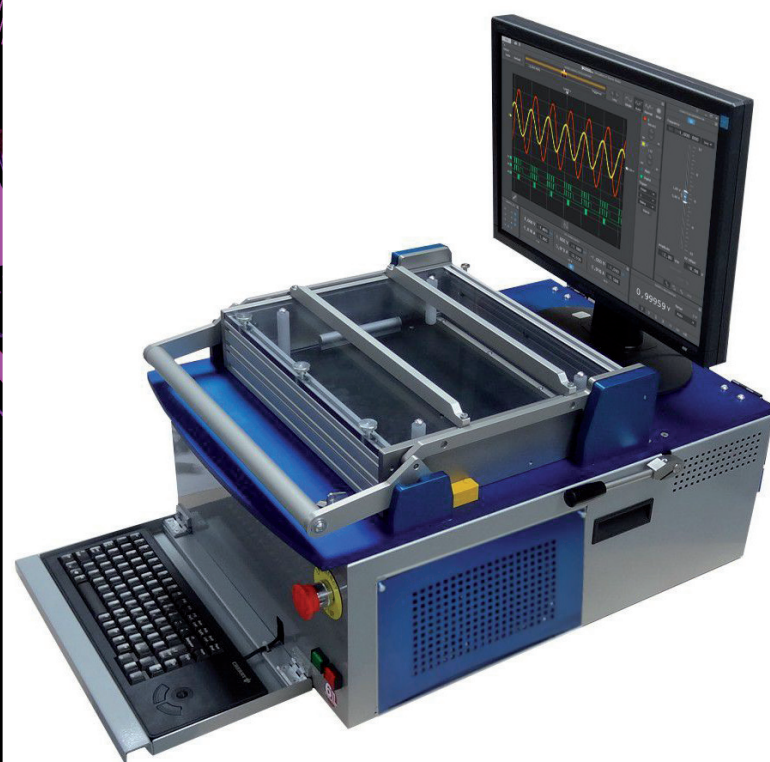# ROMEX

6TL08
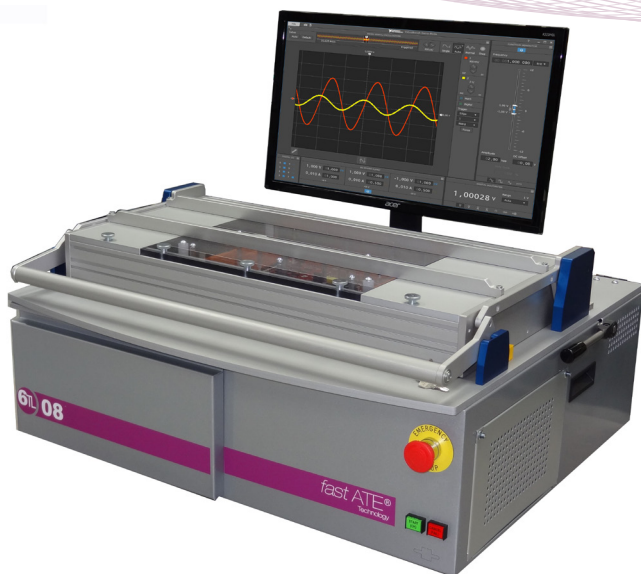## All-in-One ATE

The Compact Bench-Top Platform

*fast*ATE®
Technology

Standard Platforms are the
ideal base to develop ATE
solutions

6TL provides the base,
the Integrator supplies the ATE

- Bench top compact & modular platform

- Suitable for R+D, Prototyping, Quality Control and Production

- Low to mid sized production batches

- Ideal for ISP (Flash programming), BS (Boundary Scan) and FT (Functional Test)

- PXI chassis direct integration

- Integrated Power supplies (Fixed and/or Programmable)

- Linear Manual Pushing mechanism allowing up to 2000N of probe pressure.

- High Quality Mass Interconnect interface receiver for up to 8 YAV modules or VPC Series 90 modules. 20.000+ matings without signal degradation.

- Low cost, easy and fast exchangeable fixture cassette system with ITA frame

- Folding keyboard with trackball and TFT

- Available internal space for extra platform devices & customizable rear panel

- IEC Inlet plug with switch and protection fuse

- YAV90MMU, Ethernet to CAN gateway Multiplexed Measurement Unit (Included in Basic and Advanced)

- YAV90059, 64Ch 2-wire Configurable Mux (Included in all 6TL-08 versions except the Basic)

- Wide version available for big area DUTs

The 6TL-08 base platform was designed to cover the most common testing and in-system programming (ISP) needs with a reduced initial budget. The system includes a robust manual linear push mechanism allowing a low-cost fixture strategy thanks to the exchangeable cassettes. Regarding working area size, there are two available options: Narrow for PCBs up to 250x300mm, and Wide for PCB's up to 250x580mm. For the Wide version an optional kit allows the use of Narrow version cassettes.

The platform enclosure features an 8-Slot fixture receiver, compatible with VPC 90 Series Mass Interconnect Modules, as well as 6TL intelligent YAVModules. There's room for fast ISP devices, PXI chassis and various power supplies. A removable back panel allows easy placement of custom connectors or test auxiliary circuitry.

The 6TL-08 comes in five different configurations:

Basic - As a stand-alone low cost tester with test executive software running on the YAV90MMU (programming of test sequence using an Excel® spreadsheet)

Advanced - As a stand-alone low to mid cost tester, with a PC, where LabVIEW / TestStand, Visual Basic or some other software development tool can be used to create the test sequence.

Universal - Same as Advanced, but including an All-in-one compact measurement unit, with: DMM, Function Generator, Scope, Logic Analyzer, DIO. and DC Power Supplies.

Plus - Bench-Top PXI based stand-alone compact tester, expanding the capabilities of the Base Test Platform up to High Frequency measurements with sophisticated instrumentation.

**Premium -** Same as Plus version, but including the YAV90ISP module.

Main Features

Platform Operation	Off-Line
Type	Compact, table top
w*d*h [mm]	Narrow (N) 497 x 677 x 342; Wide (W) 780x677x342
Weight [Kg]	Narrow (N) 27; Wide (W) 32
Press unit	Included; Manual operation; 2,000N maximum force
Fixturing	Low cost exchangeable cassette type (Bed of nails and Pusher's plate)
Maximum probing area / PCB Size	Narrow (N) 250 x 303mm; Wide (W) 250 x 580 mm
Free space for instruments, loads or power supplies	Inside enclosure [w * d * h mm]: Narrow (N) 220 x 260 x120; Wide (W) 500 x 260 x 120
VPC mass interconnect solution	8 slots for 90 Series VPC Connector Modules or active YAV modules
Platform control panel	Two pushbuttons with pilot (START -OK-) and (CANCEL -FAIL-)
On/Off / Power requirements	85 … 265 V_{AC}, 260W IEC 60320-1/C14 Inlet plug with switch and protection fuse and 2x IEC 60320-2-2/F Outputs Internal System 24V_{DC} 100W Power Supply
Platform security management	Emergency Stop Function, with pushbutton, safety relay and two contactors (EN 954-1, EN ISO 13849-1) Lid-Open Function implemented (Impemented by default in all models except BASIC)
TFT panel	17" VGA Monitor (Implemented by default in all models except BASIC)
Keyboard + mouse	Yes, Folding Keyboard EU layout with trackball kit (Magnetic lock). (Implemented by default in all models except BASIC)
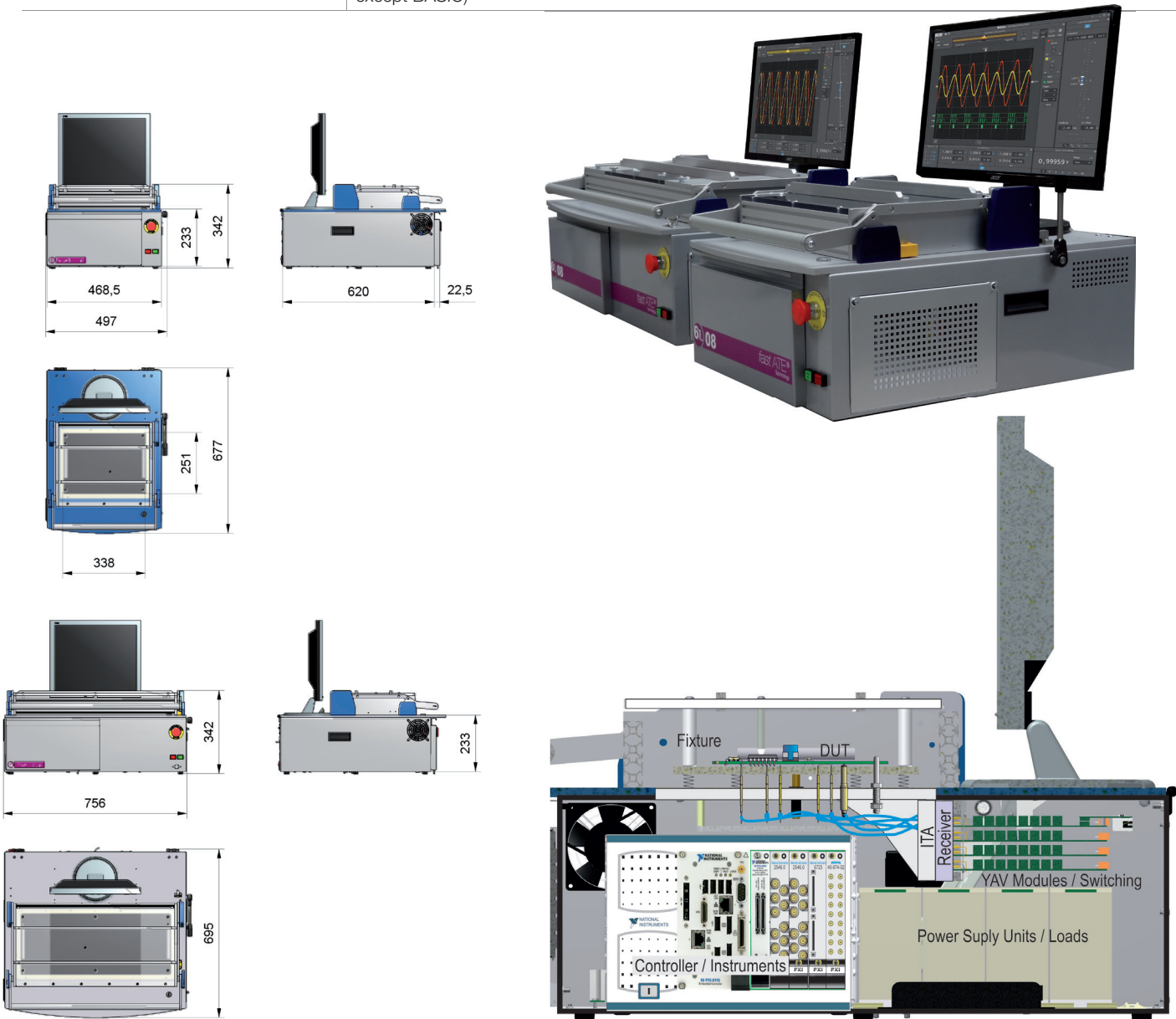
Configurations Selection Table
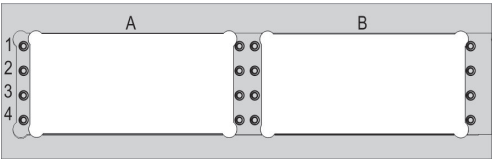
Receiver Positions (RCV) view from ITA side
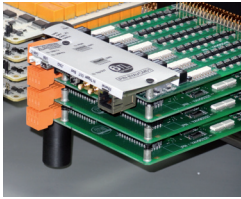
P/N	Description (Bold= Receiver Modules, Maximum 8 u.)	Basic	Advanced	Universal	Plus	Premium
	Narrow	P/N **H71000800**	P/N **H710008NA**	P/N **H710008NU**	P/N **710008NP**	P/N **H710008NB**
	Wide	P/N **H710008W0**	P/N **H710008WA**	P/N **H710008WU**	P/N **710008WP**	P/N **H710008WB**
YAV90MMU	**Multiplexed Measurement Unit**	Yes	Yes	-	Option	Option
-	PC Mini-ITX Core 2-Duo w/XP (Free PCI slots)	-	Yes (1)	Yes (1)	-	-
-	PXIe-Chassis w/8115 Core 2-Duo (PXIe slots)	-	-	-	Yes (3)	Yes (3)
H68002500	MSES (MS Excel based sequencer)	Option	-	-	-	-
AD282	LabVIEW Development System, Win,1 Yr SSP	-	Option	Option	Option	Option
AE095	TestStand Deployment License (linked to PC)	-	Option	Option	Option	Option
-	Microsoft Windows 7 Operating System	-	Yes	Yes	Yes	Yes
-	Keypad and Trackball, Folding	-	Yes	Yes	Yes	Yes
MMMS9540	Data Matrix/Bar Code Reader	Option	Option	Option	Option	Option
800808K	CAN bus Man-Machine interface	Option	Option	Option	Option	Option
-	17" TFT	-	Yes	Yes	Yes	Yes
-	USB to CAN bus High Speed Interface	-	Yes	Yes	Yes	Yes
AC664	USB 1 to 7 Ports hub	-	Option	Yes	Yes	Yes
-	24VDC 120W System power supply	Yes	Yes	Yes	Yes	Yes
-	Emergency Stop Safety Function Kit	-	Yes	Yes	Yes	Yes
-	**Digitizer/AWG/DMM/Logic Analizer/DIO**	-	-	Yes	-	-
YAV90CIN	**12-Relays 8A 250VAC w/Meas. Shunt**	Yes	Option	Option	Option	Option
YAV90070	**PSU's (programmable) & AC Soft-Start**	-	Option	Option	Option	Option
AB620	12VDC 10A Power Supply	Option	Option	Option	Option	Option
920033	24VDC 5A Power Supply	Option	Option	Option	Option	Option
920024	48VDC 2,5A Power Supply	Option	Option	Option	Option	Option
YAV90HVT	**32-Channel 3000-V Mux with DMM**	Option	Option	Option	Option	Option
H19004304	500VDC Programm. Power Supply	Option	Option	Option	Option	Option
H19004302	1500VDC Programm. Power Supply					
H19004301	3000VDC Programm. Power Supply					
YAV90128	**128-Channel Multiconfiguration Mux.**	Option	Option	Option	Option	Option
YAV90057	**160-Channel 2-A Config. Multiplexer**	-	Option	Option	Option	Option
YAV904X8	**32-Channel 2-Wire Multiplexer**	Option	Option	Option	Option	Option
YAV90059	**64-Channel 2-Wire Configurable Mux.**	-	Yes	Yes	Yes	Yes
YAV90060	**32x4 Channel 2-Wire Matrix**	-	Option	Option	Option	Option
YAV90063	**4-Trees to 8-Relay 2-Wire Multiplexer**	-	Option	Option	Option	Option
YAV90164	**64-Channel 2A SPDT Relay**	-	Option	Option	Option	Option
YAV90064	**96-Channel 2A SPST Relay**	-	Option	Option	Option	Option
YAV90PNE	**10 Pneumatic electrovalves**	-	Option	Option	Option	Option
YAV91500	**2.5 GHz 50-Ohm SMB Multiplexer**	-	Option	Option	Option	Option
YAV90ISP	**ISP Barrier-Mux. Interface**	Option	Option	Option	Option	Yes
WNPRG01A	1-Channel ISP Programmer	Option	Option	Option	Option	Option
WNPRG02A	2-Channel ISP Programmer					
WNPRG04A	4-Channel ISP Programmer					
WNPRG08A	8-Channel ISP Programmer					
MM77955301	I2C / SPI Interface	Option	Option	Option	Option	Option
YAV9JTAG	**Bounday-Scann Resources Unit w/USB**	Option	Option	Option	Option	Option
YAV9JTAH	**Bounday-Scann Res. Unit w/analog**	Option	Option	Option	Option	Option
H73252000	USB to JTAG 4-TAPS Interface	Option	Option	Option	Option	Option

Features in 6TL08 UNIVERSAL build-in Measurement Unit

Function Generator (FGEN)

Waveforms	Sine, square, ramp/triangle, DC, arbitrary
Update rate	125 MS/s
Resolution	14 bits
Number of channels	1
Sine Maximum frequency	20 MHz
Sine total harmonic distortion	< -55 dBC
Sine spurious free dynamic range	- 70 db at 1 MHz (non-harmonic)
Sine Phase noise	< -100 dBC/Hz at 10 kHz offset
Square Maximum frequency	5 MHz
Square Rise/fall time	< 20 ns (10% to 90%)
Square Overshoot	< 5%
Square Jitter	8 ns cycle-to-cycle
Ramp/triangle maximum frequency	150 kHz
Trigger types	Start of window
Trigger resolution	8 ns

Digital Multimeter

Functions	DC voltage, AC voltage, DC current, AC current, resistance, diode, continuity
Resolution	5 1/2 digits
Sample rate for DC voltage, DC current and resistance	5 S/s
Resistance, diode Input protection	Up to 300V DC
DC and AC voltage input protection	Up to 300V DC or 265V ACrms, 400V AC peak
DC and AC current Input protection	Internal fuse 10A 250V, time-delay 5x20 mm T10 H250V mA current connector fuse 1.25A 250V
Maximum common-mode voltage	300V DC or AC rms
DC continuity accuracy range	1 kOhm
DC diode test range	2 V

DC Power Supplies

Outputs	0 to +6V/0 to 1 A 0 to +25V / 0 to 500mA Isol. 0 to -25V / 0 to 500mA Isol.

External trigger

Direction control	Input or output, Software-selectable
Logic level	5V compatible LVTTL input, 3.3 V LVTTL output
Drive strength	4 mA
Input voltage	0 to 5 V

Conectivity

USB specification	USB 2.0 Hi-Speed
Wireless Interface	IEEE 802.11 b,g,n

Mixed Signal Osciloscope

Number of channels	2 single ended, no-isolated
Bandwidth (-3dB)	100 MHz
Resolution	8 Bits
Accuracy	$\pm$2% of input $\pm$1% full scale
Input coupling	DC, AC
Vertical sensitivity (Range)	10mV/div 5V/div
Input Impedance	1 MOhm 20pF
Acquisition modes	Sample, peak detect, averaging
Maximum sample rate	1 GS/s single channel 500 MS/s/channel, dual channel
Maximum record lenght	1,048,576 S/channel
Trigger modes	Normal, Auto, Single, Frorce
Trigger sources	Osciloscope analog channels, osciloscope digital channels, function generator start, digital I/O lines, external trigger, power line frequenct
Trigger types	Analog edge with histeresis window Digital edge, glitch, level, pattern
Osciloscope Waveform Measurement time	Period, frequency, positive duty cycle, negative duty cycle, positive pulse width, gegative pulse width, rise time, fall time, rise rate, fall rate
Osciloscope Waveform Meas. voltage	High, low, amplitude, maximum, minimum, peak-to-peak, overshoot, undershoot, RMS, mean, cycle RMS, cycle mean
Osciloscope Logic analyzer time	Period, frequency, positive pulse width, negative pulse width, positive duty cycle, negative duty cycle
Waveform Math Operations	A+B, A-B, A*B

Digital Channels / Logic Analyzer

Number of channels	34
Threshold accuracy	350 mV

Digital I/O

Number of channels	8
Direction control	Input or output, software-selectable
Logic level	5 V compatible LVTTL input 3.3 V LVTTL output
Drive strength	4 mA
Input voltage	0 to 5 V
Pull resistors Digital I/O Ch. 0 to 5	10 kOhm pull-down
Pull resistors Digital I/O Ch. 6 and 7	10 kOhm configurable to 0 V pull-down or 3,3 V pull-up
External power voltage	3.3 V $\pm$ 10%
External power current	20 mA
Additional/internal Channels	Digital I/O lines, function generator start, external trigger (TRIG), power line frequency
Timing mode sample rate	1 GS/s (down to 15kS/s, +static read)
External sample clock mode sample rate	100 MHz maximum
Record lenght	Typical 1 MS, Minim. 4 kS
Decimation	External Sample Clock, 1:1, 2:1, and n*4:1 where n is an integer
Maximum sample compression	2^{15} to 1

Features with YAV90MMU Measurement Unit

Pulse Generator

Waveforms	Square w/Adj. Duty Cycle
Number of channels	2
Channel Options	Independent, Quadrature 90º
Operating Voltage	5 ... +35VDC
Output Voltage (High level)	4.3 ... 34 VDC
Output Voltage (Low level)	0 V
Output Impedance	47 Ohm
Frequency Range	0,00001 .... 20,000 Hz
Duty Cycle Adjustment	15 ... 85%

Trigger Input

Active trigger level	2.3 ... 3.4 VDC
Latency time	2 ns

Trigger Output

Active trigger level	3.3 VDC
Pulse	1 ms

Digital Multimeter and Multiplexer

Functions	DC voltage, AC voltage, DC current, AC current, frequency, periode, resistance, diode, capacitors
Resolution	4 3/4 digits
Multiplexer Max. operating voltage	1,500 VAC / 1,500 VAC
AC Voltage range	0 ... 600V
AC/DC Current range	0 ... 10A
DC Voltage range	0 ... +/- 600V
Frequency range	40Hz ... 400 Mhz
Capacitors Measurement range	4,2 nF 0,04F
DC diode test range	2.7 V
Acquisition Times (Typical)	Resistors: 297 ms Capacitors: 719 ms Frequency/Duty Cycle 125 ms Frequency: 188 ms Diode: 516 ms

Digital Outputs

| Number and type	8 PNP 24VDC
Output current (Protected)	300 mA
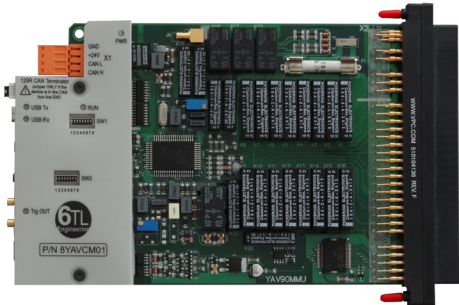
# Spare Parts and options Ordering Information P/N

Platform

| Light beacon (CAN bus, 3 colours + Buzzer)	H78001001
Machine-Man Interface (2 Pushbuttons + Display)	80203U1Z
17" Touch Screen	MMTLG000
Signal Module, RCV, TriPaddle, 96 Pos	VP510104136
Signal Module, RCV, QuadraP, 192 Pos, Wire Crimp, Unloaded	VP510150115
TriPaddle Signal/Mini Coax Module, Receiver, 16/16 Pos	VP510104243
TriPaddle Signal/Mini Power Module, RCV, 16/16 Pos	VP510104206
Micro Power and Micro Coaxial Module, RCV, 50 Pos	VP510104267

Fixtures
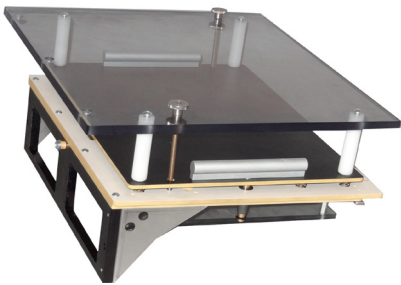
| Interchangeable cassette kit (Include 10 pusher fingers) N	AA413
Interchangeable cassette kit (Include 10 pusher fingers) W	AA639
Reduction Kit for use N fixtures in W platforms	AD977
Pusher finger w/Isolated head	H72008935
Tooling pin D 2.4 mm x 6 mm Thread M03 (10 u.)	ATX290090
Tooling pin D 2.5 mm x 6 mm Thread M03 (10 u.)	ATX425006
Tooling pin D 3.0 mm x 6 mm Thread M03 (10 u.).	H72008923
Tooling pin D 4.0 mm x 6 mm Thread M03 (10 u.)	H72008924
L type pre-centering corners (2 u.)	H72008910
PCB spacer kit (25 u.)	H72008941
Signal Module, ITA, TriPaddle, 96 Pos	VP510108126
Signal Module, ITA, QuadraPaddle, 192 Pos, Unloaded	VP510151105
TriPaddle Signal / Mini Coax Module, ITA, 16/16 Pos	VP510108210
TriPaddle Signal / Mini Power Module, ITA, 16/16 Pos	VP510108178
Micro Power and Micro Coaxial Module, ITA, 50 Pos	VP510108262
Blank module cover	60IL108X
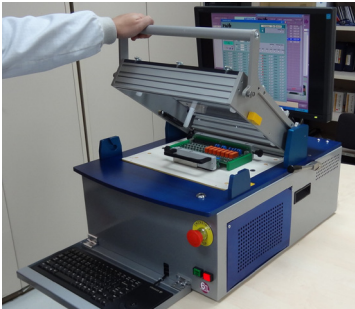
Configuration Example

The diagram below shows all the possibilities available with the 6TL-08: Power supplies, HiPot, Boundary Scan, ISP, PXI,...
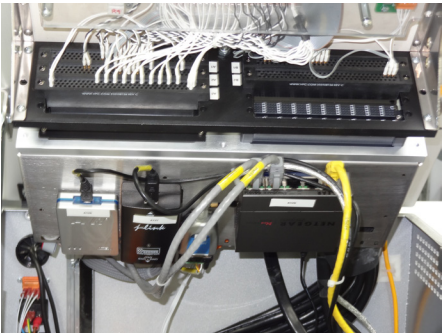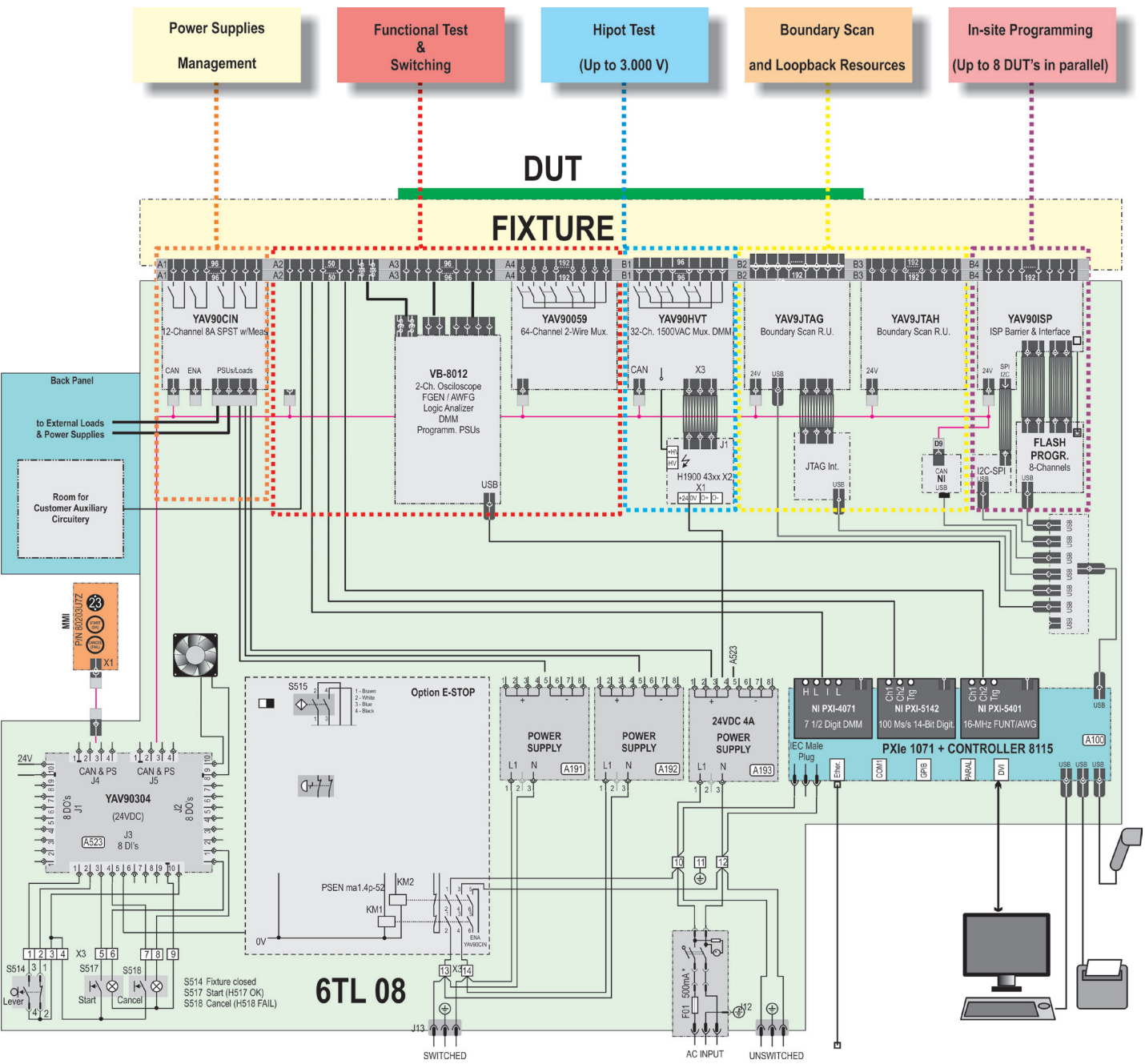
Fixture kit engaged into the Receiver. Below the Receiver we can see some integrated devices (RJ45 hub, and two comunication interfaces)

Detail of the Measurement Unit (P/N AD539) included in the 6TL-08 UNIVERSAL, with FGEN, DMM, Scope DIO and Logic Analyzer.
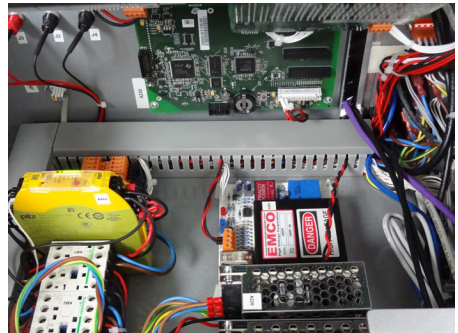
Detail of the interior of the 6TL-08, where we can see the EPO option, a HV Power Supply, and the customization made on the rear panel.

6TL's Base Test Platforms Product Range:

6TL-10   6TL-19   6TL-22   6TL-29   6TL-28   6TL-33 (2 units)

Austria, Belgium, Brazil,
Bulgaria, Chile, China,
Czech Republic, Denmark,
Egypt, Estonia, Finland, France,
Germany, Hungary, India,
Ireland, Israel, Italy, Japan, Ko-
rea, Luxemburg, Mexico,
Netherlands, Norway, Poland,
Romania, Russia, Spain, Servia,
Sweden, Taiwan, UK, USA

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