



TECHNO ALLIANCE

INFRA CONTRACTS LLP

About Techno Alliance Infra Contracts LLP

Founded in 2019, Techno Alliance Infra Contracts LLP specializes in the design, supply, installation, testing, commissioning, repair, and maintenance of power infrastructure. Our services cover a wide range of areas, including substations, HT/LT overhead and underground lines, panel designing and installation, and general electrification. We bring a wealth of experience to Government and Semi-government projects, Indian Railways, the Airports Authority of India, and various private sectors, ensuring the highest standards of quality through detailed engineering and timely execution. We are excited to announce our expansion into manufacturing advanced technology products. Our new venture includes the development of sensors, printed circuit boards (PCBs), and remote monitoring systems. This addition enhances our ability to provide comprehensive, cutting-edge solutions that meet the evolving needs of our clients.

Our success stems from not only our expertise in adopting the latest techniques but also our dedication to providing complete, tailored solutions. We are resolute in our mission to support our clients, set new benchmarks in customer satisfaction, and lead the market with our cutting-edge technology and solutions.

Techno Alliance Infra Contracts LLP is committed to solidifying our leadership in the infrastructure sector and driving growth through innovation. Our Strategic goals include:



POWER SUPPLY SOLUTIONS

DC-DC Converters

DC-DC converters step voltages up or down with high efficiency, from fixed-input unregulated modules to ruggedised variants for railway, defence, and aerospace.

DC-DC Fixed Input



1~3W Fixed Input Unregulated Output

Small, cost-effective isolated supply modules for compact electronics where tight regulation is not required.

Specification	Details
Power Range	1 - 3W
Efficiency	Up to 90%
No-load Current	As low as 5 mA
Ripple & Noise	As low as 20 mVp-p
Packages	DIP, SIP, SMD
Isolation	1500/3000/4000/5200/6000 VDC
Temp. Range	-40°C to +105°C
Protection	Short-circuit (self-recovery)

DC-DC Non-Isolated



0.5~2A Non-Isolated Step-Down

Pin-compatible with LM78xx linear regulators, direct efficiency upgrade, no circuit redesign required.

Specification	Details
Output Current	0.5 - 2A
Efficiency	Up to 96%
Temp. Range	-40°C to +85°C
Compatibility	Pin-out compatible with LM78xx
Protection	Sustainable short-circuit protection

60-350W Wide Input for PV Applications

Specification	Details
Power Range	60 - 350W
Input Voltage	Up to 1500 VDC
Efficiency	Up to 94%
No-load Power	< 0.06W
Isolation	3000 / 4000 VDC
Temp. Range	-40°C to +85°C
Protection	SCP / OLP / OTP / OVP

DC-DC Wide Input



1~40W Standard Wide Input (2:1)

Versatile isolated converters with 2:1 input range for industrial rails where supply voltage is not tightly controlled.

Specification	Details
Power Range	1 - 40W
Max Input	Up to 160 VDC
Isolation	1500 / 3000 VDC
Control	Remote On/Off, voltage trimming
Protection	SCP (self-recovery)
Special	No overshoot; nickel-plated copper
Temp. Range	-40°C to +85°C

3~40W Wide Input High-End (2:1)

Ruggedised with 6-side EMI shielding, extended -50°C low-temp floor for railway, marine, and unmanned aircraft.

Specification	Details
Power Range	3 - 40W
Efficiency	Up to 90%
Temp. Range	-50°C to +85°C
Shielding	6-side EMI shielding
Warranty	Five years
Typical Use	Railway, ships, UAV, ground equipment

Compact Modules & Brick Power Supplies

DC-DC Converters

High power density modules and brick-format supplies – preferred for telecoms, industrial control, and defence systems.

5-75W Compact DC-DC Power Module

Specification	Details
Power Range	5 - 75W
Output Voltages	5V,12V,15V,24V,28V,48V,±5V,±12V,±15V,±24V,±36V
Efficiency	Up to 91%
Min. Load	No minimum load required
Isolation	2100/2500 VAC - 500/1500/2100 VDC
Temp. Range	-40°C to +105°C
Protection	UV, OCP, OVP, OTP, SCP, remote ctrl

DC-DC & AC-DC Brick Power Supply

Model	Power	Efficiency	Isolation
DC-DC Brick (Full/Half/¼/⅛)	50-2100W	Up to 96%	1500-4242 VDC
AC-DC Brick (Full/Half/¼)	60-700W	Up to 92%	2500 VAC
DC-DC 1/16 Brick	50-75W	Up to 90%	Standard

WHY IT MATTERS

All brick supplies share: no minimum load, remote control/sense, adjustable output, and a common protection set – UV, OCP, OVP, OTP, SCP.

AC-DC SMPS: Enclosed & DIN-Rail



Full-range AC input (85-264 VAC unless noted). Available in plastic and metal housings with optional redundancy and PFC.

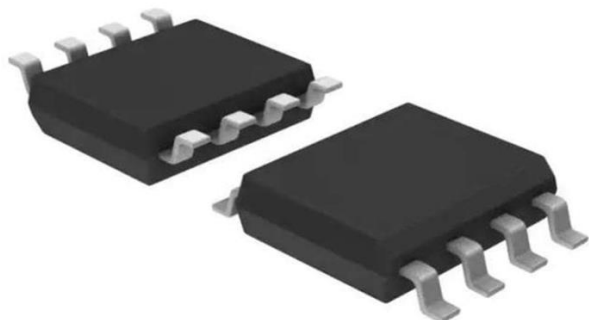
Series	Power	Key Feature
VPN-xx Plastic DIN-Rail	20-75W	Wide temp: -45° to +85°C
VDN/VDNF Metal DIN-Rail	75-960W	95% eff; ultra-narrow; DC OK relay
TUP/TUPF Medical	15-600W	Bare-plate; SCP/OCP/OVP; 80-264V
VEN Economical Enclosed	20-1000W	94% eff; adjustable; 300V surge 5s
VENF Enclosed PFC	250-2000W	PFC; DIN TS-35; redundancy; Class II
VHNF-xx Slim PFC	350-1000W	Finless; semi-potted; 94% eff

AC-DC Onboard

Series	Power	Input	Isolation
AD/ADM/ADE/ADS DIP	3-60W	85-305VAC	4000VAC
AD15Z-xx Electricity	15W	176-418VAC	Standard
AH/AHE/AHS Multi-Out	5-40W	86-305VAC	4200VAC
AS Flexible Ultra-Small	3-10W	85-305VAC/100-430VDC	–

Transceiver Modules / ICs

Robust, noise-immune communication over RS-485, RS-422, and CAN. Galvanic isolation protects microcontroller circuitry from high-voltage transients and ground-loop noise.



CAN Transceiver IC – NPS2801

Fully compliant with ISO 11898; supports classic CAN and CAN FD up to 5 Mbps for automotive and industrial networks.

Specification	Details
CAN Standards	ISO 11898-2:2016 / ISO 11898-5:2007
Protocol	Classic CAN + CAN FD (5 Mbps)
MCU Voltage	3.3V and 5V compatible
ESD Protection	IEC ESD up to ± 15 kV
Bus Fault	± 70 V
CM Input	± 30 V common-mode range
Passive State	Ideal passive when unpowered
Protection	Undervoltage + thermal shutdown

Isolated CAN/485 Transceiver Module

Specification	Details
Temp. Range	-40°C to $+85^{\circ}\text{C}$
Isolation	2500 VDC (two-port)
Package	DIP8 – 12.70 $\times$ 10.16 $\times$ 7.70 mm
Standards	RS-485 / CAN

RS-422/485 Transceiver IC – NPS2821

Half-duplex IC with extended ESD protection and true fail-safe receiver for large multi-drop industrial networks.

Specification	Details
Supply Voltage	3.0 – 5.5V
Data Rate	Guaranteed 16 Mbps
ESD Protection	± 15 kV HBM on RS-485/422 pins
Bus Loading	Up to 256 transceivers
Fail-Safe	True fail-safe; EIA/TIA-485 compliant
Hot-Swap	DE and RE hot-swap structures
Shutdown	Low-current shutdown mode



Gas Sensors



Three complementary technologies: AQM electrochemical sensors for toxic gas, PID sensors for VOC detection, and standard 4-series sensors. All AQM models share one digital platform and communication protocol.

AQM Sensors: Air Quality Monitoring

Sensor	Range	Resolution	T90	Temp.
AQM CO	0-20 ppm	<15 ppb	<105 s	-40~+55°C
AQM H ₂ S	0-10 ppm	<2 ppb	<160 s	-30~+50°C
AQM NH ₃	0-10 ppm	15 ppb	<190 s	-30~+50°C
AQM NO ₂	0-5 ppm	<15 ppb	<130 s	-40~+50°C
AQM NO	0-10 ppm	<15 ppb	<115 s	-20~+50°C
AQM O ₃	0-5 ppm	<10 ppb	<130 s	-40~+50°C
AQM SO ₂	0-5 ppm	<10 ppb	<130 s	-40~+50°C

Common Specs

Voltage: 3.2-5.5 VDC · Current: ≤5 mA @ 5V · Output: UART/I²C · Enclosure: aluminium · Weight: 30g · Life: 3 years · Warranty: 2 years.

PID Sensors



Detects VOCs whose ionisation energy is below the lamp photon energy. Proprietary UV lamp technology for high output and long lamp life.

Model	Range	Resolution	Lamp Life
4-PIN 9.8eV	0-2,000 ppm	1-500 ppb	10,000 hrs
4-PIN 10.6eV	0-10,000 ppm	0.5-2,000 ppb	10,000 hrs
7-PIN 10.6eV	0-10,000 ppm	1-1,000 ppb	20,000 hrs

Common Specs

Supply: 3.2-5.5V · Current: <35mA (4-PIN)/<180mA (7-PIN) · Temp: -20°C~+50°C · Enclosure: stainless steel · Life: 5 yrs (excl. lamp/electrodes).

Electrochemical Sensors

Standard 4-series pin-to-pin replacements for precise gas concentration measurement. Zero bias voltage, inherent linearity over sensor lifetime.

Model	Gas	Range	Sensitivity	T90	Life
4HF-10	HF	0-10 ppm	-0.3±0.1 µA/ppm	≤120 s	2 yrs
4-NH3 100L	NH ₃	0-100 ppm	0.135±0.035 µA/ppm	≤90 s	5 yrs
4-NH3 100S	NH ₃	0-100 ppm	-0.135±0.035 µA/ppm	≤45 s	2 yrs
4-O2 (0-100%)	O ₂	0-100% vol	-40±10 µA in air	≤15 s	5 yrs
4-O2 (0-25%)	O ₂	0-25% vol	100±20 µA in air	≤15 s	5 yrs

Common Specs

Bias: 0mV · Resolution: 0.2ppm · Humidity: 15-90% RH · Pressure: 1±0.1 atm · Storage: 10°C-30°C · Housing: ABS · Weight: 5g · Warranty: 12-24 months.

ELECTRONIC COMPONENTS

Discrete & Integrated Components

WHY IT MATTERS

The quality of discrete components directly determines the reliability, efficiency, and lifespan of a finished product. Our automotive-approved production lines reflect the consistency that design engineers depend on.

Diodes

One-way gates for electrical current – used for reverse-voltage protection, AC/DC rectification, fast switching, and light emission.



Standard & Rectifier

- Rectifier Diode – AC to DC conversion in power supplies
- Bridge Rectifier – Full-wave rectification in a single package
- Schottky Diode / Hot Carrier Diode – Fast switching, very low forward voltage drop
- Zener Diode – Precision voltage regulation and clamping

Protection & Special Function



- TVS Diode (Transient Voltage Suppressor) – Unipolar or Bipolar; protects against voltage spikes
- Varactor / Tuning Diode / Varicap – Variable capacitance for frequency tuning
- DIAC / Trigger Diode / SIDAC – Bidirectional trigger for AC circuits
- Constant-Current Diode – Maintains fixed current independent of voltage
- Peltier Cooler – Thermoelectric cooling device

Optical Diodes

- LED (Light-Emitting Diode) – Emits light when forward biased
- Photodiode – Converts light to electrical current

- Avalanche Photodiode – Photodiode with internal gain for low-light detection
- Solar Cell / PV Array – Produces electrical power from light

Transistors | 1,100+ Models

Acts as an electronic switch or amplifier. Over 1,100 models spanning NPN/PNP, signal-level to high-power types, with automotive-qualified options.

Type	What It Does	Current	Voltage
Small Signal	Amplifies weak signals / low-power switching	-8A to +8A	-60V to 400V
Power	Motor control, power regulation	-6A to 10A	-160V to 400V
Digital (bias R)	Built-in resistors simplify design	30-100mA	50V
Darlington	Drives relays, motors, solenoids	0.3-10A	30-100V

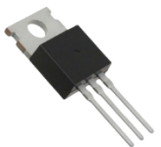
Specialty Transistors

- Phototransistor – Amplified photodetector; light-controlled switching
- Photo Darlington – High-gain amplified photodetector
- Sziklai Pair (Compound / Complementary Darlington) – Alternative high-gain configuration



Field-Effect Transistors (FET)

- JFET (Junction FET) – N-Channel or P-Channel; voltage-controlled, high input impedance
- MOSFET (Metal Oxide Semiconductor FET) – N-Channel or P-Channel; dominant in power switching
- MESFET (Metal Semiconductor FET) – High-frequency GaAs-based transistor
- HEMT (High Electron Mobility Transistor) – Microwave and low-noise amplifier applications



Thyristors

Four-layer PNP devices used for high-power switching and AC power control – once triggered, they latch on until current falls below the holding level.

- SCR (Silicon-Controlled Rectifier) – Unidirectional high-power switch; triggered by gate pulse
- TRIAC (Triode for Alternating Current) – Bidirectional SCR; controls AC loads directly
- UJT (Uni-Junction Transistor) – Relaxation oscillator and SCR trigger circuits
- PUT (Programmable UJT) – Programmable trigger voltage for oscillators and timers
- SIT (Static Induction Transistor) – High-power, high-frequency switching

IGBTs



Combines voltage-controlled MOSFET switching with high-current bipolar transistor capability. Workhorse of motor drives, welding, traction, and high-power UPS systems.

Specification	Details
Voltage Range	650V - 1700V
Current Range	6A - 160A
Structures	NPT and MPT – saturation current control
Auto Grade	AEC-Q101 for EV drivetrain applications
Packages	TO-252, TO-263, TO-247, TO-247-4L, TO-3P

MOSFETs



Voltage-controlled switches for power conversion, motor control, and signal routing. Lower $R_{DS(on)}$ = less heat loss.

Category	Voltage	$R_{DS(on)}$	Best Use
WLCSP Ultra-Compact	12-24V	1.2-25m Ω	Wearables, mobile PCB

Category	Voltage	$R_{DS(on)}$	Best Use
Low Volt. Trench NMOS	12-40V	Min. 1.5m Ω	DC-DC, sync. rectifiers
Low Volt. SGT NMOS	30-40V	0.75-10m Ω	High-freq. switching
Med. Volt. Trench	60-200V	Enh. EAS	Industrial drives
Med. Volt. SGT	60-150V	2.2-20m Ω	High-eff. converters
High Volt. Planar	600-800V	–	Offline PSU, ballasts
Super Junction	650-700V	90-380m Ω	AC-DC adapters, SMPS

Integrated Circuits

Digital ICs



Perform logic operations and data processing. Gates, flip-flops, counters, multiplexers – the foundation of all digital systems.

- Logic Gates – AND, OR, NOT, NAND, NOR, XOR in HC, HCT, LVC, AHC, LV families
- Flip-Flops, Latches, Registers – State storage and data buffering
- Counters, Timers – Frequency division and time measurement
- Multiplexers / Demultiplexers – Signal routing in data buses

Analog ICs

Type	Supply	Key Performance
Op-Amps	Up to $\pm 18V$	8nV/ $\sqrt{Hz}$ noise · 0.1mV offset · 180V/ μs slew rate · Rail-to-rail
Comparators	Up to 36V	78ns response · 355nA ultra-low power for battery detection
High-Speed/Low-Noise	1.4V - $\pm 18V$	Bandwidth to 240MHz · Ultra-low offset for instrumentation

- Hall Effect Sensor – Senses magnetic field; used in current and position sensing
- Current Sensor – Measures current through the device for monitoring and protection

Power Management ICs (PMIC)

Type	What It Does	Key Specs
Bipolar LDO	Drop-in regulator replacement	Vin 40V · Vout 1.2–24V · 1–3% accuracy
CMOS LDO	Ultra-low Iq for battery devices	Vin 0.6–65V · Iq 0.8µA · PSRR 98dB
Prec. Voltage Ref.	Fixed ref for ADCs/DACs	Vref 1.24/1.25/2.5V · 0.4% accuracy
Buck (Step-Down)	High-eff. voltage step-down	Vin 5–100V · 150kHz–2.2MHz
Boost (Step-Up)	Voltage step-up, e.g. 3.3V→12V	Wide range · Adjustable output

Driver & Logic ICs

Type	Controls / Does	Families
Driver ICs	BLDC · Brushed DC · Stepper · Gate · LED · Darlington arrays	Noise-immune, high-reliability
Logic ICs	Gates · Buffers · Counters · Multiplexers	HC, HCT, LVC, AHC · SOP, TSSOP, QFN, SOT

Protection ICs & Battery Management

Protect batteries and power rails from overcharging, over-discharging, short circuits, and excessive voltage.

Product Type	What It Does
Battery Charger ICs	Safe controlled charging for Li-ion / rechargeable batteries
Load Switch ICs	Connect/disconnect subsystem power – enables sequencing
Reset ICs	Ensures MCU starts from a known state on power-up
Voltage Detection ICs	Monitors supply; triggers alert if out of tolerance
Li-ion Protection ICs	Prevents overcharge, over-discharge, and short-circuit

TECHNO ALLIANCE
INFRA CONTRACT LLP

Additional Components

Devices that interact with light for isolation, display, detection, and communication.

Opto-Isolators & Couplers

- Opto-Coupler / Photo-Coupler – Photodiode, BJT, JFET, SCR, TRIAC, zero-crossing variants
- Solid State Relay (SSR) – Silent, fast switching with optical isolation
- Opto Switch / Opto Interrupter – Optical presence and position sensing

LED Displays

- Seven-Segment Display – Numeric digit display for counters and meters
- Sixteen-Segment / Starburst Display – Alphanumeric character display
- Dot-Matrix Display – Flexible character and graphic display

Display Technologies

- LCD – Preformed characters or dot matrix; passive or TFT; monochrome or colour
- LED – Individual LEDs, 7-segment, starburst, or dot-matrix configurations

Crystals & Oscillators

Ultra-stable timing references for every digital circuit. MEMS oscillators offer shock resistance for portable and automotive applications.

Specification	Details
Product Types	Crystal · MEMS · Differential · LDO-integrated oscillators
Frequency Range	kHz (precision timing) to 200 MHz (high-speed data)
Package Range	7050 down to 1210 – through-hole to ultra-compact SMD
Automotive Grade	AEC-Q200 qualified
Applications	Consumer · WiFi-6 · Industrial automation · Automotive

Piezoelectric Devices

- Crystal Resonator – Precision frequency reference for oscillators and filters
- Ceramic Resonator – Cost-effective clock source for microcontrollers
- Ceramic Filter – Frequency-selective filtering in RF and IF stages
- Surface Acoustic Wave (SAW) Device – Band-pass filters for RF communications
- Ultrasonic Motor – Piezo-driven motor for precise positioning without magnets
- Piezo Buzzer & Microphone – Acoustic transducers for alerts and audio pickup

TECHNO ALLIANCE
INFRA CONTRACT LLP

Terminals & Connectors

- Terminal – Single wire connection point for PCB and panel mounting
- Connector – Multi-pin mating pairs for board-to-board and cable-to-board connections
- Socket – Removable connector for ICs and modules
- Screw Terminal / Terminal Block – Secure wire termination for field wiring
- Pin Header – Standard pitch (2.54mm, 2mm) board interconnects

Switches

Manual Switches – Electrical Configurations

- SPST – Single Pole Single Throw; simple on/off
- SPDT – Single Pole Double Throw; changeover switch
- DPST – Double Pole Single Throw; dual-circuit on/off
- DPDT – Double Pole Double Throw; dual changeover
- NPNT (General) – Multi-pole multi-throw configurations

Switch Technologies

- Slide Switch · Toggle Switch · Rocker Switch – Panel-mount operator interfaces
- Rotary Switch – Multi-position selection; often with detents
- Pushbutton Switch – Momentary or latching; various actuator styles
- DIP Switch – PCB-mount multi-position switch array for configuration
- Keypad – Matrix-scanned multi-key input array

- Micro Switch / Limit Switch – Precision actuation for position sensing
- Mercury Switch – Tilt-activated via liquid mercury; legacy type
- Centrifugal Switch – Speed-activated switching in motors
- Thermostat – Temperature-controlled switch; on/off at set-point
- Humidistat – Humidity-controlled switch for HVAC and climate control
- Circuit Breaker – Resettable overcurrent protection for panel wiring

Protection Devices

- Fuse – One-time overcurrent protection; must be replaced after blowing
- Circuit Breaker – Resettable thermal or magnetic overcurrent protection
- Resettable Fuse (PTC) – Self-resetting overcurrent device; trips and recovers
- RCD / GFCI – Ground-fault / residual-current protection for personnel safety
- MOV (Metal Oxide Varistor) – Clamps transient overvoltages; surge absorber
- Inrush Current Limiter (NTC Thermistor) – Suppresses power-on surge current
- Gas Discharge Tube – Handles high-energy transients; lightning protection
- Spark Gap – High-voltage surge diverter

Transducers, Sensors & Detectors

Audio

- Buzzer: Electromechanical or piezoelectric audible alarm

Position & Motion

- LVDT (Linear Variable Differential Transformer) – High-accuracy linear displacement
- Accelerometer – Measures acceleration and vibration; MEMS-based for compact designs

Force & Torque

- Strain Gauge: Measures mechanical deformation; converts force to resistance change

Temperature

- Thermocouple: Wide-range temperature sensing via junction voltage (Type J, K, T, E, etc.)
- Thermopile: Array of thermocouples; non-contact infrared temperature measurement
- Thermistor (NTC/PTC): Temperature-sensitive resistor; fast response, high sensitivity
- RTD (Resistance Temperature Detector): Precision temperature via resistance (PT100, PT1000)
- Bolometer – Infrared radiation power sensor
- Thermal Cutoff – One-shot protection device; opens circuit at over-temperature

Magnetic Field

- Magnetometer / Gauss Meter – Measures magnetic field strength and direction

Humidity

- Hygrometer – Measures relative humidity; capacitive or resistive types

Electromagnetic & Light

- Photo Resistor / LDR (Light-Dependent Resistor) – Resistance varies with light intensity

Motors

Type	Key Characteristic	Typical Application
DC Motor	Simple speed control via voltage	Robotics, fans, actuators
AC Motor	Runs directly from mains supply	Industrial machinery, HVAC
Synchronous Motor	Speed locked to supply frequency	Clocks, precision drives
Induction Motor	Rugged, no brushes; most common	Pumps, compressors, conveyors

Relays

Electrically controlled mechanical or solid-state switches – used to isolate control circuits from high-power loads.

Type	Key Feature	Typical Use
Electromagnetic Relay	Coil-driven contacts; general purpose	Control panels, automation
DC Relay	Optimised for DC coil operation	Battery systems, automotive
AC Relay	AC coil; often with shading ring	Mains control circuits
Induction-Type Relay	Current-proportional actuation	Protection relays, meters
Solid State Relay (SSR)	No moving parts; silent; fast	PLCs, temperature control
Thermal Relay	Bimetallic overload protection	Motor overload protection
Reed Relay	Magnetically operated glass-enclosed	Signal switching, test equipment



TECHNO ALLIANCE
INFRA CONTRACT LLP



Mandhan Bhawan, Lala Ka Bazar, Near Water Tank, Lashkar, Gwalior,
Madhya Pradesh 47400



+91-70678-44230 | +91-96692-55255