



ASHIDA Electronics Pvt. Ltd.

A warm Welcome to
ASHIDA
Electronics Pvt. Ltd.

Management
Ashida Electronics Pvt. Ltd.



Background of ASHIDA Electronics Pvt. Ltd.



- Founded in 1970s. Now 40 years old.
- Based in Mumbai. 15 Sales / Service centers in India & Abroad
- An ISO-9001 Company since last 12 years From SGS and then BVQI. Both UKAS & Indian accreditation
- Manufacturers of complete range of MV Protection relays.
- Recognized by most Indian Electricity Boards, Private consultants, RDSO(Indian Railways), Saudi Electricity Company, etc.
- A firm of technocrats- Headed by designers, 70% Employee are Engineers



Some key achievements of ASHIDA

- 👍 Currently almost 70% share in Indian Railways protection relay requirement.
- 👍 Entire Western railway section of Mumbai Railway Network is Protected & Controlled by ASHIDA systems
- 👍 Commissioned 400KV SCADA System for MSEB in 2001.
- 👍 Leading producer of 'Self-powered Numeric' protection relay.
- 👍 Awarded first prize for R&D Efforts by Ministry of Industries, by the hands of Hon. Vice President of India



Some key achievements of ASHIDA





ASHIDA Electronics Pvt. Ltd.

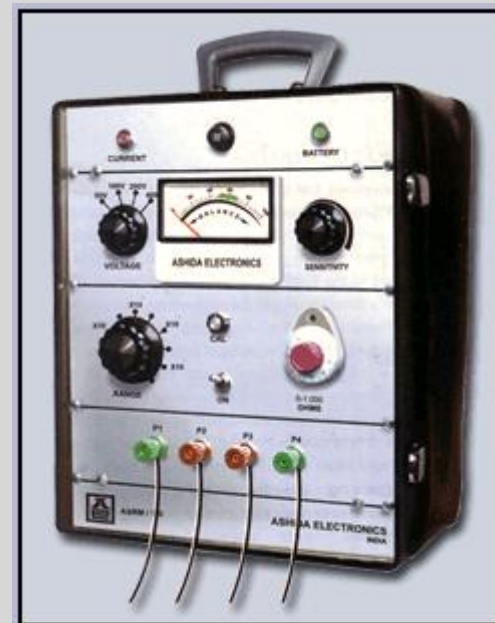
The History so far . . .



1970: Start of ASHIDA

Start of ASHIDA Electronics:

- Founded by Shri M.P. Kulkarni & Shri S.D.Naik
- A R&D house specialising in import substitution.
- Main product was “Soil Resistivity meter”
by which only, by surface survey of soil,
It was possible to predict soil structure details
and even under ground water up to the
accuracy of 95%
- ASHIDA received 1st “Gold Medal” For this unique development





Late 1980s: Entry in Protection relay market

First Supply to State Electrical utility of Maharashtra:

- We supplied more than 1000 auto-reclosers.
- Once the confidence in us grew, We had developed protection relay at that time



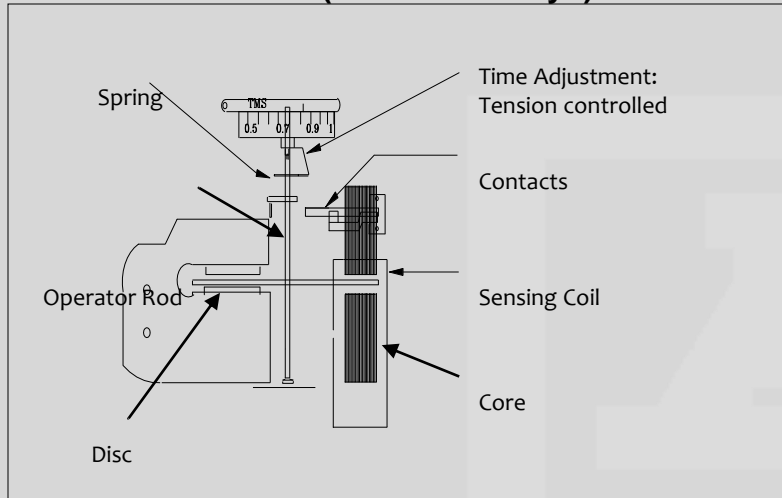
Scenario in Electrical power systems around late 80s

- Market dominated by English Electric (currently Areva) & ABB. and enjoying monopoly in the market
- And market was very much in Need of an alternative.
- ASHIDA took this risk of venturing in the ‘Holy’ protection field.
- Fully aware that a failure of a ‘MNC’ may be tolerated but not that of a new entrant.
- We started with a study of technologies in this field.

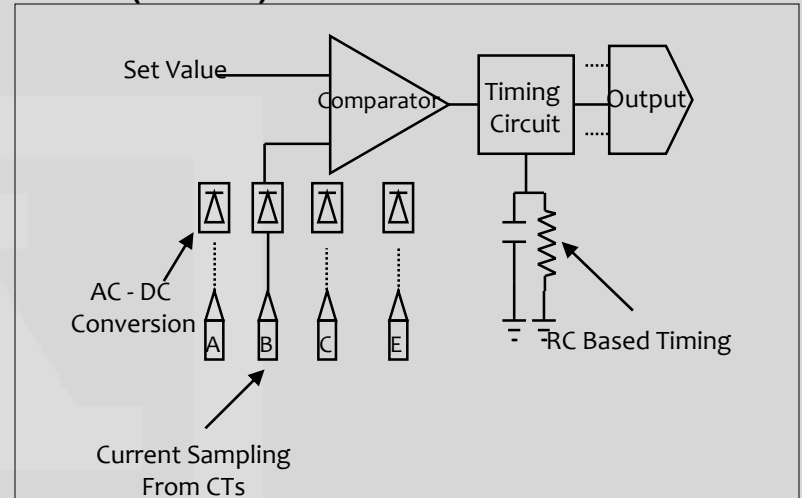


Generation of Protection Relays

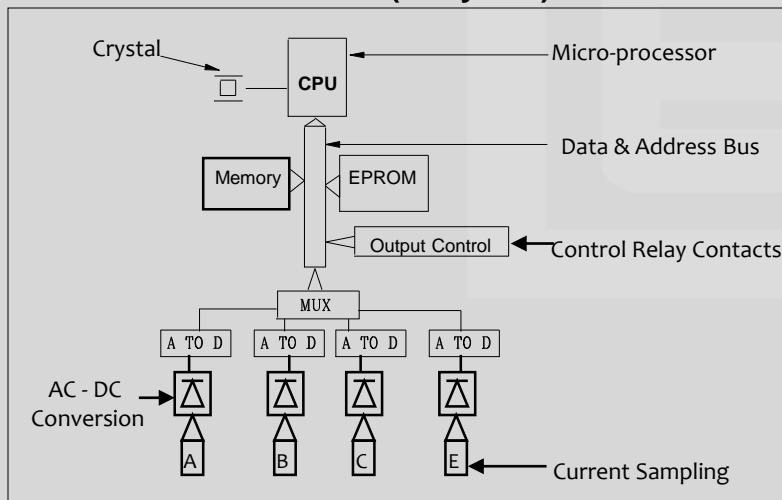
Electro Mechanical (start of century?)



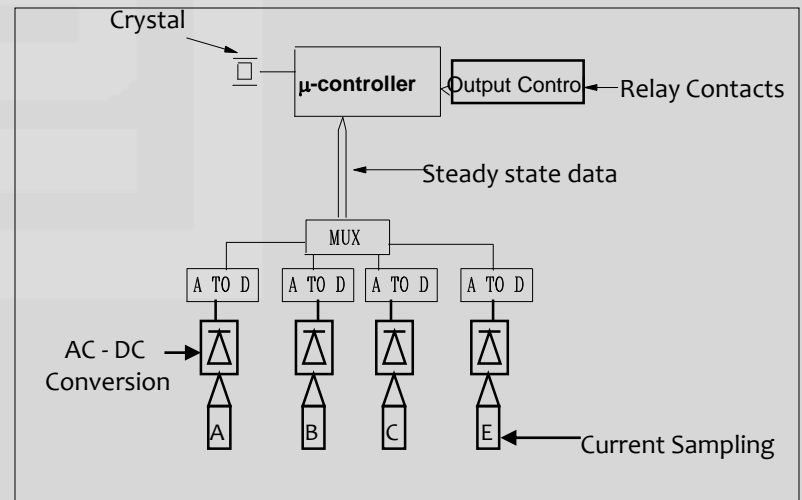
Static (late 70s)



Micro-Processor based (Early 80s)



Micro-Controller based (Late 80s)





1990: Our First product 'APR31'

Start of ASHIDA Protection Relays (APR):

- Crompton Greaves placed an order for 50 IDMT protection relays to be supplied to Punjab Electricity Board

Teething troubles:

- Problems faced on site. Our designers camped at site for more than a month.
- Every single piece was replaced



What it meant . . .:

- Ashida emerged as a 'reliable' manufacturer
- Currently APR31 is one of our 'rock stable - founding product'.
- More than 50,000 of these relays working all over India



Mid 90s: Expansion of range

Expansion of range:

- From 1990 till 2000 our range expanded to include entire MV protection application, including Auxiliary relays



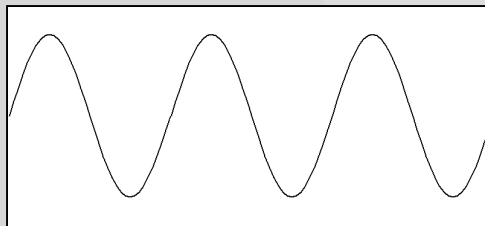
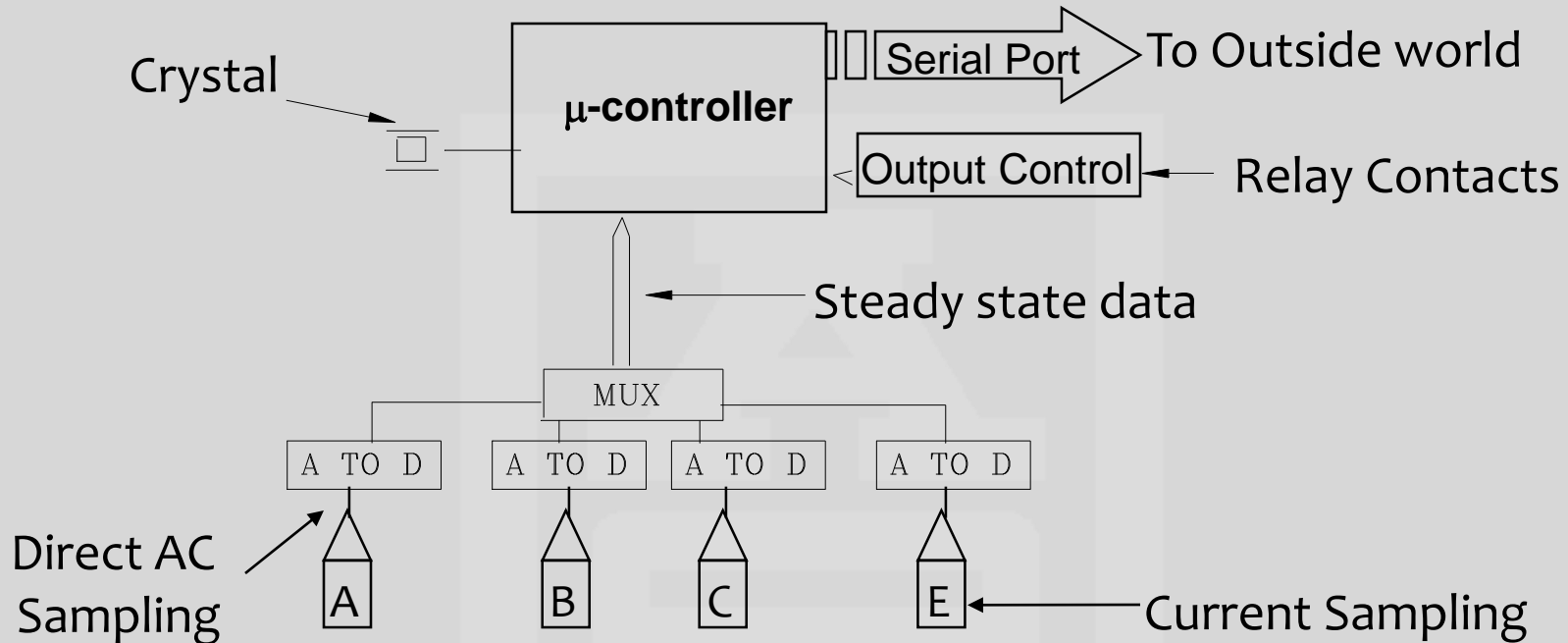
New products include:

- Transformer Protection relays.
- Capacitor Protection relays
- Feeder protection relays
- Series Trip relay / Self powered relays
- Auxiliary relays.

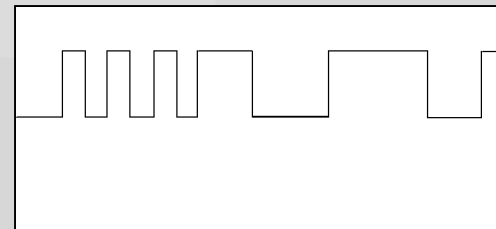




Late 90s : Numerical Relay technology



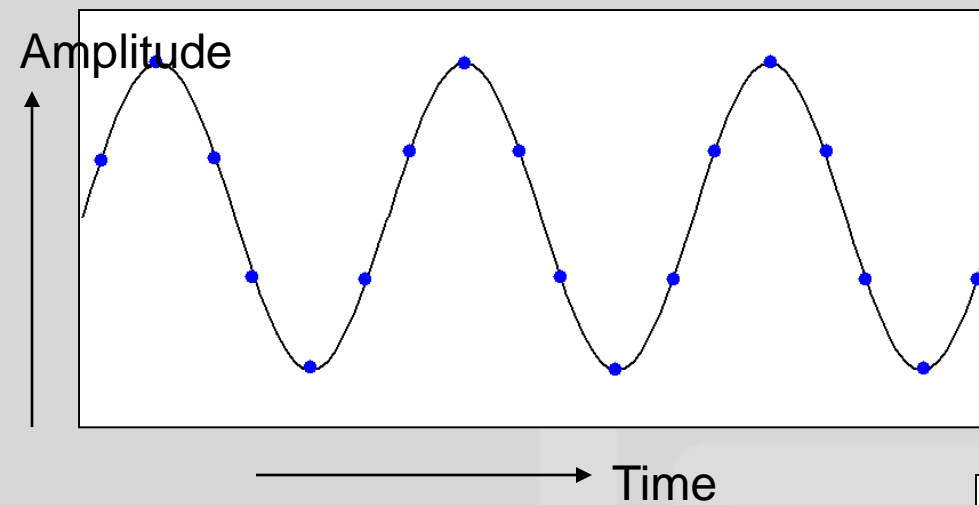
A to D





Numerical Relay

Time Domain Representation



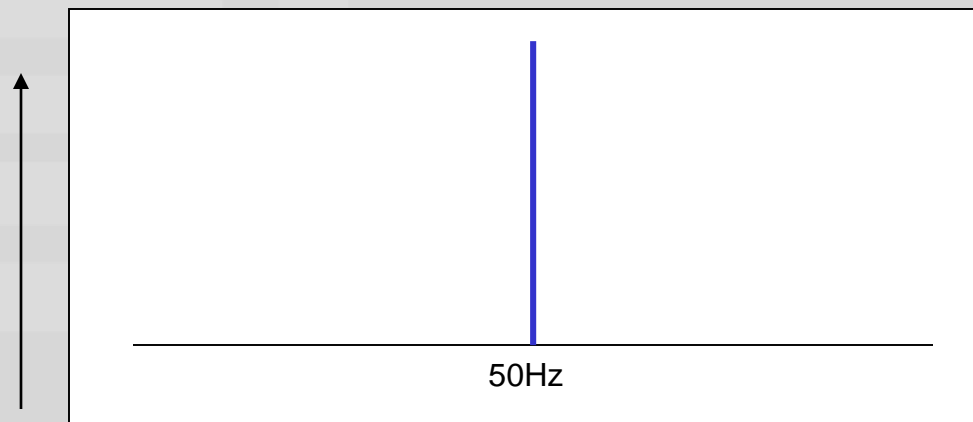
$$f = v \cos \theta + j v \sin \theta$$



Imaginary

Real

Frequency Domain Representation



Disadvantages

- No Phase Angle information.
- No Frequency information.



Late 90s: Entry in Railways Traction protection

Introduction to Railways:

- 1997: we received an invitation from RDSO to replace a Japanese Fault Locator.

Completed by 1998

- Developed First Distance relay for Mumbai Suburban area in 2000

Present condition:

- Our Integrated Feeder protection: (Distance + OCR + PT Fuse + Auto-recloser + Fault Locator) has captured about 70% of Indian Railway Traction Protection market





2000: New field: **S.C.A.D.A**

Vankushwade

Introduction to SCADA:

- Got first order: Sub-station Automation for 400KV Khargar, MSEB
- Used our newly developed FCCMs

Teething troubles . . .

- Took nearly a year to complete. All modules replaced.
- Successfully implemented working even now
- Have implemented SCADA in more than 15 sub-stations now.

Right from 11KV to 400KV, till date.

220KV Main Bus-A 220/33KV 50MVA HV Tx 1 220KV Malharpeth 220/33KV 50MVA HV TX3 220KV TBC

Aux.Bus-C

33KV Main Bus-A

18.3KV

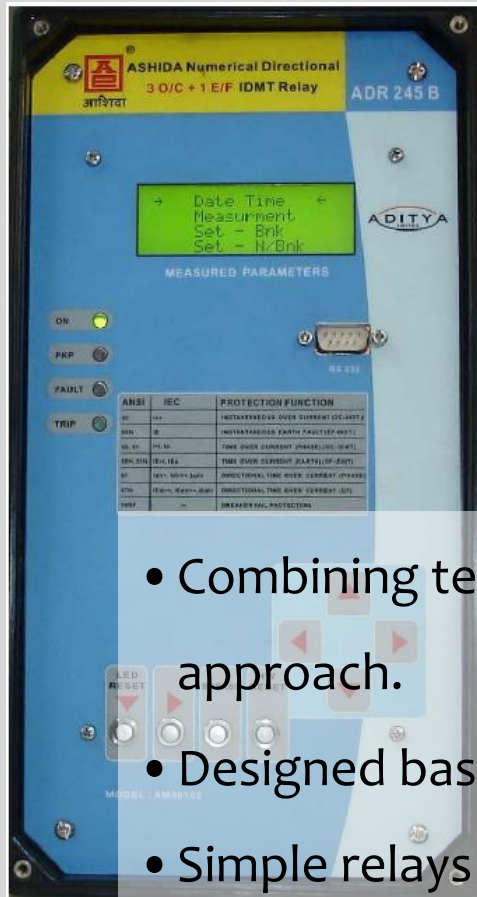
150.0A

33KV Feeder 1 220/33KV 50MVA Tx 1LV1 33KV Feeder 2 33KV Feeder 3 33 KV Feeder 4 33KV Bus Sectionlizer A31 33KV Feeder 5 220/33KV 50MVA Tx 3LV1 33KV Feeder 6



2005: ASHIDA Numerical Series: **ADITYA**

Ashida **D**igital **I**ntegrated **T**echnology **A**pplication



Philosophy of **ADITYA** Relays

- Combining technological advantages of DSP with a ‘practical’ design approach.
- Designed based on Actual customer requirements.
- Simple relays with pre-programmed DI &DO for minimal confusion & need of support



ASHIDA Numerical Relays: **ADITYA**

Features of ADITYA Series Relays



- Fully numerical design based on full cycle FFT algorithm
- Option of communication protocols: IEC103, MODBUS, etc.
- Type tested as per IEC 60255 standard
- Site selectable CT secondary. Wide range of Aux voltage
- Password protected settings banks
- Wide range of models from basic 'no frills' to high end 16DI, 8DO, with Disturbance Recording feature.
- Standardised user friendly interface for all relays



ASHIDA Numerical Relays: ADITYA

Type-Test - ADITYA Series Relays



- The Relays are tested AS IEC60255 Standard
- Apart from These test we also carry Test like Seismic / Bump
Sock Response / Vibration endurance Test etc.
- Some of The EMI/EMC are
- HF Disturbance - IEC 60255-22-1, Class III -1MHz – 2.5kV
- Electro static Discharge –IEC 60255-22-2 Class III and
IEC 61000-4-2 class III
- Fast transient interference/bursts : IEC 60255-22-3
IEC 61000-4-3, class III
- Irradiation with radio frequency field, pulse-modulated,
- : IEC 60255-22-3 and
IEC 61000-4-2 class II



ASHIDA Numerical Relays: **ADITYA**

Definition of Aditya Series of Relays

ADR
Stands
For
Ashida
Digital
Relay

2

4

1

B

Sub type

A = Simple Economical (Mini Function)

B = Extra Function (Mid Range)

Type of Protection Function

1 = Over Current

2 = Over / Under Voltage

3 = Current Differential.

4 = Voltage Control Current

5 = Power / Directional

6 = Power / Measurement

7 = Motor Protection

8 = Frequency

9 = Distance Protection

Nos. of Elements

1 = Single Element

2 = Double Element

3 = Three Element

4 = Four Element

Type of Communication

1 = No Communication

2 = Communicable .

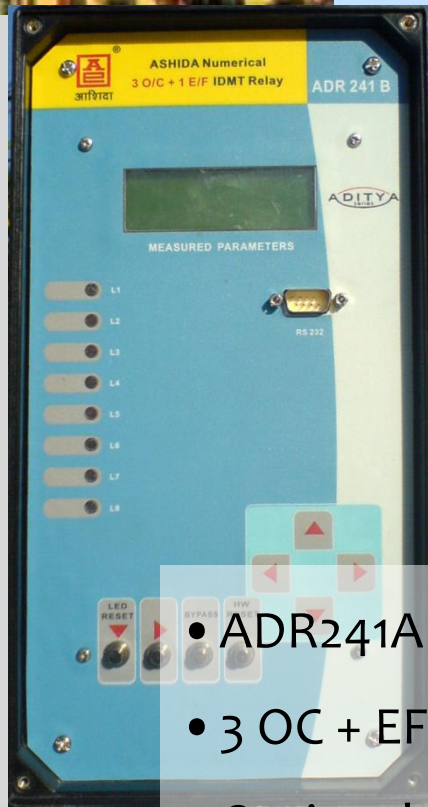
ASHIDA Numerical Relays: ADR241S



- ADR241S Self powered Numerical Over-Current relay
- Specially designed for RMU protection
- Regularly used by our competitors like Areva & ABB.
- More than 600 relays exported
- More than 5,000 relays in service.

ASHIDA Numerical Relays: ADR241A

Front Plate of Model : AM00104



Front Plate of Model : AM00101
Model : AM00102
Model : AM00103



- ADR241A Communicable Over-current relay
- 3 OC + EF + High set with selection of 5 curves + definite time
- Optional LBB Protection & Trip Circuit Supervision
- Fully programmable 8 Front LEDs, 8 DO & 16 DI
- 6 Buffer - Disturbance recorder.
- Site selectable CT secondary

ASHIDA Numerical Relays: ADR141A



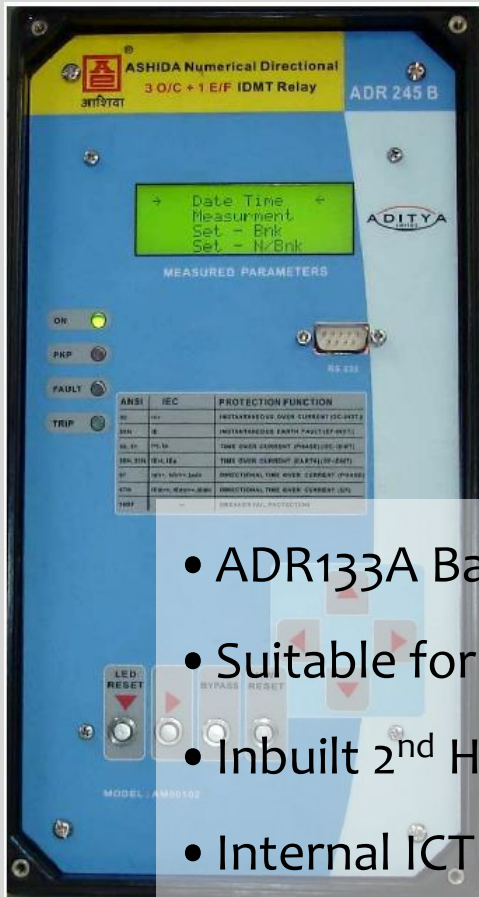
- ADR141A Non-Communicable Over-current relay
- Basic 3 OC + EF + High set protection
- Optional Breaker fail (LBB) function, Site selectable CTs
- Type tested as per IEC 60255 standard CE marking for OC Relays
- Fault summary for last 5 faults with primary fault current.
- More than 8000 relays in use all over India

ASHIDA Numerical Relays: ADR245A



- ADR245A Communicable Directional Over-current relay
- 3 OC + EF + High set with adjustable delay
- Optional Breaker fail (LBB) function, Site selectable CTs
- Voltage & Current metering
- Fully site programmable 8 Front LEDs, 8 DO & 16 DI
- 4 buffer disturbance recorder.

ASHIDA Numerical Relays: ADR133A



- ADR133A Basic Two winding Dual Bias Transformer Differential relay
- Suitable for any vector group. Site selectable.
- Inbuilt 2nd Harmonic restraint. Immunity to 3rd & 5th harmonic.
- Internal ICT Ratio programmable. No ICT Required.
- Higher version with Fully programmable DI, DO & DR Available
- Summary information for last 5 faults



2007: Getting ready for the world



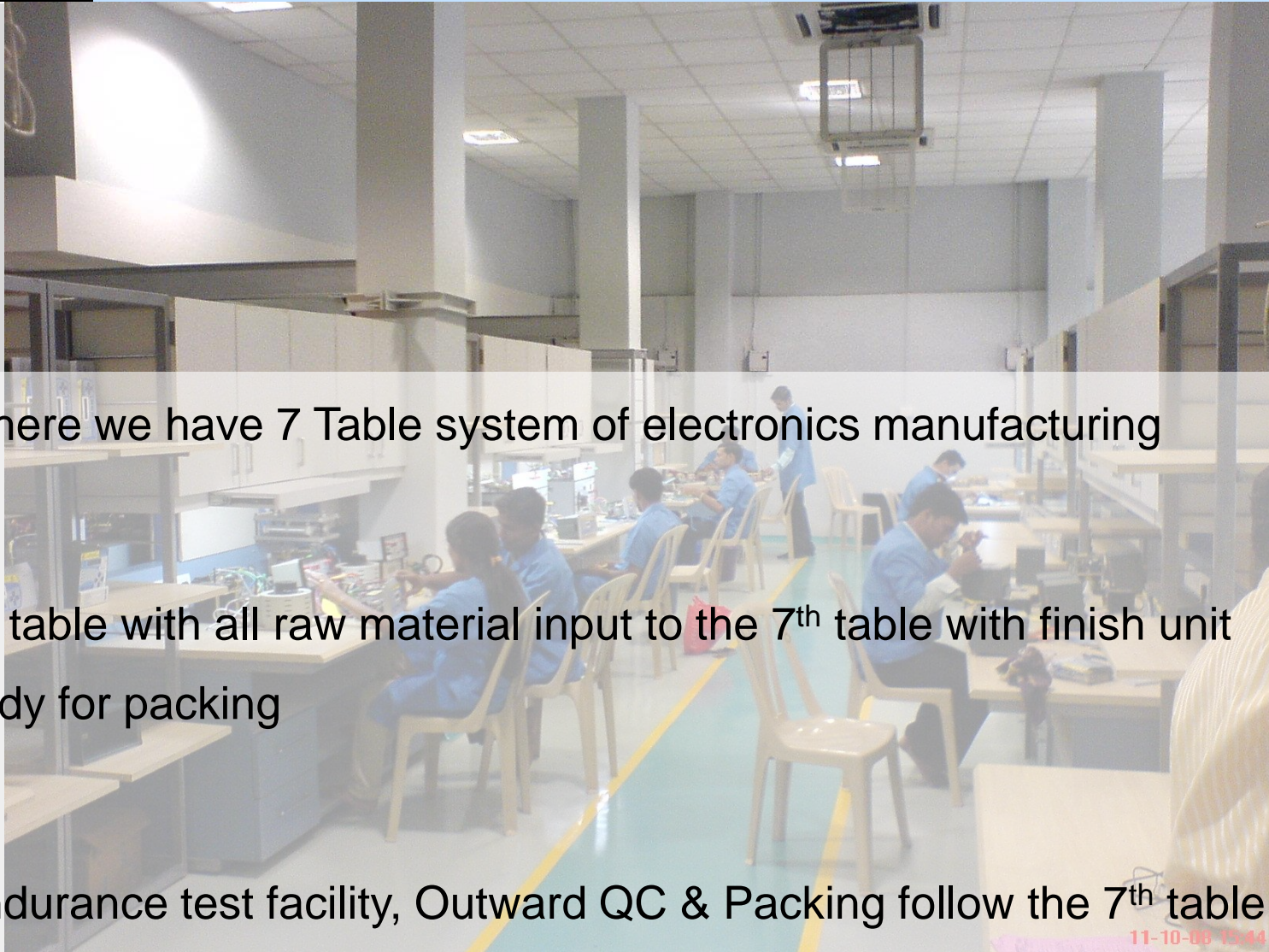
New production facility at plot A302:

- New world-class plant designed for optimum movement of material & anti-static environment.
- Taking our production capacity to 3,500 relays per month
- Start of allied activities like panel manufacturing.





2007: Getting ready for the world



- Where we have 7 Table system of electronics manufacturing
- 1st table with all raw material input to the 7th table with finish unit ready for packing
- Endurance test facility, Outward QC & Packing follow the 7th table

11-10-08 13:44





2007: Next step: ADITYA V2



Why? (The Need . . .)

- To launch a sophisticated series which also looks good

What is new ?

- Based on new generation of Texas Instruments & PIC processors
- Housed in our new 'CS-E', 'F' & 'G' platform

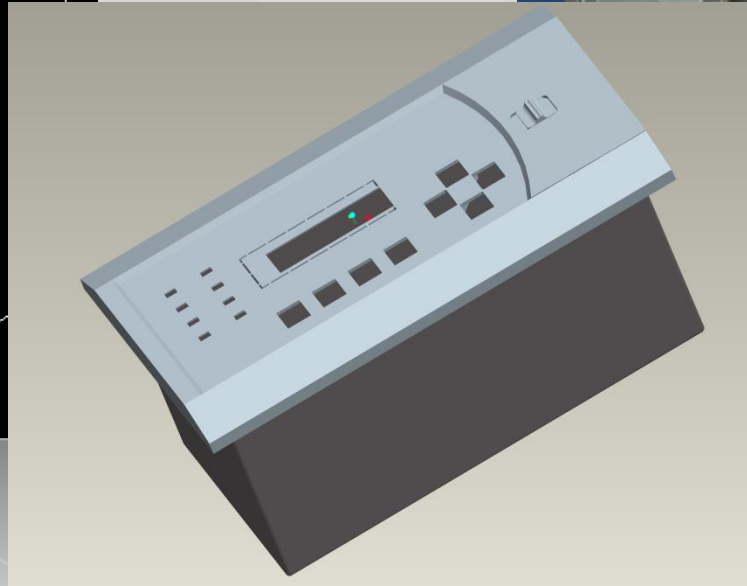
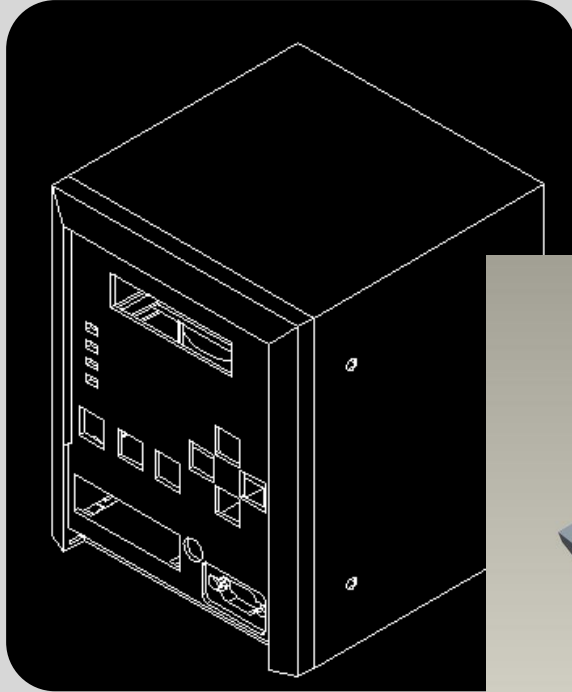
For export

- Export has been our thrust area for last 2-3 years.
- Sample relays tested by W Lucy, UK & Dubai.



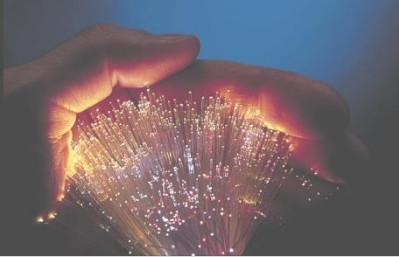


ASHIDA Numerical Relays: **ADITYA (V2)**

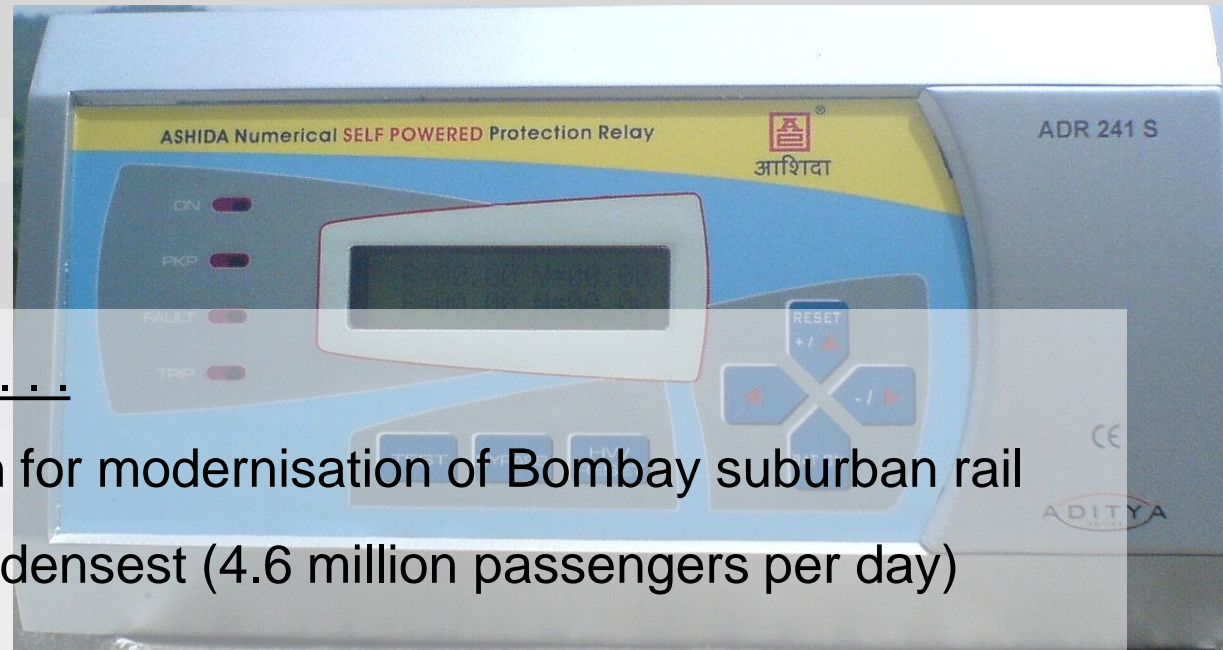


Completely re-engineered products.

Even the enclosures were re-designed from scratch

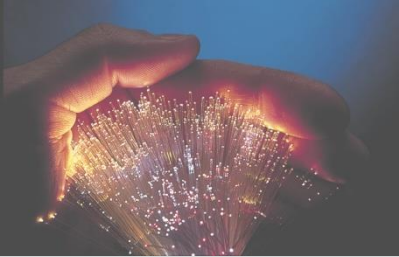


ASHIDA Numerical Relays: ADITYA (V2)



Application in Railways. . .

- MRVC is organisation for modernisation of Bombay suburban rail network – One of the densest (4.6 million passengers per day) network in world
- ABB & Areva have used ASHIDA protection schemes in their projects instead of their own imported protection relays.
- Oder from ABB for MRVC worth 43 Million rupees.
- Order from Areva for MRVC worth 20 Million rupees



ASHIDA Numerical Relays: **ADITYA (V2)**



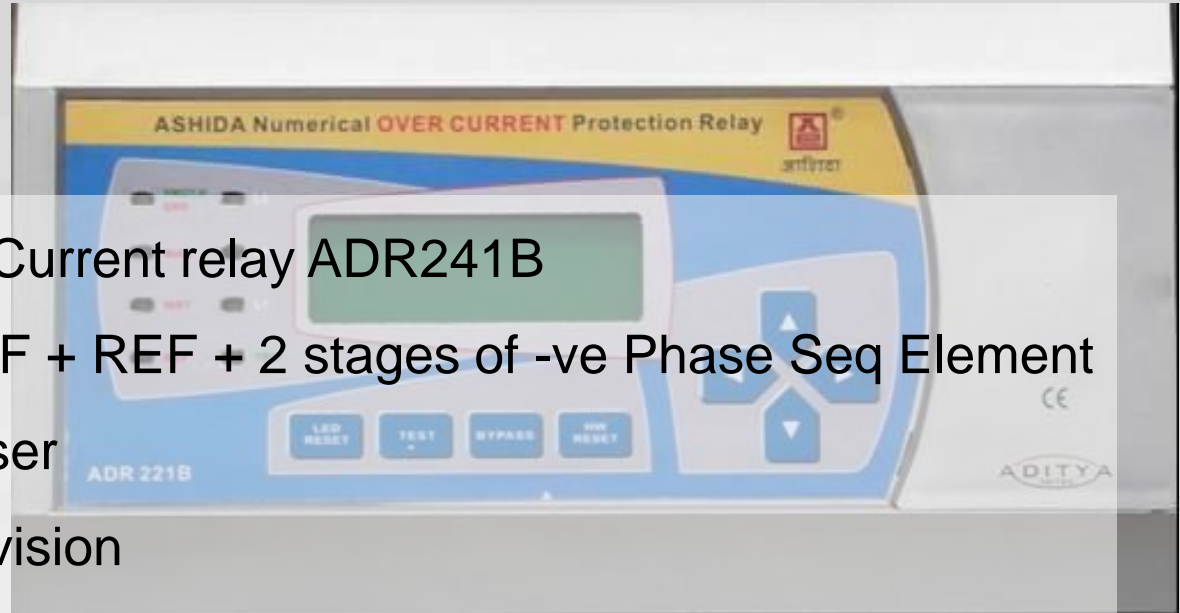
- Self-powered Over-Current relay ADR241S
 - 2 stages of 3O/C + E/F
 - Battery back-up for communication & Display
 - 24V pulses for actuating RMU tripping coil
 - Provision of working on 230VAC.
- Regular supplies to CG Lucy & ABB
- Exported to China, Italy, Malaysia, South Africa, Australia, etc.
- More than 10,000 in service around the world.





ASHIDA Numerical Relays: **ADITYA (V2)**

- Non-directional Over-Current relay ADR241B
 - 3 stage 3O/C + E/F + REF + 2 stages of -ve Phase Seq Element
 - 4 Shot Auto-recloser
 - Trip Circuit Supervision
 - Breaker Fail Protection
 - Programmable DI/ DO & Disturbance record.
- Used in 220KV lines in India. Exported to Turkey
- Approval for Saudi Electric Company under progress
- Special version designed for Siemens, Germany





ASHIDA Numerical Relays: **ADITYA (V2)**



- MV Feeder Management relays ADR245B
 - All ADR241B features plus ...
 - Directional Over-Current using internal zero seq. voltage.
 - Under-over voltage
- Shortly supplying around 400 relays to GETCO



2008: IEEMA SME Quality Award (ISQA 2008)



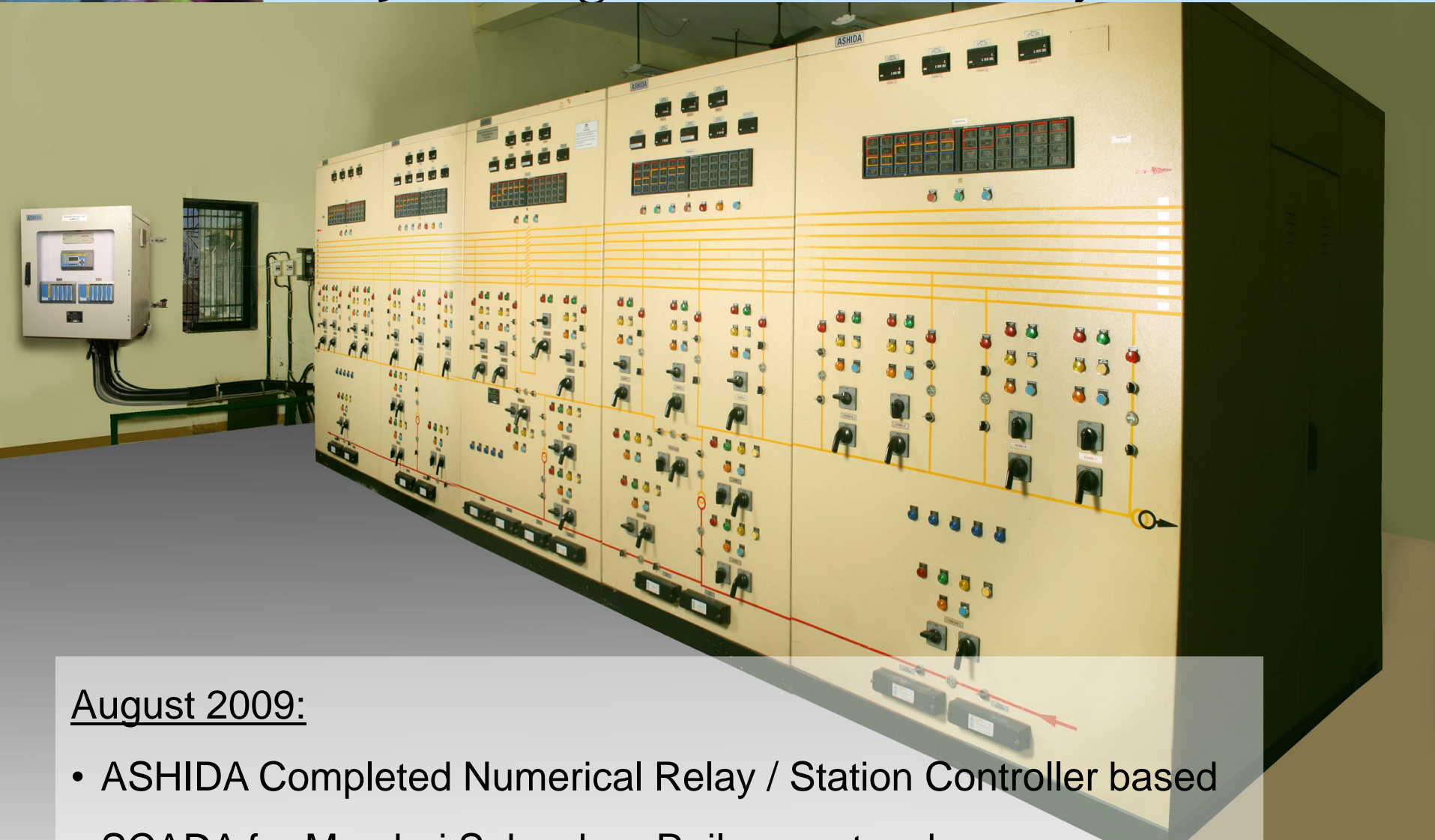
February 2009:

ASHIDA Received ISQA 2008 Award from IEEMA for strong commitment to quality





2009: New age SCADA For Railways



August 2009:

- ASHIDA Completed Numerical Relay / Station Controller based SCADA for Mumbai Sub-urban Railway network
- Project for 8 stations completed in a record time of 90 days



ASHIDA Electronics Pvt. Ltd.

A background image showing a sunset or sunrise over a vast landscape. The sky is a mix of orange, red, and purple. In the foreground, there are silhouettes of power lines and towers stretching across the horizon.

Organisation & Processes

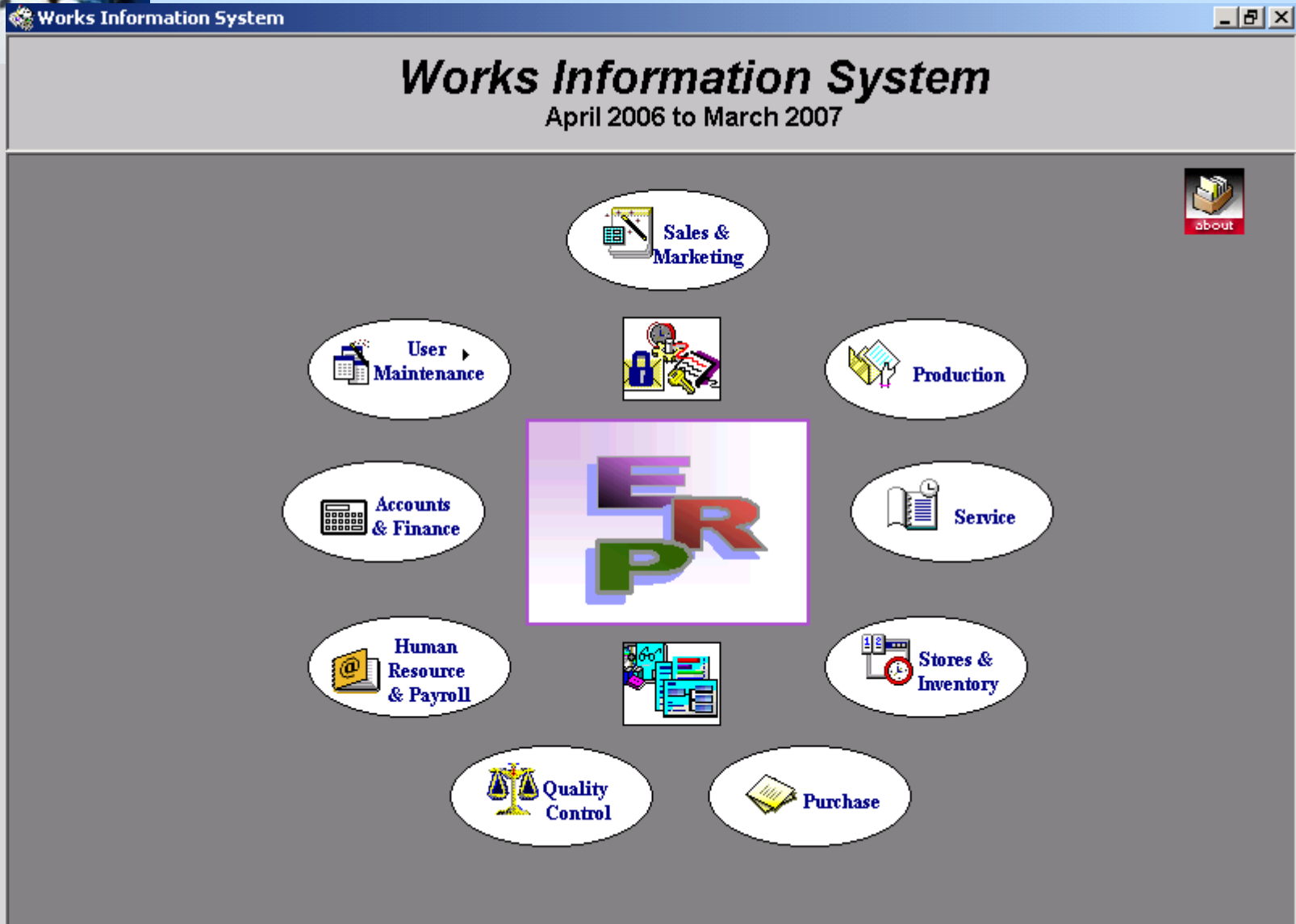


E.R.P. For ASHIDA Electronics Pvt. Ltd.

WorksV3:

- In house developed ERP Based system
- Third version implementation in finishing stages
- Covers
 - Inventory,
 - Payroll,
 - Production processes,
 - Sub-contracting,
 - Material requirements,
 - Vendor rating,
 - Complaint management & analysis, etc.

E.R.P. For ASHIDA Electronics Pvt. Ltd.





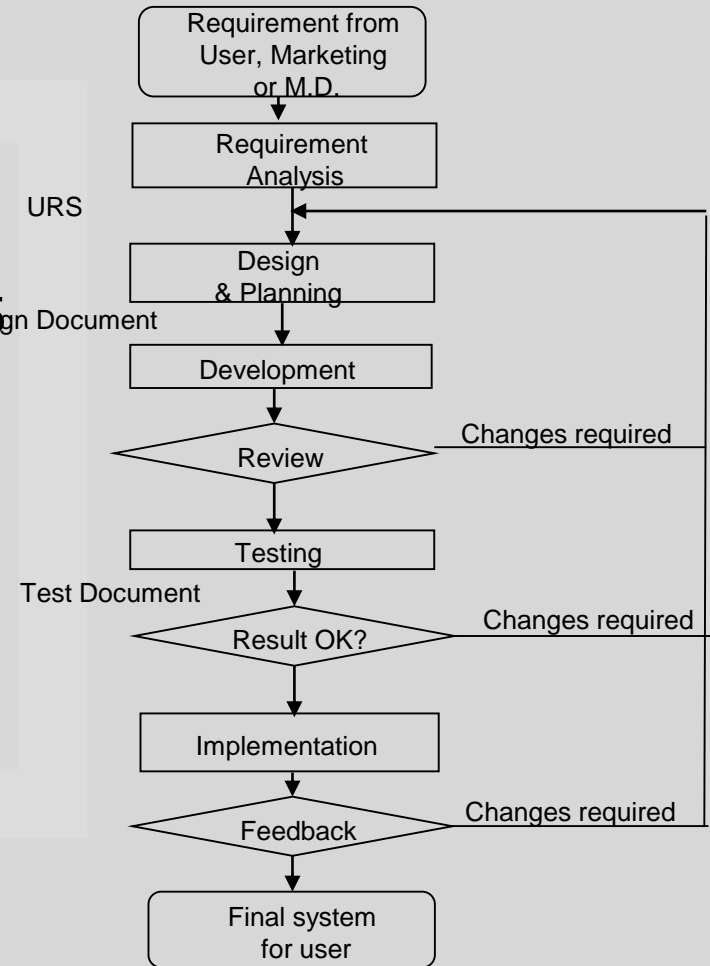
ISO 9001 - 2000

Matured ISO9001 based Quality System:

- First Certified in 1995 by SGS International
- ISO9001-2000 compliance from BVQI in 2005

Auditors

- One certified lead auditors
- More than 20 trained internal auditors





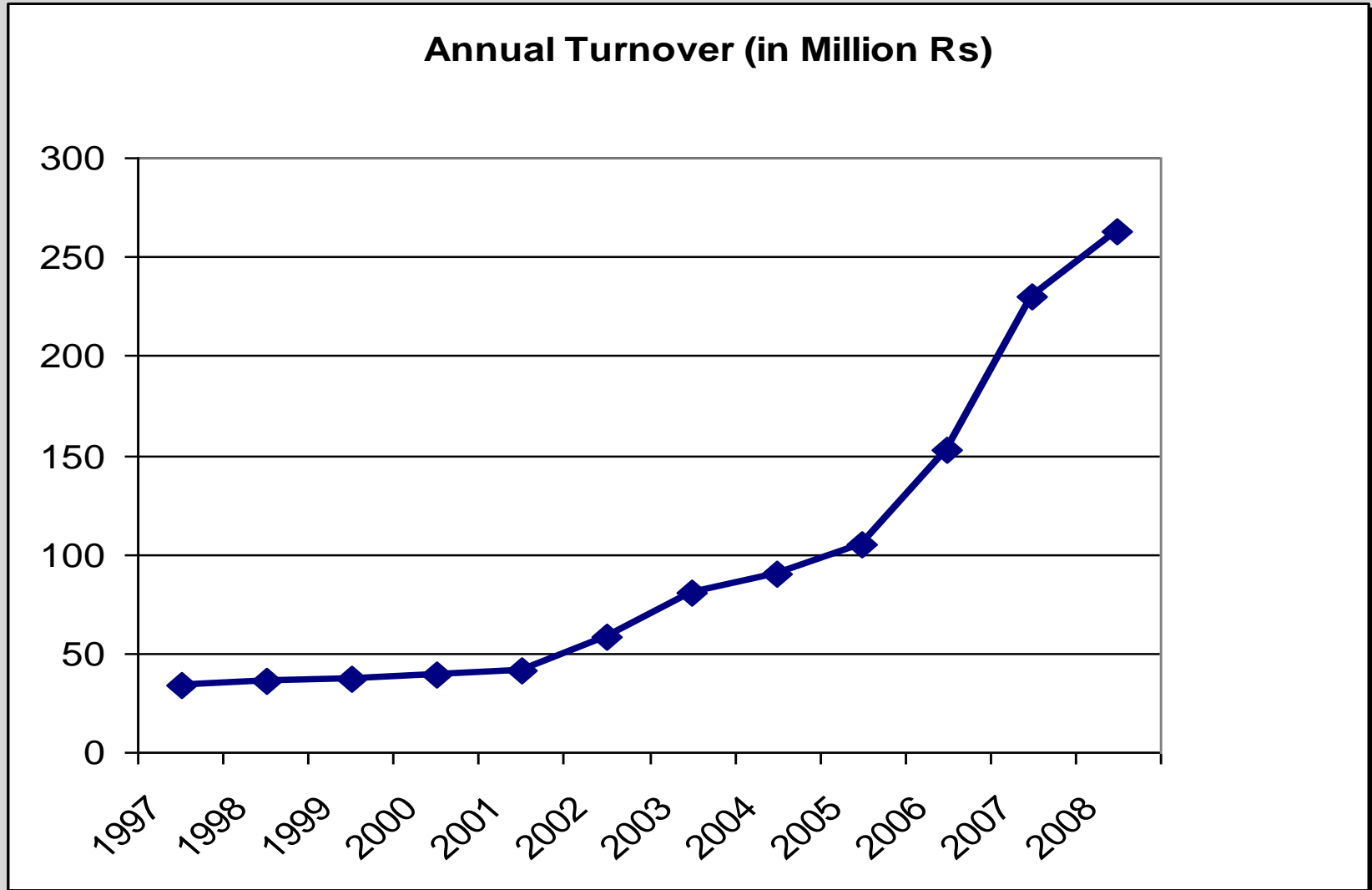
ASHIDA Electronics Pvt. Ltd.

A background image showing a landscape of power lines stretching across a field under a dramatic, orange and red sunset sky.

**Current status
& Plans for future**



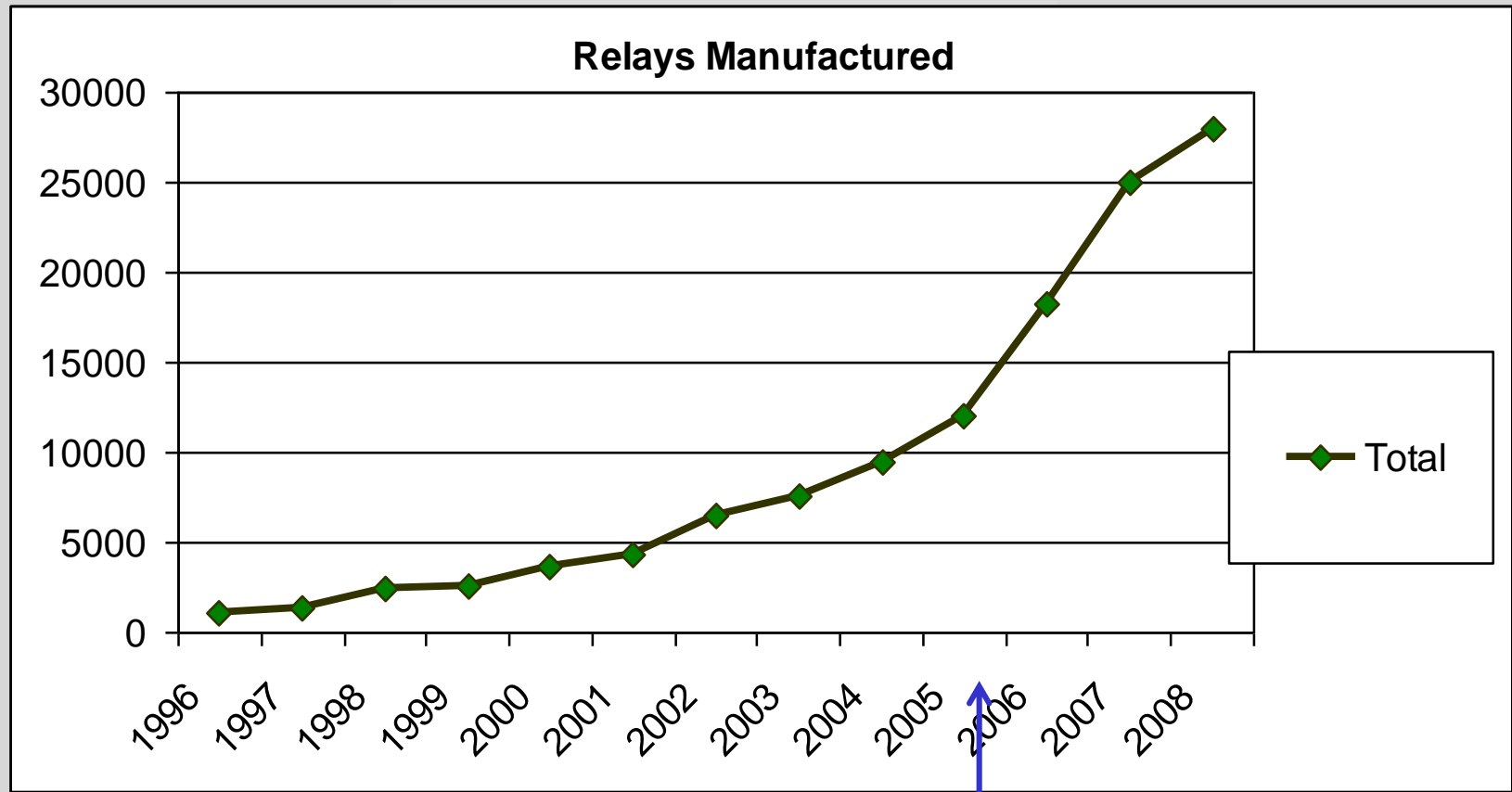
Company Growth in last 10 years





Company Growth in last 10 years

More than 100,000 ASHIDA relays are protecting critical installations



Launch of ADITYA Series



Current Infrastructure

Manufacturing Facilities:

- 10,000 sq feet A308 in Wagle Estate. Additional FSI available.

With 100% power backup

- 15,000 sq feet at A302. State of the art electronics manufacturing
- 20,000 sq ft at Atgaon may be used for panel building

Engineering facilities:

- Almost 60% of total staff of 190 are Engineers
- Dedicated design team with more than 10 years experience
- State-of-the-art design equipment for relay development
- Development tools for almost all leading controllers
- In touch with leading academicians from IIT, etc.





Plans for the Future

Expansion of product portfolio:

- Motor Protection relays design in finishing stage
- Concentration on exports market.
 - Coaching by Netherlands based CBI for export to E.U.,
 - Approval of SEC.
 - Approval in Turkey (TEDAS), Australia in progress
- Three phase distance protection relay is final aim.

Projects under progress:

- Bay controller with full Graphic Display being developed
- IEC 61850 under development





ASHIDA Electronics Pvt. Ltd.



Thanks for the interest shown !