

Highly Reliable Components & Services for Space Applications

Space Programmes & Projects call for meticulous logistic and planning activities to precisely achieve the set quality objectives within the specified time-frame. This demanding nature of Space sector, makes it a very challenging area for the designers involved, and their suppliers alike.

Critical as they are, various High-Rel components employed in prestigious space programmes demand careful attention of Engineers, Designers & Planners involved, to ensure their compliance with the stringent specifications of space applications. Much valuable time is spent in selecting the right component from an array of available options, verification of their reliability, specifications & suitability for the application, followed by a protracted process of cost estimation and logistics planning.

Tecnologica a single source company:

Tecnologica SPA, the European leader in space solutions represented in India by **Structural Solutions** offers a single source solution for such demanding space program requirements, by

- * Offering Engineers & designers a choice of proven, tested and high-rel components for space applications from over 100 reputed manufacturers, available in stock at the best term and cost conditions.
- * Providing customers with the necessary information about the quality, reliability and survivability of these components vis-a-vis, the applicable ESA/SCC/JANS/MIL-S/QML standards, to enable them make a right choice.
- * Contributing to the customers quality objectives by providing value added services such as technical consultation by application experts, special purpose screening & verification tests (for radiation resistance/electrical measurements/thermal screening/destructive physical analysis etc.) at their in-house laboratory.
- * Enabling the customers to meet their project lime frames by providing an on-line access to the stock, and their order status on **Tecnologica** web site.

These services enable the engineers and planners of Space Programmes to devote their precious time and resources to the core design & execution tasks in hand, while relying on Tecnologica to promptly provide them with the necessary reliable & suitable components and expert services.

The unchallenged leadership of **Tecnologica** in the above areas is a result of its unique expertise and experience in diverse space applications, and a continuous process of innovation & improvement driven by zeal for perfection. That over 50 prestigious space programmes including COLUMBUS, INSAT, IRS, ISO, WORLDSTAR etc have entrusted **Tecnologica** with their requirements stands as a testimony to the company's exceptional credentials as a trusted High Rel components supplier and service provider.

Choose from an array of High-Rel Components

Customers can choose from a wide range of tested and proven space grade components from reputed suppliers procured and stocked by **Tecnologica** to meet virtually any space application. The unique rapport developed by **Tecnologica** with over 100 reputed High-Rel suppliers such as:

MAJOR SUPPLIERS OF TECNOLIGICA:

3D Plus	LOCKHEED MARTIN (British Aerospace)
ACTEL	M.C.C.
AEM	MICROPAC INDUSTRIES
ANALOG DEVICES	MICROSEMI
ATMEL	COMPENSATED DEVICES
AUSTIN SEMICONDUCTOR	* LINFINITY MICROELECTRONICS
AVX	NEW ENGLAND SEMICONDUCTORS
C-MAC QUARTZ CRYSTALS	NATIONAL SEMICONDUCTOR
COMEPA	NEC
COMPAGNIE DEUTSCH	POSITRONIC
* DEUTSCH CONNECTORS	Q-TECH Corporation
* RELAYS ELECTRONIC DEUTSCH	RADIALL
CYPRESS	REMEC MAGNUM
DYMEX	SEMELAB
E.M.C	SENSITRON
ELMWOOD SENSORS	SOLID STATE DEVICES
EUROFARAD	ST MICROELECTRONICS
FAIRCHILD SEMICONDUCTOR	STATE OF THE ART
FENWALL ELECTRONICS	STELLEX MICROWAVE SYSTEMS
FRAMATOME CONNECTORS	SUHNER
FUJITSU MICROELECTRONICS	TELE QUARZ GROUP
GLENAIR	TEMEX
HEWLETT PACKARD	TEXAS INSTRUMENTS
HONEYWELL	THOMSON CSF
HYBRITECH	TRAK MICROWAVE LTD
HYPERTAC	TYCO ELECTRONICS
* HYPERTAC SA	* AMP
* HYPERTAC SpA	* M/A-COM
* HYPERTAC UK	UTMC AEROFLEX
INTERNATIONAL RECTIFIER	VECTRON INTERNATIONAL
* ADVANCED ANALOG	VICTORY ENGINEERING CORP.
LINEAR TECHNOLOGY	VISHAY GROUP
INTERPOINT	* DALE
INTERSIL	* DRALORIC
IRCA	* ROEDERSTEIN
ITT CANNON	* SFERNICE
KEMET ELECTRONIC	* SPRAGUE
LEACH INTERNATIONAL	* VITRAMON

ensures that the customers get the best cost and term conditions to enable them to better plan and execute their projects.

The most advanced on-line stock management programme of **Tecnologica** enables the customers to access their on-line store capable of stocking upto seven million components, and once chosen customers can also track the status of their orders. **Tecnologica** extensive experience in the field of space applications guarantees the reliability and quality of the components thus procured, while the stringent logistic and planning activities practiced by the company ensure that the testing and delivery dead lines are met with.

Benefit from expert engineers consultations:

Tecnologica parts engineers working in consonance with the customers engineers analyze the determining factors in each application, and recommend the best technical solution for that specific need. Customers can also benefit from the comparative information between various types and makes of components to enable them choose the best fit for any application.

Tecnologica project managers and commercial engineers working with the suppliers ensure that customer's expectations are perfectly understood and implemented by the rest of the organization, and that the required level of information is always maintained.

A vail specialist value added services:

Tests, logistics and engineering services are by themselves part of the value added by **Tecnologica**. The advanced test laboratory of **Tecnologica** is equipped with a wide range of test and evaluation equipment employed for conducting special screening tests on components to ensure their compliance stringent space specifications.

Following are some of the wide range of value added services provided by **Tecnologica**.

Support to production:

Incoming inspection of the components to ensure that the technical and quality requirements are met with. These procedures include External visual inspection, Weight and dimensional checks, Profile projection and determination, Electrical measurements & Documentation.

Accelerated life tests including burn-in tests by biasing the components at high temperatures. Monitoring and data recording.

Selection and Screening of components by tailor-made programs to enhance/improve the available screening levels and ensure compliance with special application needs of customers if any.

Analysis of final products:

Constructional and/or Destructive physical analysis to evaluate the manufacturing details of the components and detect weak points that influence their reliability or life-expectancy.

Development of Electrical Measurement Programs to perform a variety of electrical measurements with an advantage of an own **CAD/CAM** system.

Evaluation and Qualification of Components tests performed to evaluate the capability of a component to work according its specification under specific conditions for a given period of time.

Comparative Analysis of Products to determine their suitability to any specific application.

Use related tests:

Failure Analysis Tests to determine the clause of a problem detected in a specific components by component de-lidding, sample preparation, Micro-analysis, Energy dispersion analysis, Infrared Microscopy and Reverse Engineering, by employing advanced equipment such as Plasma systems, Quantum Systems and Chemical attack techniques.

Life Test and Reliability Analysis is simulation of a device life through accelerated ageing by application of thermal and electrical stress.

Environmental and Mechanical Tests simulate Vibration, mechanical shock, constant acceleration and environmental conditions such as temperature, humidity and corrosive atmosphere to obtain information on component behavior under severe conditions.

Radiation Tests designed in-house such as total dose radiation tests with a variety of conditions such as Dose Rate, Annealing and Polarization.

All the above tests are carried out by expert engineers, employing the most advanced test and measuring equipment procured from leading manufacturers to ensure reliable and accurate results. Extensive documentation on these test results is also made available to the customer to aid their design and project planning activities.

MAIN SPACE CUSTOMERS OF TECNOLOGICA:

ADCOLE	DASA	LABEN
AEA	DASA JENA OPTRONICS	MIER
AEG	DELFT INSTRUMENTS	MATRA MARCONI SPACE
AEROSPATIALE MATRA	DESPA	NASDA
ALENIA SPAZIO	DLR	OERLIKON-CONTRAVES
ASPI:	DORNIER	OFFICINE GALILEO
*ALCATEL CANNES	EMS	OHB
*ALCATEL DENMARK	ESA	ORS
*ALCATEL ESPACIO	ETEL	PATRIA FINAVITEC
*ALCATEL ETCA	EUMETSAT	RUTHERFORD-APPLETON
*ALCATEL SWITZERLAND	EUTELSAT	RYMSA
*ALCATEL TOULOUSE	EUROPEAN COM.	SAAB ERICSSON SPACE
*ALCATEL VALENCE	FERRANTI	SAGEM
AME SPACE	FIAR	SCHRACK
AUSTRIAN AEROSPACE	FOKKER	SATURN OJSC
BAE	GEC-MARCONI	SENER
BOSCH TELECOM	HIREC	SEP
BRADFORD ENGINEERING	HUGHES SPACE	SFIM
CASA	IAA	SIRA
CEN	IFSI	SODERN
CNES	IMPERIAL COLLEGE	SPARNEX
CNRS	INTA	SRON
CODECHAMP	INPE	TELDIX
COMDEV CANADA	ISRO	THERMA
COMDEV UK	IWF	TIMETECH
CRISA	KAISER-THREDE	TNO-TPD
CSEM	KONGSBERG	VSSC
	YLINEN	

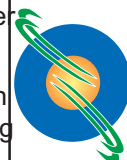
CONTRIBUTION OF TECNOLOGICA IN SPACE PROGRAMES:

ALOS	HUYGENS	PROTEUS
ATV	IASI	RADARSAT-2
CBERS	ICO	ROSETTA
CIES	ICS (SPOT 4)	ROSETTA CDMU SPARE
COLUMBUS	INSAT	ROSETTA LANDER PSS
DRTS	IRS	RTÉ
EMS (SPOT 4)	ISO	SAC-D
ENVISAT-1	LEOSTAR	SESAT
ESA SPC	MARS EXPRESS	SILEX
ESA TRAINING	MASS MEMORIES	SILEX TC
EUROSTAR	METEOSAT IIInd Gen.	SMART-1
EUTELSAT II	METEOSAT TOP	SPACEBUS 3000
GOME-2	METOP PLM/ASCAT	SPACEBUS 4000
GONETS	METOP SVM	SPOT 4/HELIOS 1
HERMES	MINISAT	SPOT 5/HELIOS 2
HERSCHEL PLANCK	OICETS	TACIS
HISPASAT	OMI	TELECOM II
HTV RVS	OSIRIS/GIADA/VIRTIS	USERS
		WORLDSTAR

Tecnologica devoted team of expert engineers eagerly looks forward for an opportunity to meet the requirements of your challenging space projects. For more information on the products and value-added services offered by **Tecnologica** on any Space Projects, please contact:

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