS-20/100-V3, TRION-CNT, TRION-DI-48, TRION-CAN, TRION-1628-AO2, TRION-PSU-15W	 TRION-1620-ACC, TRION-1620-LV, TRION-1603-LV, TRION-2402-MULTI, TRION-1802/1600-dLV, TRION-2402-dSTG, TRION-2402-dACC, TRION-2402-V, TRION-BASE, TRION-TIMING-V3, TRION-VGPS-20/100-V3, TRION-CNT, TRION-DI-48, TRION-CAN, TRION-1628-AO2, TRION-PSU-15W
	Software	 OXYGEN Software	 OXYGEN Software
What are common applications?		> R & D > Validation > Material & Component Testing	> R & D > Certification > Benchmarking

CALIBRATION

MAINTENANCE

SYSTEM UPGRADE

REPAIR

DEWETRON TRAINING ACADEMY

WARRANTY EXTENSION

FIRST LEVEL SUPPORT

- Voltage
- Current
- IEPE (vibration)
- Bridge (strain gage)
- Potentiometer
- RTD
- CAN
- GPS
- Absolute Time (PTP, IRIG, GPS)
- Counter Inputs
- Modular Smart Interfaces (e.g. for thermocouple)
- Analog Output
- Digital I/O
- Power

ELECTRICAL POWER ANALYZER

Chassis + DAQ modules + Software

DEWE2-PA7

DEWE3-PA8

OXYGEN Software

> R & D
> Validation
> Certification
> Benchmarking

CUSTOMER CARE CENTER

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.

Book a service from one of our prepared packages and/or book each service as you need it.

Choose the right services for your needs and we will design your service contract.

Services starting with training, First & Second Level Support, Accredited Calibration, Maintenance and much more are available.

SECOND LEVEL SUPPORT

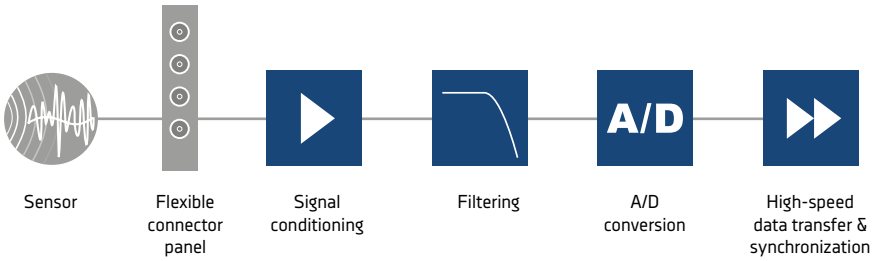
QUICK START

RENTAL SERVICE

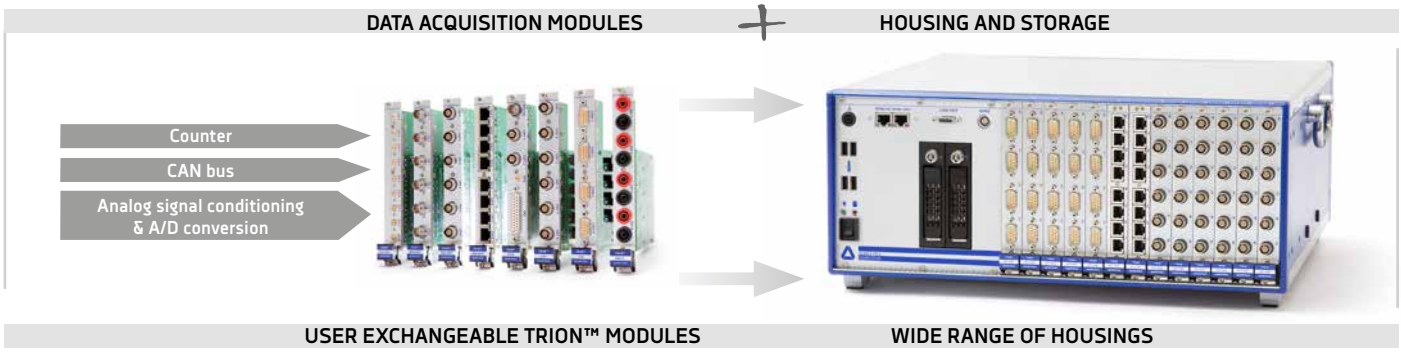
INSTRUMENT FAMILIES

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

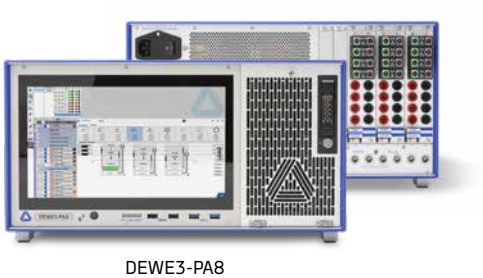


> Fully modular: user exchangeable modules for analog, digital, counter, CAN
> High precision recording
> High channel density
> Rugged chassis

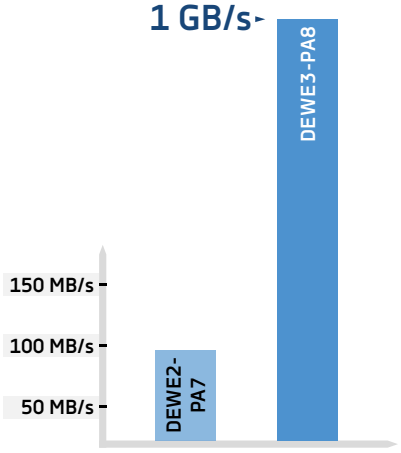
DEWE3 SERIES WITH TRION™ AND TRION3 MODULES

> Highspeed modules
> 10 MS/s
> 1 GB/sec continous highspeed data storage rate

PCI EXPRESS SSD DRIVES



DEWE3-PA8



SYSTEM OVERVIEW

Signal Conditioning Amplifier

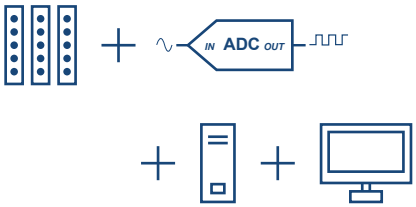
A/D Conversion

Computer inside

Display

POWER ANALYZER

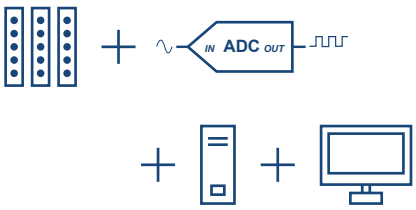
> 16 power channels
> 0.04 % power accuracy from 1 - 1000 Hz
> Mixed Signal Analyzer
> Multi-touch screen (up to 11.6")



DEWE3-PA8

ALL-IN-ONE

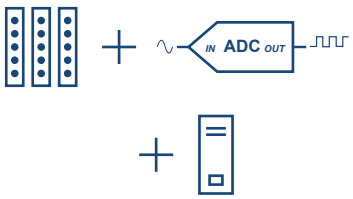
> Built-in display
> Compact and flexible configuration
> Powerful PC inside for fast online displays and analysis
> Convenient for mobile applications



DEWE2-A4

MAINFRAME

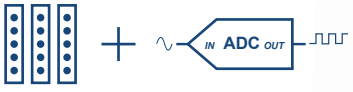
> Powerful PC inside for fast online displays and analysis
> Can be used with external display
> Very popular for applications where the instrument is installed in a poorly accessible place for the user

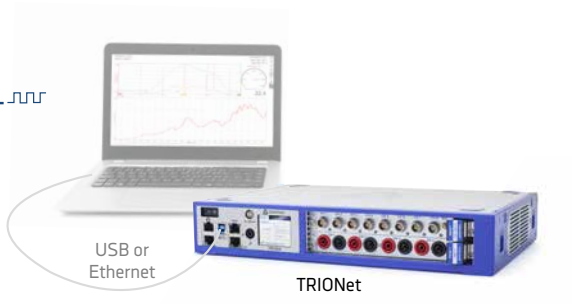


DEWE2-M13s

FRONT-END

> Used with an external computer
> 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 ...

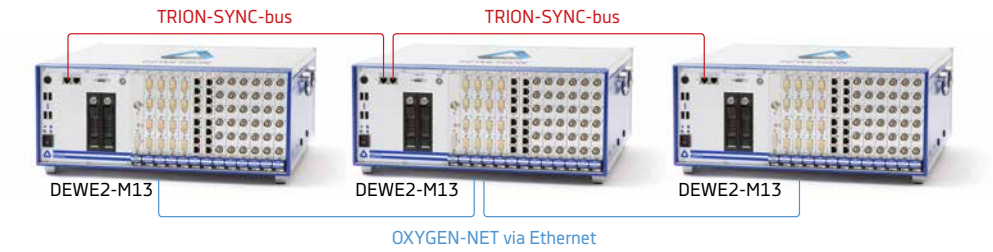
DEWE-30-16

UNLIMITED MEASUREMENTS

MORE CHANNELS

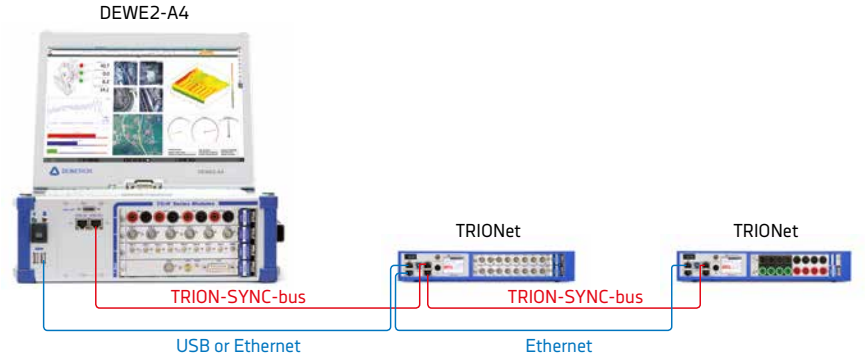
OXYGEN-NET EXPANSION

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.



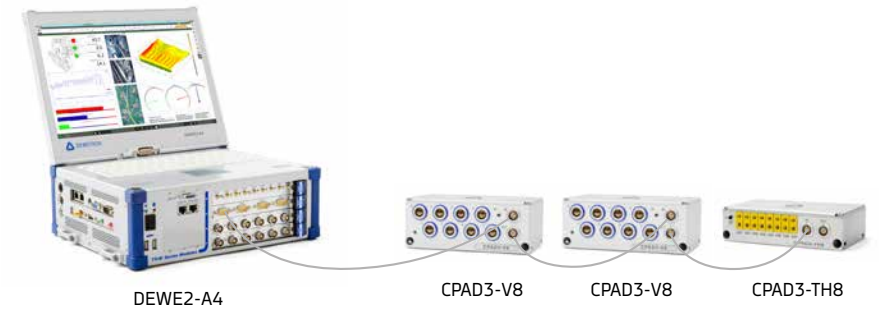
HIGH-SPEED EXPANSION

Add one or more Front-end chassis for high-speed expansion



LOW-SPEED EXPANSION
UP TO 100 HZ

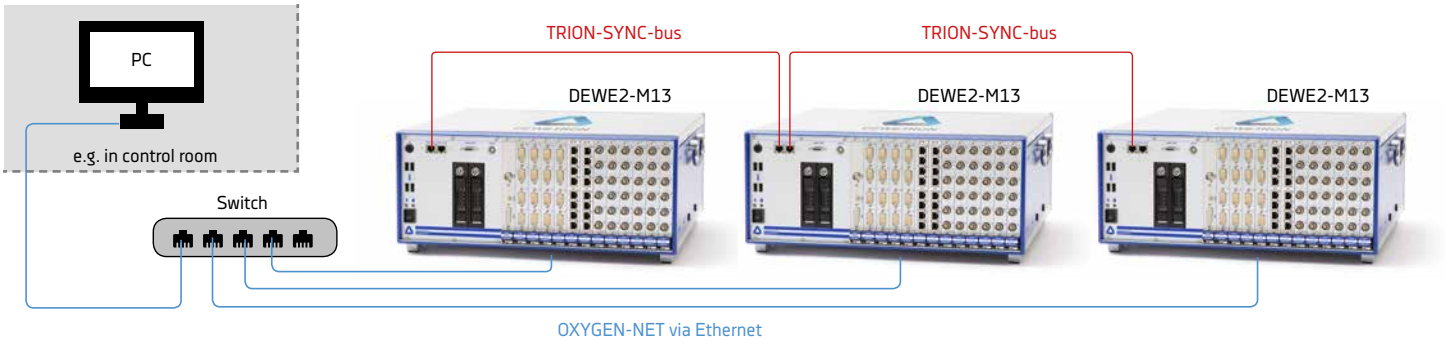
Add CPAD2 or CPAD3 modules with CAN interface or EPAD2 modules with RS485 interface



NETWORKED SYSTEMS

TRION-SYNC

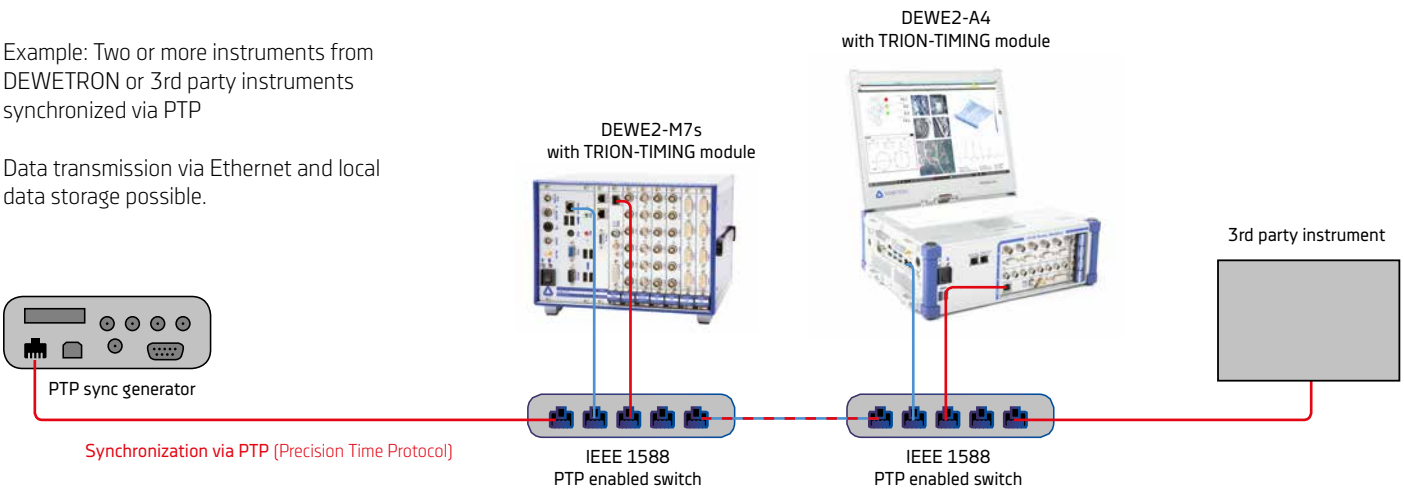
Example: 3 x DEWE2-M13, distributed high channel-count system, featuring OXYGEN with OXYGEN-NET software option



PTP-SYNC

Example: Two or more instruments from DEWETRON or 3rd party instruments synchronized via PTP

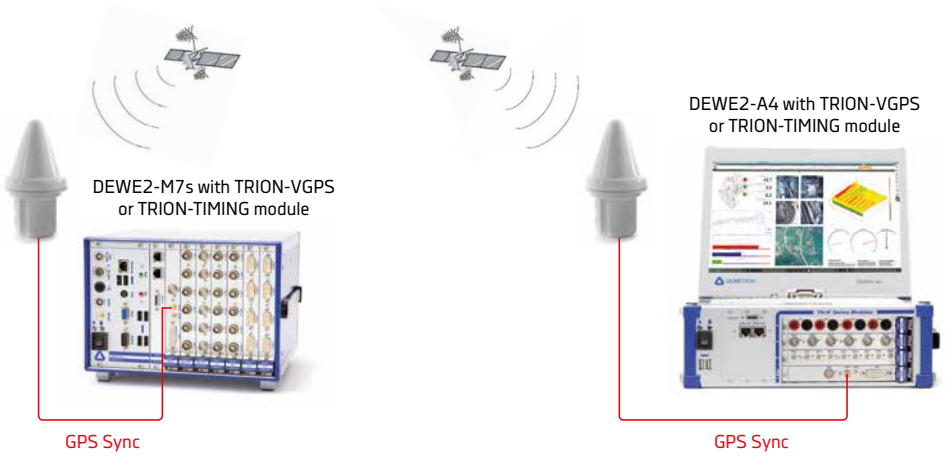
Data transmission via Ethernet and local data storage possible.



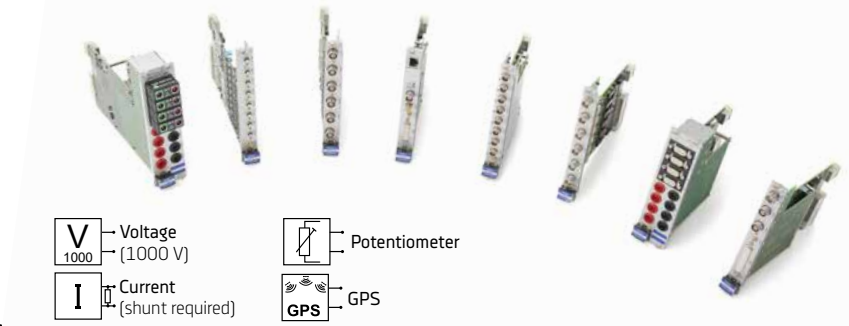
GPS-SYNC

Example: Two or more instruments synchronized via GPS

Data transmission via Ethernet and local data storage possible.



TRION™ MODULES



- Voltage (1000 V)
- Current (shunt required)
- Current (with shunt inside)
- IEPE® (vibration)
- Bridge (strain gage)
- 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
NEW 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
NEW TRION-1810-HV [2]	4	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, 8 SMB

DIGITAL MODULES	CHANNELS	SAMPLE RATE PER CHANNEL	RESOLUTION	ISOLATION	FEATURES
TRION-CNT	6	800 kS/s	80 MHz	yes	6 channel advanced counter
TRION-DI-48	48	2 MS/s	500 nsec	yes	48 highspeed 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 MBaud	-	yes	DSUB
NEW TRION3-1810M-POWER [1] [2]	8 (4 U / 4 I)	10 MS/s	24 bit >2 MS/s: 18 bit	yes	Safety banana, DSUB
TRION-1820-POWER [2]	8 (4 U / 4 I)	2 MS/s	24 bit >1 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

	VOLTAGE INPUT U1, U2, U3, U4	CURRENT INPUT I1, I2, I3, I4			
		20 A MODULE	2 A MODULE	0.2 A MODULE	CLAMP INPUT MODULE
Range	1000 V (±2000 V_{PEAK})	20 A (±40 A_{PEAK})	2 A (±4 A_{PEAK})	0.2 A (±0.4 A_{PEAK})	5 V (±10 V_{PEAK}) NOT ISOLATED!
Safety	CAT IV 600 V / CAT III 1000 V	CAT II 600 V, unfused			Depending on connected clamp
Bandwidth	5 MHz	300 kHz			150 kHz
Connector	Safety banana	Safety banana (male)			DSUB-9 socket
User exchangeable	-	Yes			Yes

TRION3-1810M-POWER-4 & TRION-1820-POWER-4

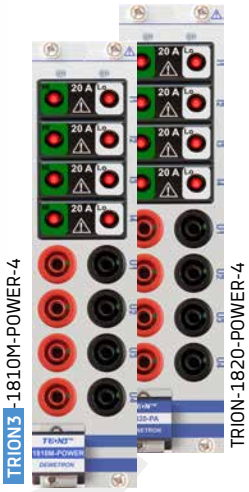
Choose between two types of Power modules with 4 slots for highly flexible current inputs. The TRION3-1810M-POWER-4 offers a sampling rate up to 10 MS/s/ch, while the TRION-1820-POWER-4 delivers 2 MS/s/ch .

The 4 slots of each module can be populated with three different direct current measurement modules or with a low voltage module to connect almost any kind of current transducer.

DEWE2-PA7

TRIONet

DEWE2-A4



TRION3-1810M-POWER-4

> Up to 10 MS/s sampling rate
> Modular module design
> 18 bit resolution

TRION-1820-POWER-4

> Up to 2 MS/s sampling rate
> Modular module design
> 18 bit resolution

POWER ANALYZER

> Modular precision Mixed Signal Power Analyzer
> Up to 16 power channels (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
> 0.01 % basic accuracy

	DEWE2-PA7	DEWE3-PA8
Slots for TRION™ 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	
Data storage	1 TB hard disk dedicated for data storage	
Data storage (optional)	Up to 1 TB SSD	Up to 2 TB SSD
Gap free storing rate	Typ. 90 MB/s	Typ. 1 GB/s
Display	9" multi-touch wide-screen (1280 x 768)	11.6" multi-touch wide-screen (1920 x 1080), full HD
POWER SUPPLY		
Input voltage (max.)	90 to 264 V_{AC}	
Sensor power supply	8 x (±15 V / +9 V)	
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 (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.)

ALL-IN-ONE

FOR TRION™

> 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™ 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
Data storage (optional)	Up to 1 TB SSD		
Gap free storing rate	DEWE2-A4: typ. 80 MB/s DEWE3-A4: typ. 400 MB/s	Typ. 80 MB/s	Typ. 90 MB/s
Display	13“ (1280 x 800)	15.4“ multi-touch wide-screen display (1920 x 1080), full HD	17“ (1920 x 1080), 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

MAINFRAMES

FOR TRION™

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

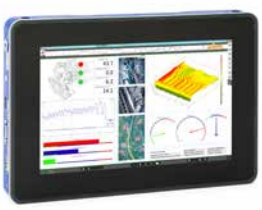
NEW

	DEWE2-M4 / DEWE3-M4	DEWE2-M7s
Slots for TRION™ 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. 80 MB/s DEWE3-M4: typ. 400 MB/s	Typ. 80 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, 2 battery slots	(DEWE-UPS-300-DC) Ext. battery pack, 4 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.)

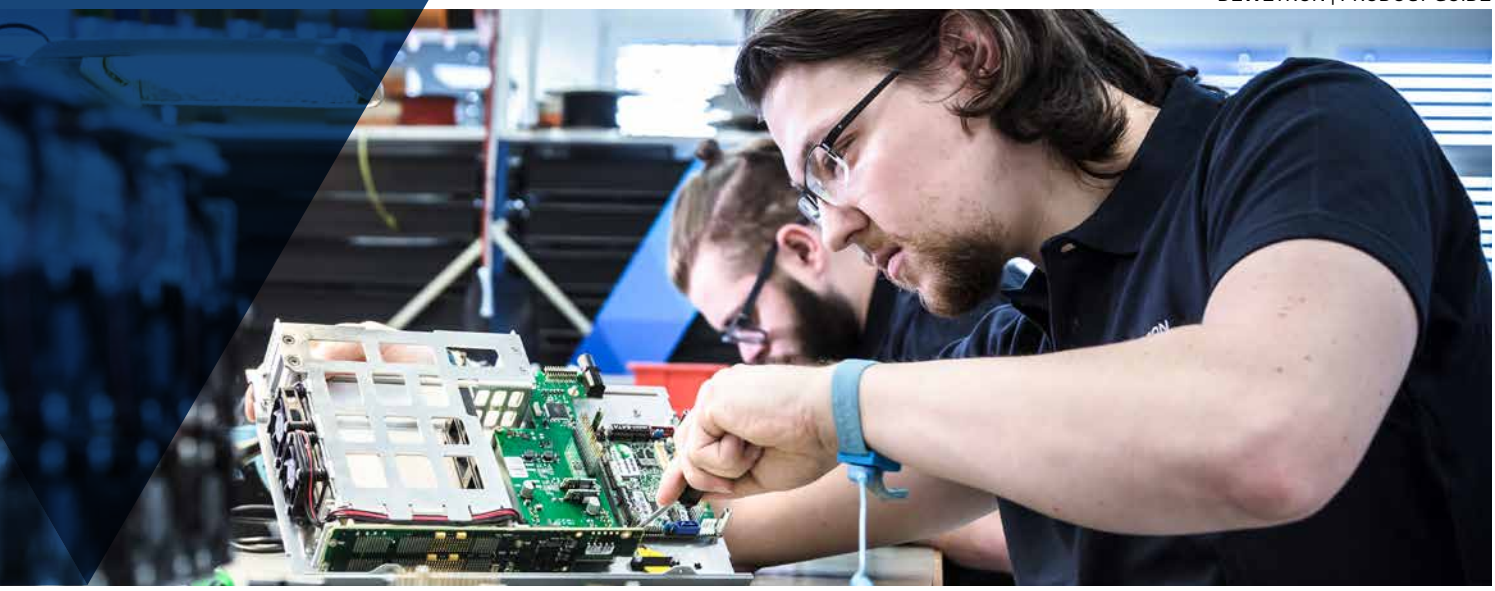
[1] Weight of one battery: 540 g (1.20 lb.)

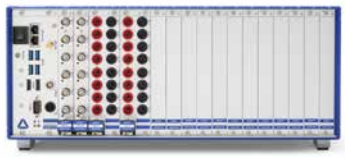
CAM-SPLIT-BOX

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 Hard Disk (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

FRONT-ENDS

WITH USB & ETHERNET INTERFACE

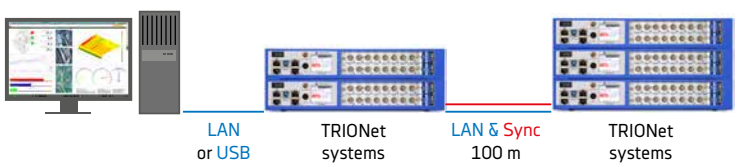
> Up to 100 m distance between the TRIONet systems
> Gigabit LAN and USB3
> Distributable / stackable
> Touch display

	TRIONet	DEWE-50-TRIONet-16
Slots for TRION™ modules [1]	2 TRION™	1 TRION™
LINK TO DAQP/HSI SERIES SIGNAL CONDITIONING MODULES		
Slots for DAQP/HSI modules	-	16
Resolution / Sample rate	-	DEWE-50-TRIONet-16-20KS: 16 bit / 20 kS per channel DEWE-50-TRIONet-16-200KS: 18 bit / 200 kS per channel
Optional parallel outputs ±5 V / ±10 V [2]	-	16 x BNC sockets on rear panel
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 REQUIREMENTS		
Isolated power supply (max)	10 to 32 V_{DC} (9 to 36 V_{DC})	100 to 240 V_{AC} (90 to 264 V_{AC})
Power consumption	Without modules 15 W, totally equipped max. 55 W	Without modules 30 W, totally equipped max. 100 W
External power supply (included)	100 to 240 V ~50 to 60 Hz / 65 W	-
DIMENSIONS		
Dimensions (W x D x H)	320 x 205 x 55 mm (12.6 x 8 x 2.2 in.)	464 x 190 x 306 mm (18.26 x 7.48 x 12.04 in.)
Weight without modules	Typ. 1.9 kg (4.2 lb.)	Typ. 9 kg (19.84 lb.)
ENVIRONMENTAL SPECIFICATIONS		
Operating temperature	-20 °C to +60 °C (with pre-warmed unit)	-20 °C to +40 °C (with pre-warmed unit)
Storage temperature	-20 to +70 °C	
Humidity	10 to 90 % non cond., 5 to 95 % rel. humidity	10 to 80 % non cond., 5 to 95 % rel. humidity
Max. altitude	3000 m (9840 ft)	2000 m (6561 ft)
Sine vibration (EN 60068-2-6)	20 m/s²	
Shock (EN 60028-2-27)	30 g	15 g
Random vibration (EN 60721-3-2)	Class 2M3	Class 2M2

1) Unsupported modules: TRION-FLEXRAY; TRION-A429; TRION-M1553; TRION-MA4; TRION-1628-A0-2
2) Parallel outputs are either ±5 V or ±10 V

LOW CHANNEL-COUNT APPLICATION

DISTRIBUTED APPLICATION

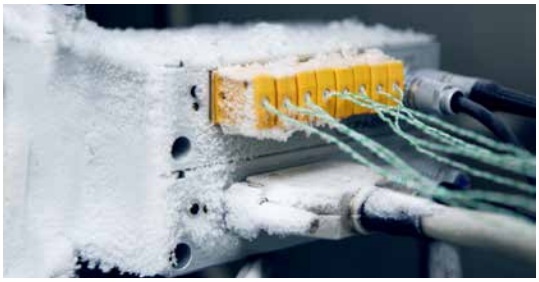


LOW SPEED MEASUREMENT MODULES

> -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 0/4 - 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 setup
> 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
NEW MSI-BR-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
NEW MSI-BR-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
MSI-BR-CH-x		Charge type sensors up to 50 000 pC	n/a	0.08 Hz to 45 kHz	±0.5 %	BNC
MSI-BR-TH-x		Thermocouple sensors Standard models for type K, J, T, others on request	n/a	DC to 100 kHz	±2 °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

NEW

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-16 and TRION-1600-dLV-16 by MSI support. Enables measurement of strain gauge and bridge sensors, IEPE®, LVDT and RVDT, thermocouple, charge, RTD and voltage up to ±200 V.

INTERFACES

INPUT

> ANALOG
> DIGITAL
> COUNTER
> VIDEO
> GPS TIMING
> PTP
> IRIG
> INERTIAL DATA
> CAN, CAN-FD
> ETHERNET
> GIGE CAM

OUTPUT

> SCPI
> TCP/IP DATA STREAM
> XCP
> ETHERCAT
> CAN
> DIGITAL
> ANALOG

TEST BENCH ENVIRONMENT FEATURING DEWE2-A4L

ANALOG SIGNAL CONDITIONING

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

	DEWE-30-8	DEWE-30-16	DEWE-30-32	DEWE-50-TRIONet-16
Slots for DAQP/HSI modules	8	16	32	16
Slots for TRION™ modules	-	-		1
Integrated AD conversion	-	-		16 bit, 20 kS/sec or 18 bit, 200 kS/sec
Interfaces	RS232, RS485, EPAD			USB 3.0 / 1000BASE-TX Ethernet RS485, EPAD, CAN
Conditioned signal output	±5 V	±5 V (±10 V as option)		±5 V or ±10 V as option
Output connector standard	DSUB37			-
Output optional	ORION, BNC			DSUB37, ORION, BNC
Power supply	100 to 240 V_{AC}			100 to 240 V_{AC}
Optional power supply	10 to 32 V_{DC}			-
Dimensions	230 x 181 x 104 mm (9.06 x 7.12 x 4.09 in.)	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.)	464 x 190 x 306 mm (18.26 x 7.48 x 12.04 in.)
Weight depending on configuration	Typ. 3 kg (6.6 lb.)	4.5 kg (9.9 lb.)	7 kg (15.4 lb.)	Typ. 9 kg (19.8 lb.)
ENVIRONMENTAL SPECIFICATIONS				
Operating temperature	0 to +60 °C			0 to +40 °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 · CNT · DIG. IN OUT · CAN · MSI CB16	16 or 32	200 kS/s 100 kS/s	18 bit 24 bit	-	DSUB
TRION-1600-dLV V 10 · CNT · DIG. IN OUT · CAN · MSI CB16	16 or 32	20 kS/s	16 bit	-	DSUB

MODULES FOR ANALOG SIGNAL CONDITIONING

> Isolation up to 1.8 kV_{RMS}
> Bandwidth up to 2 MHz
> Configuration via push buttons or RS-485 interface
> Free configuration software

ANALOG MODULES	FEATURES	BANDWIDTH	ISOLATION	CONNECTOR TYPE
UNIVERSAL MEASUREMENT				
DAQP-STG / HSI-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	DAQP-STG: 300 kHz HSI-STG: 2 MHz	350 V_{DC}	DSUB, LEMO 1B
HIGH VOLTAGE				
DAQP-HV / HSI-HV	1000 V_{RMS} / 1400 V_{PEAK} 10 MOhm input resistance	DAQP-HV: 300 kHz HSI-HV: 2 MHz	1800 V_{RMS}	Safety banana
VOLTAGE				
DAQP-LV / HSI-LV	High input protection 12 ranges from 10 mV to 50 V Direct sensor supply with DSUB version	DAQP-LV: 300 kHz HSI-LV: 2 MHz	1000 V_{RMS}	Safety banana, BNC, DSUB, Lemo 1B
CURRENT				
DAQP-LA	6 ranges up to 5 A_{RMS} / 30 A_{PEAK}	300 kHz	1400 V_{RMS}	Safety banana
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
FREQUENCY				
DAQP-FREQ	Isolated frequency to voltage converter Input ranges from 100 Hz to 200 kHz Auto trigger	Output response: 1.5 ms, 30 ms, 500 ms	350 V_{DC}	DSUB

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

OXYGEN

OXYGEN is the most comprehensive Data Acquisition & Analysis Software available.

MULTIPLE MEASUREMENT SCREENS

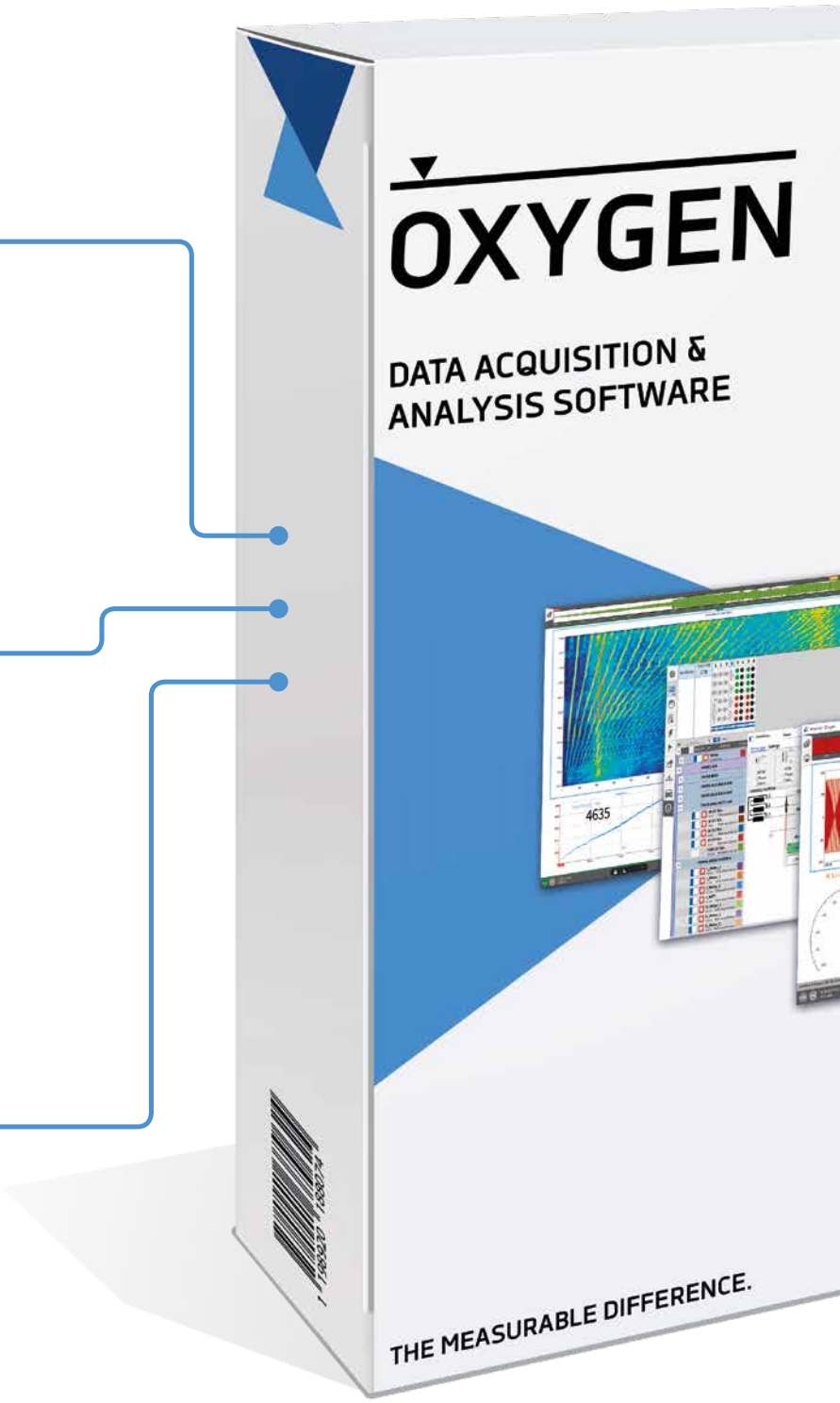
> Organize your instruments on multiple screens
> Simply create new screens with drag'n'drop

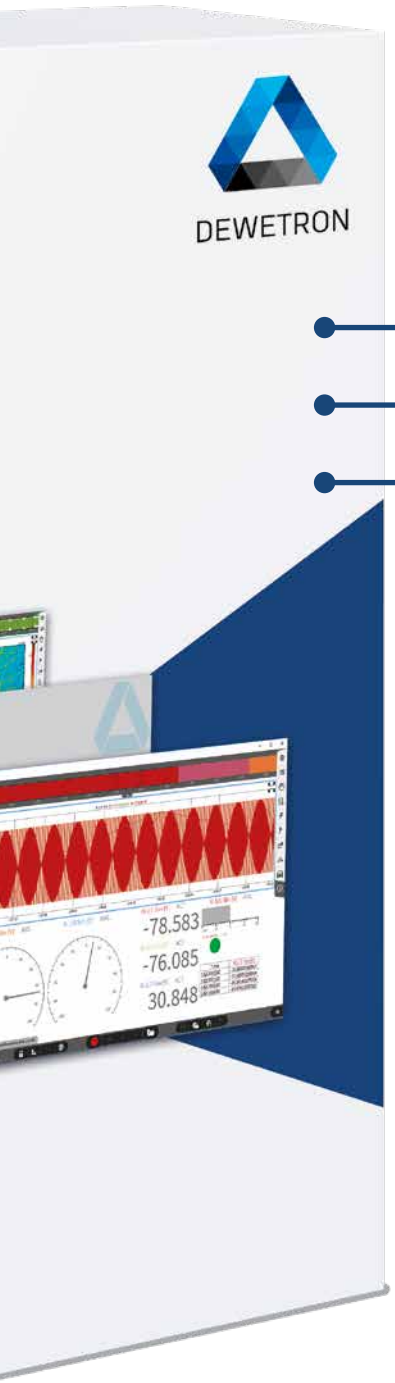
EFFICIENCY & PERFORMANCE

> Easy-to-use and intuitive
> Efficient workflow that minimizes the time between set-up 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

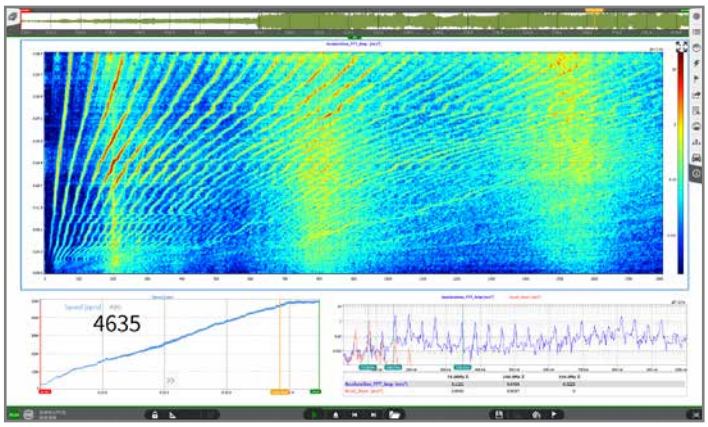
Multiple precision measurement instruments and analysis functions increase the value of your measurements:

> Scope
> FFT
> E-Power calculation (efficiency measurement)
> XY chart
> DMS-Rosette Strain Gauge Measurement
> And many more

STANDARD FEATURES

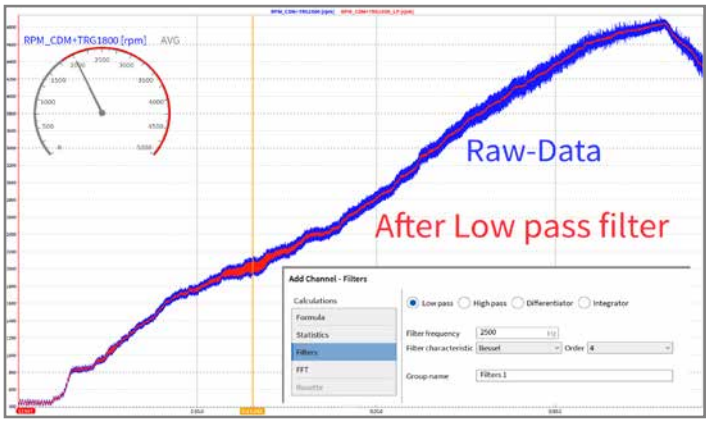
DYNAMIC SIGNAL ANALYSIS

Our OXYGEN software offers tools for dynamic signal analysis, most importantly the FFT features for gapless monitoring (including overlap), both employing our high performance FFT algorithm.
> Spectrogram display
> Averaging of spectra, zero-padding to improve line resolution, Power Spectral Density (PSD)



ONLINE AND OFFLINE MATH

Create mathematical operations either before the measurement in your setup file or after the measurement during analysis in your data file.
> Wide range of mathematical calculations including logical operators and trigonometric functions
> IIR-filter (low pass, high pass, integrator, differentiator)



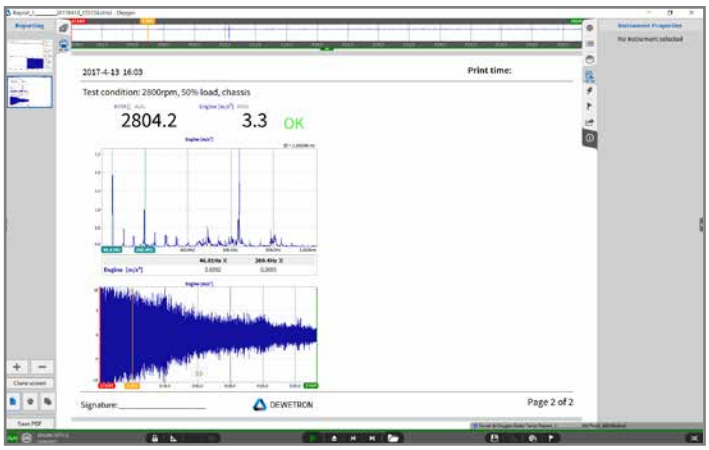
DATA EXPORT

OXYGEN supports data export into a wide range of data formats to ensure post-processing with 3rd party software packages.

Supported export formats:
> TXT, CSV
> XLSX
> MATLAB
> MDF4

INDIVIDUAL REPORTING

There are several of options to easily create test reports. Stay within OXYGEN to print reports.
> Print reports directly from OXYGEN
> Export to common office software (e.g. Excel)
> Export to 3rd party analysis software (e.g. MATLAB)
> Open OXYGEN data files directly in FlexPro and FAMOS

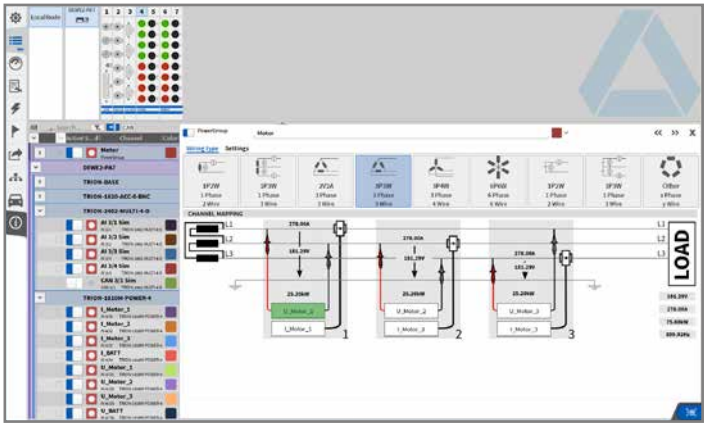


OPTIONS

POWER

The Power Option is a powerful toolset for electrical power analysis. Many schematics are predefined (1P2W, 3P3W, 3P4W,...). The gapless calculation with a wide fundamental frequency range is unique.

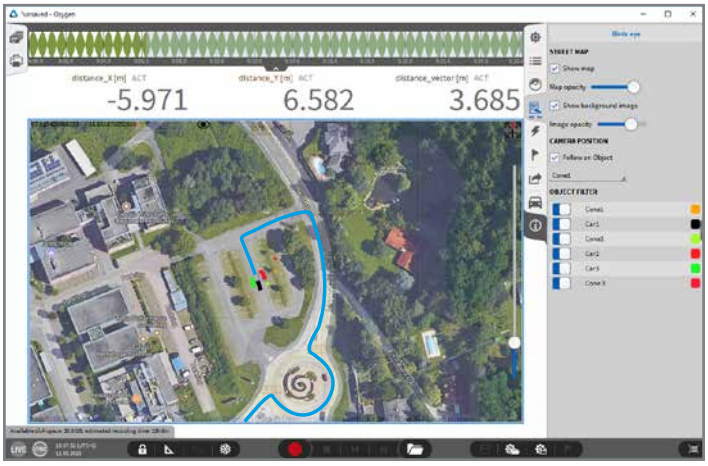
> OXY-OPT-POWER-BASIC for Power Analysis
> OXY-OPT-POWER-ADV for advanced power analysis functions like harmonics and flicker



ADAS

OXYGEN ADAS features set new standards for the acquisition of multiple gyro systems (IMU) and the calculation and visualization of position between moving and stationary objects for ADAS testing.

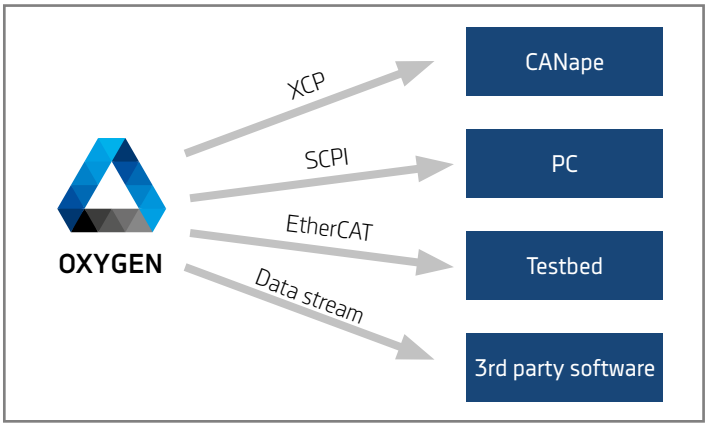
> OXY-OPT-IMU-x for IMU data acquisition
> OXY-OPT-BIRDSEYE-x for calculation and visualisation



DATA OUTPUT

OXYGEN provides several options for data output and measurement control for testbed applications:

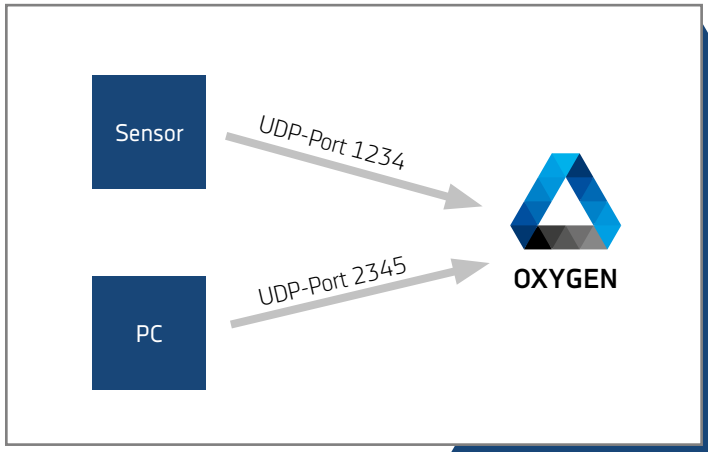
> SCPI over Ethernet is included in OXYGEN
> OXY-OPT-XCP-OUT for XCP over Ethernet
> OXY-OPT-DATASTREAM for native output of measurement data via TCP/IP
> TRION-Ethercat for EtherCAT output



DATA INPUT

In addition to our analog and digital inputs, our software is capable to read data from several digital interfaces for visualization and recording to round the mixed signal package:

> OXY-OPT-ETHERNET-REC for receiving UDP data from 3rd party hardware and sensors
> OXY-OPT-CAN-FD for receiving CAN-FD frames from special 3rd party hardware



LABVIEW™ FRAMEWORK

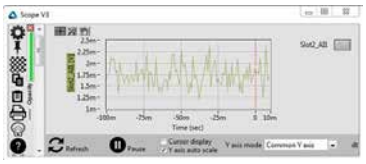
Nothing is impossible – it just hasn't been done yet. With DEWETRON's tailor-made software framework, you can develop your own customized project software.

PROTOTYPE OF TEST AND MEASUREMENT SOFTWARE

The DEWETRON Framework is the prototype of a test and measurement software and can be used as the base for the development of customized project software. It is MODULAR SOFTWARE and is comprised of a wide range of PRE-PARED MODULES for different functions. Additional software modules can be cre-ated or derived from the existing modules with minimal effort. Tailored application software with exactly the functional scope as required!

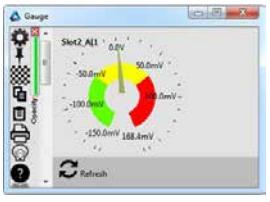
FEATURES

- > Uncompromising layout and functionality
- > Lowest possible development cost and time – only add missing functionality to existing software
- > Slim software – no unnecessary functions for optimal performance and ease of use
- > Multilingual
- > Remote controllable
- > For measurement and control (inputs and outputs)
- > Easy integration with third-party hardware and sensors
- > Modify existing SW modules – Open source code!
- > Templates with source code for new software modules
- > Development and future maintenance by DEWETRON, contracting partners, or the customer

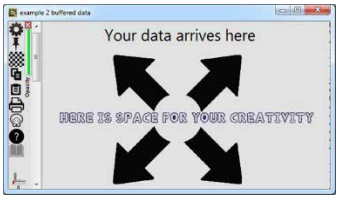


Scope

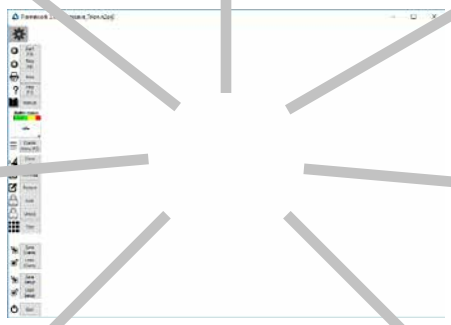
Record files



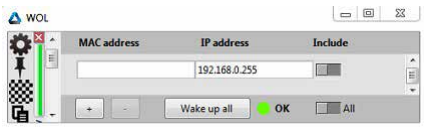
Gauge



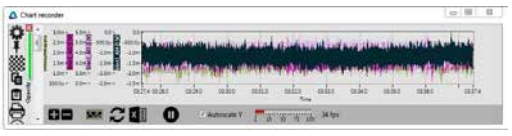
Template for new functions



Bar



Wake up on LAN



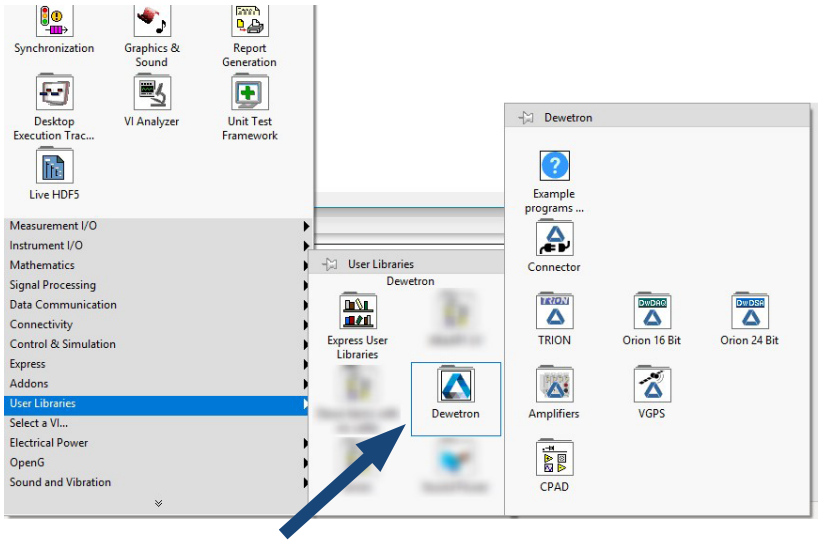
Strip chart

LABVIEW™ DRIVER

All DEWETRON Hardware is fully compatible with National Instruments LabVIEW™.

DEWETRON CONNECTOR

DEWETRON offers a comprehensive LabVIEW library for all Hardware, provided as a virtual instrument palette. This allows for the integration of DEWETRON hardware into existing code, or for the development of new projects from scratch.



DASYLAB DRIVERS

DEWETRON offers a measurement solution with DASYLab for certain amplifier modules.

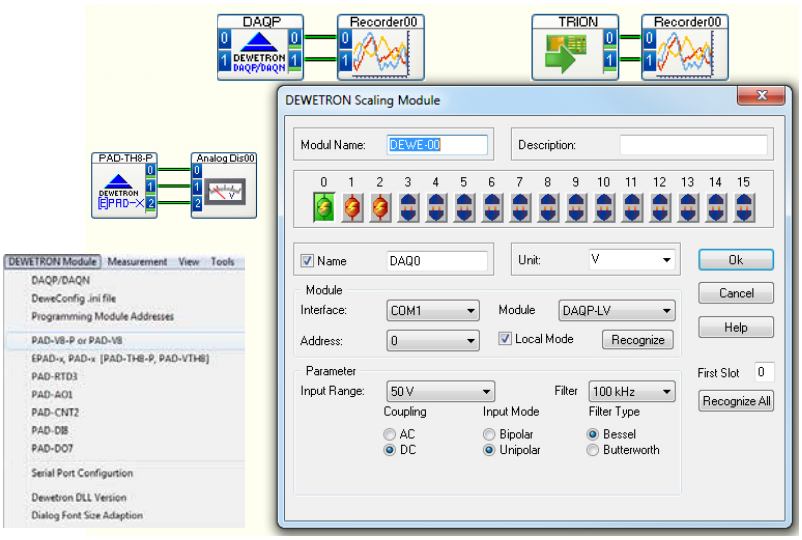
DAQP amplifiers

TRION™ modules

FOR TRION™ & DAQP MODULES

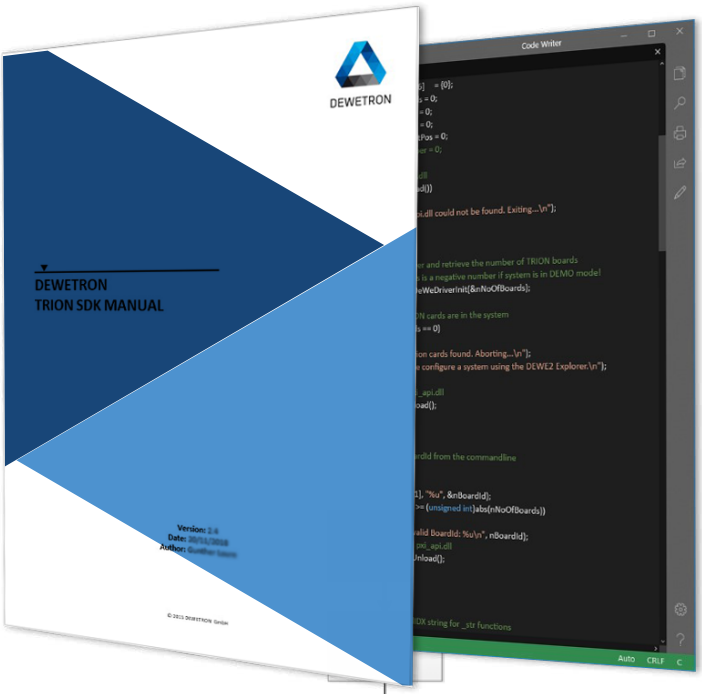
Drivers for DAQP and PAD amplifier series are supported. Simultaneously sampled analog inputs, counter and digital inputs are provided in DASYLab. Within the TRION™ series the isolated analog inputs of TRION-1620-ACC and TRION-1620-LV are supported.

> TRION-1620-ACC
> TRION-1620-LV
> DAQP series amplifiers
> PAD/EPAD modules



DEWETRON SDK FOR PROGRAMMERS

If your prefer to write your own program code in C, C++, C#, Visual Basic, Python or Java, our SDK for TRION is available for you.



SOFTWARE DEVELOPMENT KIT

The DEWETRON TRION SDK is shipped with the necessary interface files for C/C++ (.h -Files) and Pascal-dialects like Delphi (.pas – Files).

By including these files, direct integration into the application can be achieved. But this is not the limit, because many languages are supported indirectly. All public interface functions use the “std-call” calling convention.

DATA TYPES

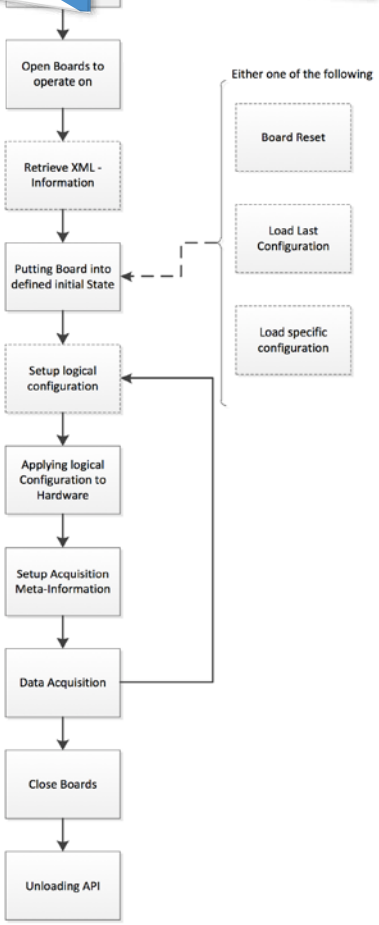
All public interface functions accept the following primitive data types:

> 32-bit integers and pointers to 32-bit integers
> 64-bit integers and pointers to 64-bit integers
> Pointers to zero-terminated ASCII-strings (no Unicode/wide string support)

All public interface functions are accessible using the standard C. Therefore, any programming language that allows the above mentioned perquisites can exploit the functionality of the API.

DEVELOPMENT WITHOUT HARDWARE

If you’re using the TRION hardware, the API will install a DEWE2 Explorer application (delivered standard with all DEWE2 systems). In addition to providing in-depth system information, this tool enables users to run self-tests of TRION modules, enable logging files in case of errors and to easily upgrade the firmware of TRION modules.
The explorer can also create a virtual system in addition to the real one, to aid you in programming your own application even without the real hardware.



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

CURRENT TRANSDUCERS

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

ENCODER

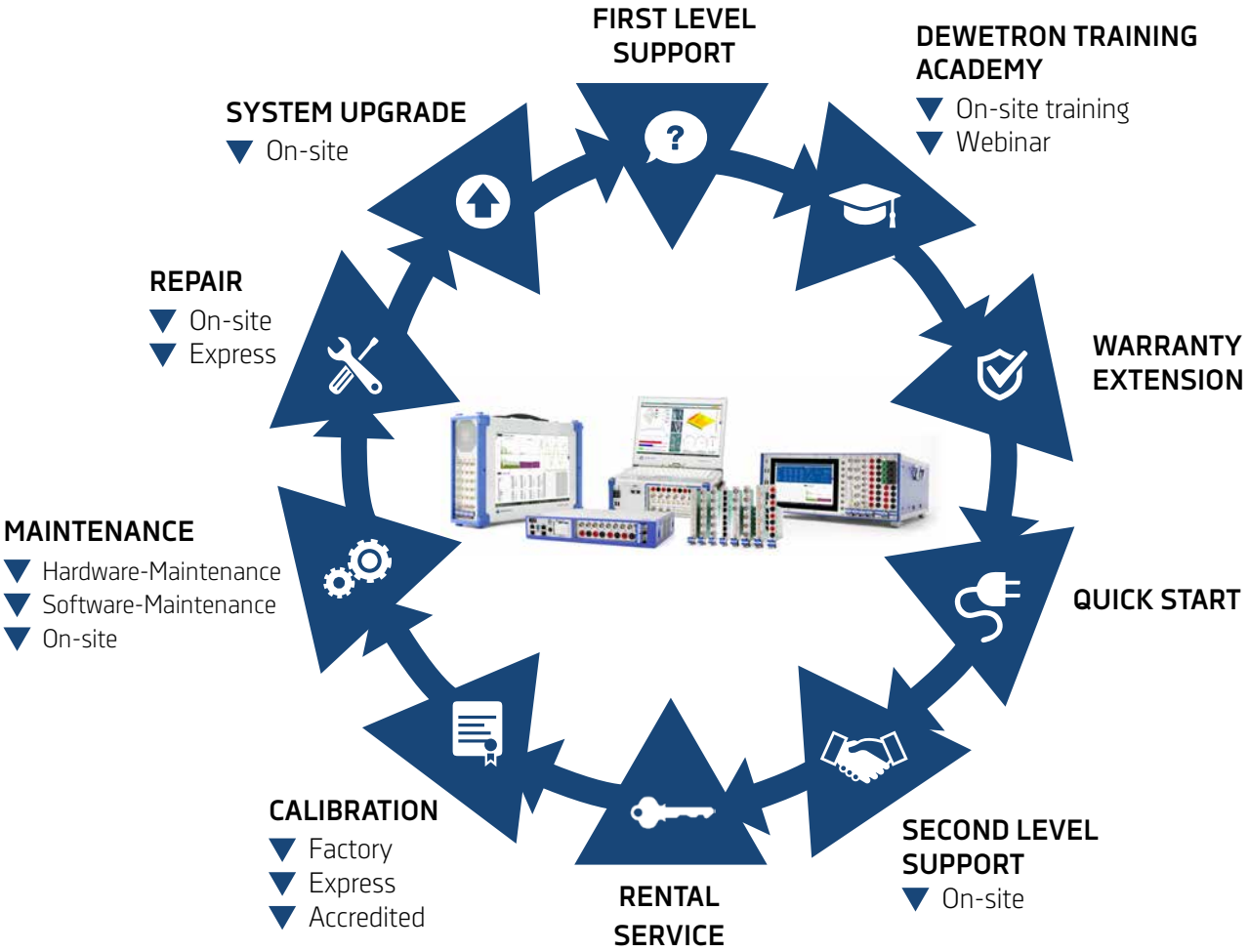
Encoders for combustion analysis and torsional and rotational vibration applications

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

- V 1000 DC — VOLTAGE (DC)
- V 1000 AC — VOLTAGE (AC)
- 1M DC — RESISTANCE (DC)
- I 20 DC — CURRENT (DC)
- I 20 AC — CURRENT (AC)
- K, J, T — TEMPERATURE SIMULATION (DC)
- Pt100, Pt200, Pt500, Pt1000 — TEMPERATURE SIMULATION (RTD)
- P 20.91 k DC — POWER (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