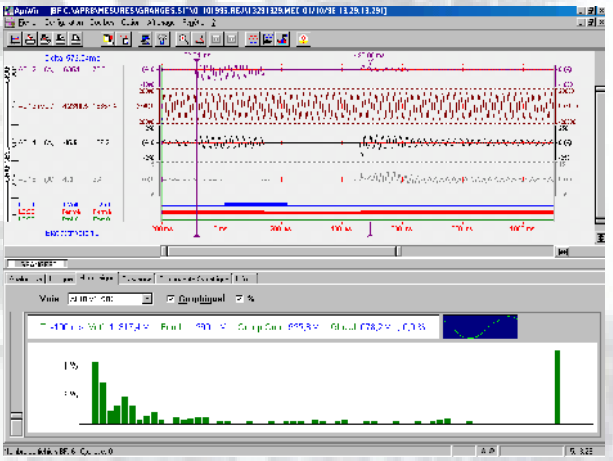
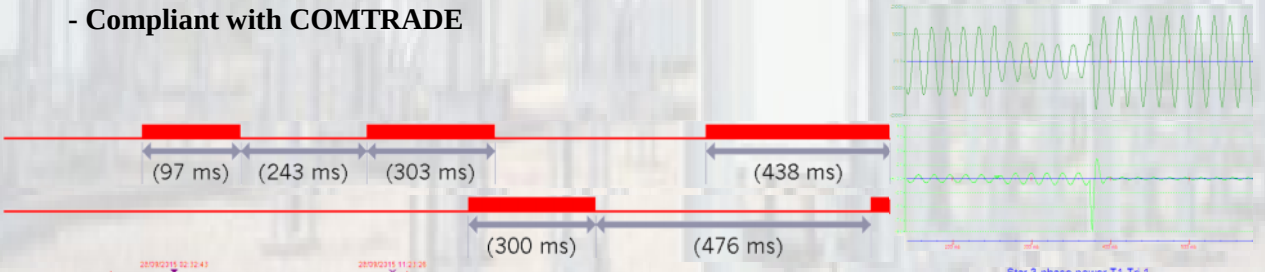
dfv Technologie

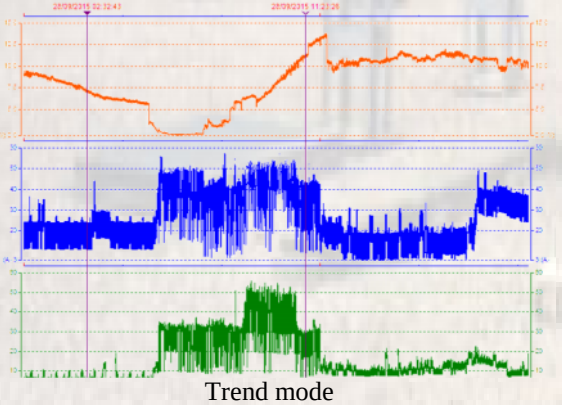
APR64 (Rackable)
APR64P (Portable)

Digital Fault Recorder
Sequence Event Recorder
Trend mode Recorder
Phasor Measurement Unit

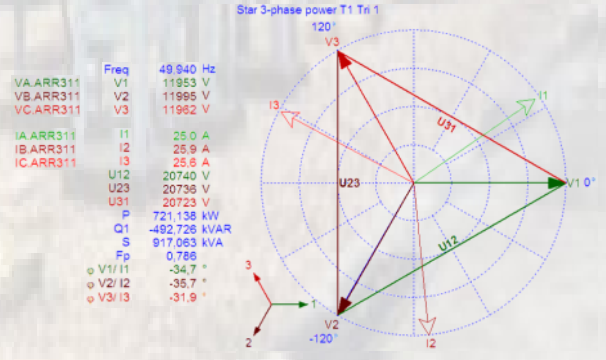
- Up to 96 analog and 1536 digital channels
- Accuracy: 0.1%, 128/256 samples per cycle / 24bit resolution
- Storage in internal memory: 8Gb expandable to 32Gb and/or external FTP server
- High-speed communication with 100BaseT Ethernet (TCP/IP)
- Time synchronization: internal or IRIGB, IRIGJ, GPS 1pps, NTP
- Real-time computing and recording of:
    - Low, high and relative thresholds for each measured and/or calculated figure.
    - Power (P,Q,S), cos φ, tan φ
    - Frequency
    - Harmonics
    - Symmetrical components (Voltage, Current)
- Powerful and user-friendly user interface APRWIN64
    - Display of all computed values: wave forms, RMS, Power …
    - Values are measured thanks to 2 cursors
    - Zoom in and out, choice of scales & colours
    - User-defined templates
    - Compliant with COMTRADE



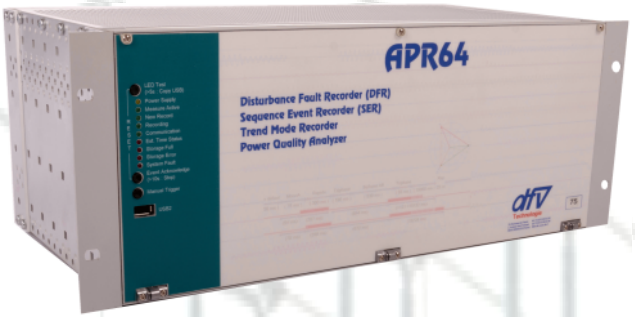




Trend mode



Vectors and power



Front

Equipped with LED indicating its status (recording, time synchronization, full memory..)

Acknowledge button for new event, storage full. ..

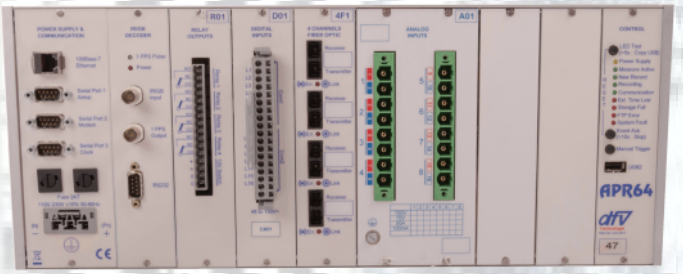
Manual trigger button

USB2 for connection with external USB Key

Rear

Equipped with modules for a flexible configuration

- 1 power module: 48VDC or 110V-250V AC/DC
- Up to 3 relay modules (alarm …)
- Up to 7 digital modules
- Up to 3 optical fiber modules to connect BFOP3 and Digital Remote Unit (DRU)
- 1 IRIGB time synchronization module
- 1 Input/output synchronization module

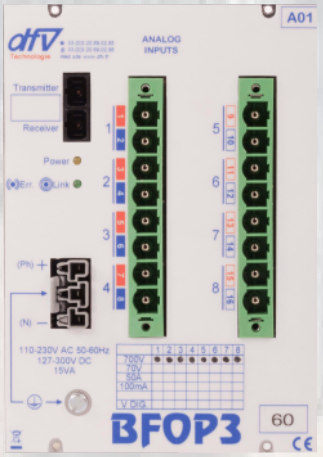


APR64 Rear view

DRU Rear view

DRU

A Digital Remote Unit with up to 256 digital channels connected to the APR64 via optical fiber



Remote Analog channels

Local or Remote Analog channels
Up to 12 analog modules (700V, 70V, 50A, 0-100mA …)

Units can be installed near the measured signals.
Optical fiber provides:

- perfect insulation
- lower cost than copper cables

Each unit measures 8 channels (AC/DC voltage or currents)

Optical fiber is industry-standard multimode 62.5/125 duplex

Satellite receiver (1pps)
IRIGB signal
IRIGJ signal (RS232)
NMEA signal RS232 (GARMIN GPS)
NTP (Ethernet)

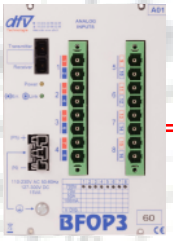
Time synchronization

Optical fiber

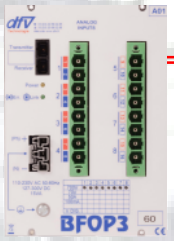
RS232, Ethernet
100baseT/100BaseFL

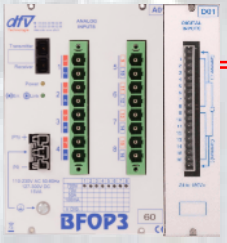
Router
RTC/RNIS/ADSL

PC with APRWIN64 software



8 analog channels



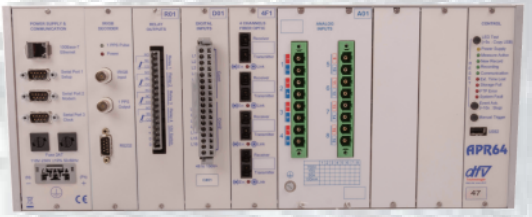


Analog & digital measurements
7 analog & 16 digital

4 / 8 or 12 configurable alarm relay outputs

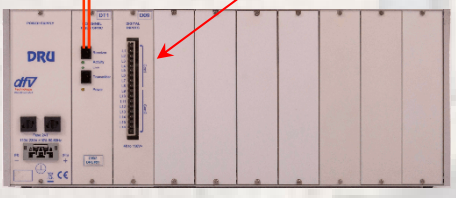
12 hardware channels

1 hardware channel =
- 128 digital channels
- 8 analog channels
- 7 analog + 16 digital channels



APR64 equipped with direct analog input

DC Voltage 24V to 150V



DRU (Digital Remote Unit)
Up to 256 digital channels

APR64-P Portable unit with connection for current clamp & flex

Technical specifications

Power supply
48VDC +/- 20% or 110 to 250V DC/AC +/- 20%
Insulation resistance: > 100MΩ
Insulation in common mode per IEC255-5: 2,5kV RMS
Oscillations per IEC61000-4-12 –A: 2,5kV
Disturbance conducted per IEC61000-4-6 A: 10V/m
Overvoltage per IEC61000-4-5: CM 4kV DM 2kV
Transcient voltage per IEC 61000-4-4 A: CM 4kV DM 2kV
Electromagnetic emissions per EN 55011 Class A

Environnement and safety
Operating temperature : 5 to 55°C
Storage temperature: -25°C to 70°C per CEI 60255-6
Humidity 93%.
Relative humidity: + 40°C w/o condensation per CEI60068-2-3
Vibration per IEC 68-2-6 : 4,9m/s^2
Electrostatic discharge per IEC61000-4-2 level A Class 4
Radiating electromagnetic field per IEC61000-4-3 Class 3: 10V/m
Waste and lead per CE-2002-95
Safety per CEI 61010

Input/output (RS232, Ethernet)
Insulation >100MΩ
Insulation in common mode: 1kV RMS
Fast transcient voltage per IEC61000-4-4 : CM 2kV

Relay output
250VRMS 5A AC (resistive load)
110V 0,5A DC
Insulation in common mode per IEC255-5 : 2,5kV RMS
Oscillations per IEC61000-4-12: 2,5kV
Acceptable overvoltage per IEC61000-4-5: CM 4kV
Acceptable fast transcient voltage per IEC61000-4-4: CM 2kV

Output power 12V 400mA
Insulation in common mode per IEC255-5 : 2,5kV RMS
Protected by limitation of current

Digital input
48V to 150V DC or 24V to 150VDC
Insulation resistance >100MΩ
Insulation in common mode per IEC255-5: 2,5kV RMS
Oscillations per IEC61000-4-12 A : 2,5kV
Acceptable overvoltage per IEC610000-4-5 A : CM 4kV DM 1kV
Acceptable transcient voltage per IEC61000-4-4 A : CM 2,5kV DM 1kV

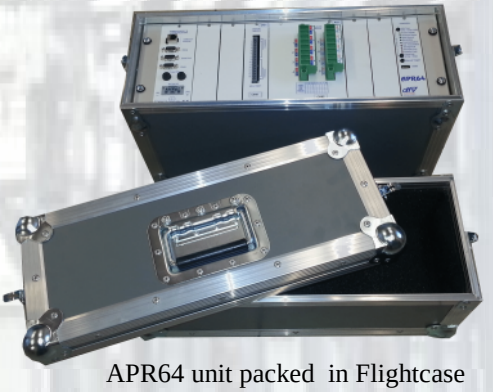
Distributor

Direct or remote analog inputs
Input range: 700V, 70V, 50A, 0-100mA
Accuracy: 0.1% of full scale
Resolution: 24 bits
Insulation in common mode per IEC255-5 : 5kV RMS
Oscillations per IEC61000-4-12 A : 5kV
Overvoltage per IEC610000-4-5 A : CM 4kV DM 1kV
Transcient voltage per IEC61000-4-4 A : CM 4kV DM 2kV

Measurement methods
Measurement methods per CEI 61000-4-30 : Class A
Measurement of harmonics per CEI 61000-4-7: 0.5% Class A
Flicker per CEI 61000-4-15
Quality measurement per EN50160, CEI 61000-3-6, CEI 61000-3-7
PMU According C37.118-2011

COMTRADE files

Compliant reading per C37.111-1991
Compliant reading/writing per C37.111-1999



APR64 unit packed in Flightcase

APR64 mounted in 19" cabinet

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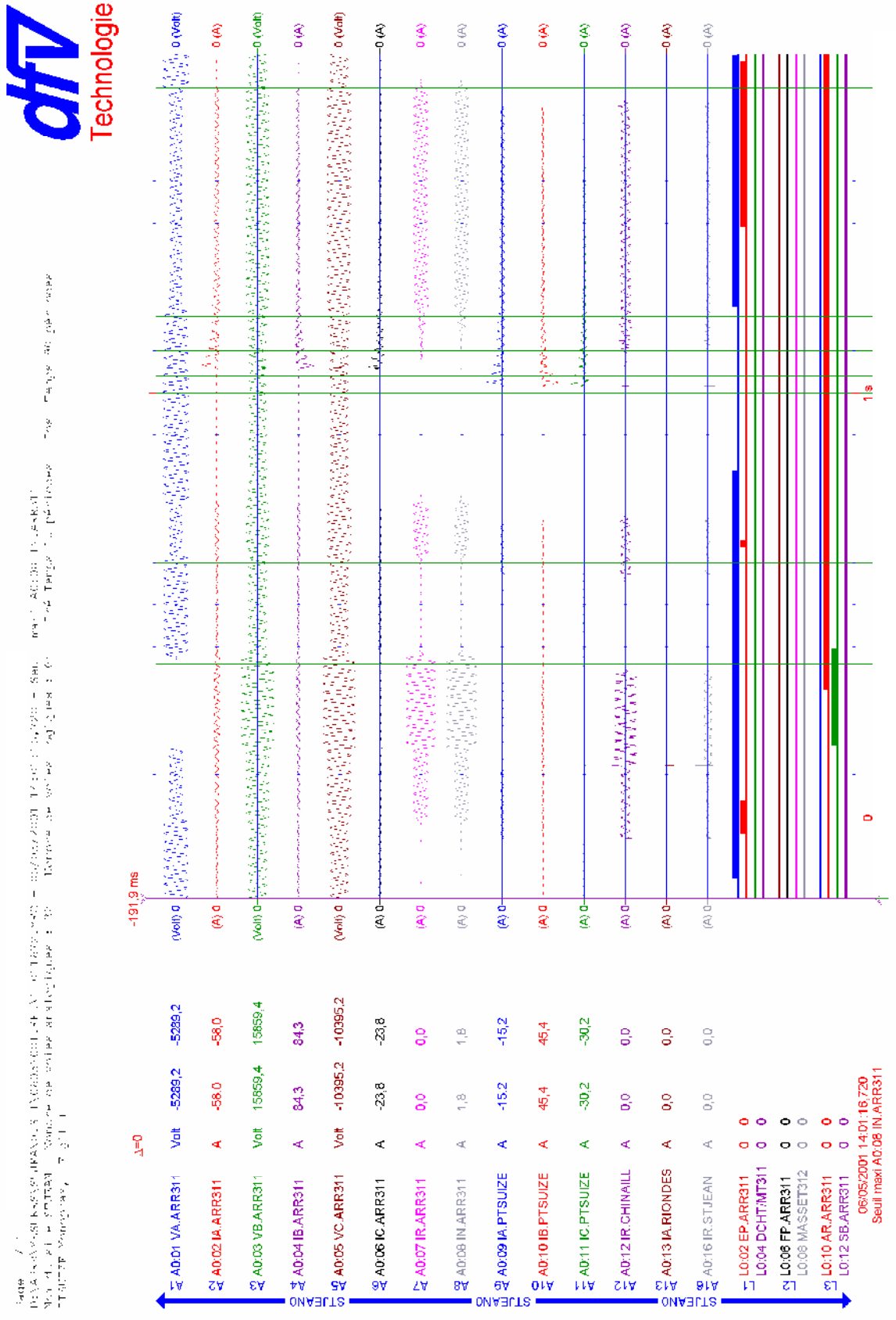
Example of a graph (DFR mode):



Example of a graph (Trend mode):