Kraftanlagen Anlagentechnik München

ABB

EMIS HOLDING

Consortium Group Turbine G 24

Supply of G24 Gas Turbine Components

KAM NO. 6127-04-003
Commercial and Technical Offer

June 1, 2004

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1 Overview

This offer covers the supply of three gas turbine component sets for gas turbine type G24. The availability of these gas turbines is the technical prerequisite for the components offered under this proposal.

The G24 gas turbine generator set has the following characteristics:

The gas turbines were commissioned and manufactured between 1979 and 1981 and out of operation for approximately six years. The turbines were primarily deployed as peak load machines. They were designed for a maximum number of operation hours, assuming manufacturer recommended regular service and maintenance. The average actual number of operational hours is approximately 2,500. Regular service and maintenance according to manufacturer's recommendation has been performed and is documented in the operation logs. It can be safely assumed, that the offered equipment has undergone only minimal wear and tear and therefore it is in good working condition.

The gas turbine G 24 is a single-shaft machine with the turbine, compressor and generator sequentially arranged in this order towards the exhaust gas side. The turbine has been designed for using liquid fuels, especially drawn up for operation with heavy fuel.

The power output provided by this machine essentially depends on the fuel composition, the geographical height of the installation location, the environment temperature, the aging / wear of the machine etc. For information purposes, a reactive capability curve has been attached in the annex.
A fuel type featuring a vanadium content of approximately 5 ppm shall be used. If heavy-type heating fuel HE - B with a maximum vanadium content up to 20 ppm is used, the combustion can be controlled by adding inhibitors. Using fuel types that are not in conformity with project specifications, in particular with excessive vanadium content, will result in early corrosion.

The concept for the offered GT components is based on an existing GTPP located in Germany. The existing plant consists of 2 units each having 3 turbine generator sets, i.e. 6 turbine generators sets in total. At present, the offer includes supply for three GT component sets for one location. However, in case of demand, the consortium is able to supply the components for 6 turbine generator sets immediately. In total, 18 turbine generator sets are available.
The equipment of the existing GTPP was installed based on TGL (GDR-Code) standards. The assemblies and components supplied new will be in conformity with DIN / ISO standards. If new components are adapted to the components of the older equipment, they will be subject to the respective DIN / VDE / EN regulations.

It is assumed that all necessary local jurisdictional approvals for the project are in place or obtainable. Costs for the approval process are not included in this offering.

2 Commercial Conditions

2.1 Prices

Our prices are budget prices in US $, based on the exchange rate of 1 US$ = 0,82 EURO, valid until Dec.31st.2004, excluding VAT. Any additional cost arising out of changes between US$ and EURO during the execution period will be borne by the client.

The quoted prices for delivery are to be understood CIF XXXXXXX port, according to Incoterms 2000. The costs of seaworthy packaging are also taken into account. The transport from XXXXXXX port to site and every local activity are not included.

The prices do not include any taxes, customs fees and other duties, which may be imposed outside Supplier's country on the consortia supplies and services.

Should the consortia nevertheless be charged with such levies, these shall be borne by the Purchaser and directly be paid by Purchaser to the appropriate authority.

The prices cover the entire scope as offered. Should the order be split for any reason and only partial orders placed, prices will be adjusted accordingly.

2.2 Key Dates

The dates for Delivery and for the issuance of the Provisional Acceptance Certificate(s) (PAC) are based on the receipt of the

Award of Contract until:	September 30th, 2004
Basic design freeze:	October 30th, 2004
Delivery :	December 31st, 2004

In the event of order placement, after "coming into force" of the contract is established, we confirm that the first mechanical components (e.g. turbines and generators) will arrive in XXXXXXX port three (3) months later.

All further key dates have to be agreed upon in case of the placement of the order.

2.3 Defects Liability Period for New Equipment

The Defects Liability Period for new equipment shall be 12 months, starting at presentation of shipping documents.

2.4 Liability

The aggregate and accumulative liability for any and all claims under this contract based on whatever legal grounds is limited to an overall amount of 10% of the contract price.

Indirect and/or consequential damages arising out of a Contract between Purchaser and the consortia, such as but not limited to loss of profit, loss of interest, loss of production shall in any case be excluded.

2.5 Coming into Force of the Contract

Coming into force of the Contract between the Purchaser and the Consortium shall take place:

- at the date of the signature of the contract,
- at the date of the receipt of the down payment,
- at the date of the confirmation / opening of the L/C,
- at the date of the receipt of the End-Use-Certificate and
- putting the gas turbines at our disposal for dismantling

which ever of these events occur later.

2.6 Validity of the Offer

This quotation will be valid until: September30 th, 2004

2.7 Increase and Decrease of Quantities

This offer is based on the quantities as stated under 'Scope of Supply and Services' of this quotation. In case the quantities should increase or decrease during the execution of the Works, the Contract price will be adjusted on the basis of the prices valid at that time.

2.8 Terms of Payment

The Terms of Payment for supplies and services shall be:

20 % of the Contract value as down payment shall be paid within 28 days after the date of the signature of the Contract.

80 % of the Contract value shall be paid

for supplies:

pro rata shipment against presentation of shipping documents or warehouse receipt, in case that shipment cannot take place for reasons beyond the Consortia's control.

Payment of the above 80 % installment shall be effected out of an irrevocable Letter of Credit (L/C) to be opened within 28 days after signature of the contract by a first class West European Bank in favor of the Consortium, payable in Germany, allowing partial shipments and partial payments. In any case, the Consortium will only be responsible for the L/C-costs occurring in Germany.

Details of the Terms of Payment and of the L/C shall mutually be agreed upon during Contract negotiations.

2.9 Force Majeure

The parties are released from responsibility for partial or complete non-fulfillment of their liabilities under the present contract, if this non-fulfillment was caused by the circumstances of force-majeur, including - but not limited to fire, flood, earth-quake, war, epidemics, boycotts, strikes, bankruptcy of important supplier, embargo, any other causes which are beyond the reasonable control of the parties, provided these circumstances have directly affected the execution of the present contract. In this case the time of fulfillment of the contract obligations is extended for a period equal to that during which such circumstances last.

An embargo is a case of Force Majeure

2.10 End-Use-Certificate & Export-/ Re-export Licenses and Embargoes

According to the export control regulations of the European union, of Germany and other involved countries export / re-export licenses are required for military and / or nuclear end-uses and end-users.

A) In case of placing the order with the Consortium, it will receive an original end-use certificate of the end-user certifying the civil, non-military and non-nuclear end-use.

B) In case that export/re-export licenses necessary for fulfilling the contract are not obtained in time or in the required extend or revoked respectively, the Consortium is entitled to apply a functional equivalent solution which is licensable or which does not require a license.

2.11 Delay during execution of the project

A) Payments

Should the dates for releasing payments be delayed, for reasons beyond the Consortium's control, the payment shall be effected 30 days after the originally agreed deadline at the latest.

B) Other causes of delay

Other delays due to reasons beyond the consortia's control, shall postpone contractually agreed dates for delivery of the Consortium accordingly. Additional costs resulting there from shall be borne by the customer.

2.12 Contractual Law

Swiss substantive Law shall govern the contract.

2.13 General Commercial Conditions

As far as not stipulated in the a.m. articles, the following Conditions shall apply supplementary in their most current version:

Orgalime S2000 for supplies only

Orgalime SE01

Orgalime SW01

3 Scope of Supply and Services of Type G24 Gas Turbine Equipment

3.1 Type G 24 Gas Turbine Main Equipment

3.1.1 Removal of 3 pcs Type G24 Gas Turbine

The scope of removal covers the following equipment:

- Steel foundation
- Generator
- Compressor
- Turbine
- 2 combustion chambers
- Exhaust diffuser
- Total oil system
- Fuel system
- Generator main current lead up to main transformer

3.1.2 Fact finding & Engineering Services

- Visual fact finding performed on all modules and components up to the extent required for removal prior to delivery. In the case of visual findings, the contract provisions shall be adapted accordingly between by the supplier and the customer for further fact-finding activities.

- Electrical generator inspections based on DIN EN 60034:
  a) Stator:
  * Insulation resistance megger test
  * Winding resistance
  * High-potential test
  * TE measurement at rated voltage
  * Resistance thermometer measuring
  b) Generator rotor
  * Insulation measuring
  * Winding resistance
  * Voltage drop measuring of collector rings
  * Winding short-circuit test
  * High-potential test, 1 kV
  * Rotor impedance measuring
  * Crack test on rotor retaining rings in assembled state

3.1.3 Cleaning & Preservation; dispatch preparation

- Necessary cleaning and short-term preservation
- Marking of disassembled plant parts in accordance with appropriate marking code
- Manufacturing of transport frames
- Packaging of plant components for transportation

Newly supplied equipment for the turbine-generator set

- New static exciter for the generator including supply transformer
- New valves for fuel injection.

3.2 Dismantling, Supply and Prefabrication of Pipe Systems (mechanical BOP)

The scope of Kraftanlagen Anlagentechnik München GmbH is dismantling, supply and pre-fabrication of pipe systems for : fuel systems, inhaust and exhaust systems, oil systems and cooling systems

3.2.1 Base Offer Mechanical Balance of Plant

- Supply and pre-fabrication of fuel system incl. pipelines, valves, supports and secondary steel, beginning at the connection of the existing fuel provisioning and finishing at the connection flange of the turbine
- Supply and fabrication of the inhaust and exhaust system incl. expansion joints, fixed points, silencer and strainer, chimney (for every turbine), construction steel and supports
- Supply and fabrication of lube oil system and cooling system incl. cooling components, pumps for cooling water, pipe systems inside and outside of the building, steel, supports, attachments e.g.

All the mentioned equipment is offered as new materials.

3.2.2 Optional Offer Mechanical Balance of Plant

- Not applicable

3.3 Electrical System

The electrical system is offered with new equipment throughout. The configuration is defined in dwg no. 1KGC 007 002 , single line diagram, 3 x G24, (see Attachment Schedules and Drawings). The equipment will be placed in ready – made, pre-tested containers, in order to save installation time. A draft proposal for the container set-up is shown in dwg no. 1KGC 007 003, Local Room Layout, (see Attachment Schedules and Drawings). For reference only, three photos are enclosed as well for a container–based solution for 1 GT. The container solution is well proven.

3.3.1 Grid Circuit Breaker 132 KV

1pc. Grid Circuit breaker 132 KV, (SF-6) incl. Container common for three G24 gas turbines; consistig of:

- Circuit breaker
- Current transformer
- Voltage transformer
- Line protection and Control

3.3.2 Generator Circuit Breaker

Three Generator circuit breakers for indoor installation, each consisting of

- Three (3) breaking chamber each phase
- One (1) common vertical drive for three phases
- Six (6) connection-pieces (for connection of the bus bars)
- One (1) control cubicle

Rated maximum voltage: 17,5 kV
Rated continuous current: up to 6300 A

3.3.3 Generator Bus-bar

3.3.3.1 Three Generator Bus-bars for Indoor Installation

The bus-bars are of tube conductor type and include:

- Current and voltage transformer
- Starting isolator
- Generator-starpoint incl. Resistor und VT

Generator voltage:	10,5 kV
Generator current (max):	2200 A
Ambient temperature:	50 degree Celsius
Max. length	32 meters bus-bar for indoor installation and 12 meters for bus-bar connection between generator and aux. devices like excitation transformer, aux. Transformer etc.

3.3.3.2 IPB Generator Bus-bar Duct for Outdoor Installation

Bus bar is of tube connector type. Supply of one piece:

Rated voltage:	10,5 kV
Generator current (max):	6600 A
Ambient temperature:	50 degree Celsius
Max. length	12 meter isolated-phase busduct

3.3.4 Unit Transformer

1 pc. Oil immersed Transformers for outdoor installation, common for three G24 gas turbines

Type	Data
Nominal power	95 MVA
Primary voltage	132 kV
Secondary voltage	10,5 kV

Accessories included:

- HV and LV porcelain bushing
- Oil conservator
- Valves for filling, graining and taking oil samples
- Valves between the buchholz-relay and the oil conservator
- Lifting and pulling pins and jacking lugs
- Oil gauge with alarm contacts for high and low level
- Buchholz-relay with alarm and tripping contact and checking device
- Dehydrating breather
- Oil thermometer with alarm and tripping contacts
- Winding temperature indication
- Pressure relief device

3.3.5 Unit Auxiliary Transformers

The following transformers are part of our offer according to the single line diagram.

Item-No.	Qty.	Description	
1	1 pc.	Oil immersed Transformers; Primary voltage Secondary voltage	4,6/2,6/1,6 MVA 10,5 kV 2,1/0,4 kV
2	1 pc.	Oil immersed Transformers; Method of Cooling Primary voltage Secondary voltage	3,6/2,6/1,0 MVA ONAN 6,6 kV 2,1/0,4 kV

Accessories included:

HV and LV porcelain bushings
Air insulated cable termination box for HV and LV sides
HV and LV brass gland plates
Terminal box for aux. wiring
Plain rollers
Lifting lugs and pulling eyes
Drain device with sampling facility
Earthing terminals

3.3.6 Low Voltage Switchgear

Item-No.	Qty	Description
1	1	400 V Common Switchgear 1 pc. Incoming feeder 3200 A 1 pc. Incoming feeder 1250 A (Diesel) 1 pc. Control voltage and measuring unit 1 pc. Standard accessories 3 pcs. Outgoing feeder 1250 A 3 pcs. Outgoing feeder 125 A 1pc. MCB-module
2	3	400 V Unit Switchgear 1 pc. Incoming cubicle with isolator 1 pc. Control voltage and measuring unit 1 pc. Standard accessories 13 pcs. DOL ≤5,5 kW 6 pcs. DOL ≤15 kW 2 pcs. DOL ≤37 kW 1 pc. DOL ≤78 kW 1 pc. DOL ≤48 kW
3	1	220 V DC Common MCC and Distribution Board 1 pc. Incoming isolator 1 pc. Control voltage and measuring unit 1 pc. Standard accessories 3 pcs. DOL ≤5,5 kW 12 pcs. MCB's / SR
4	1	400 V LV Dist. Switchgear Common Lighting 1 pc. Incoming cubicle with isolator 1 pc. Control voltage and measuring unit 1 pc. Standard accessories 10 pcs. MCB 25 A

3.3.7 Rectifier, battery and UPS

3.3.7.1 220 VDC Supply System

1 pc. 220 VDC Voltage supply system, each consisting of:

1 pc.	Rectifier/Charger incl. Distribution panel	
	Main voltage	400V +/- 10%, 3-ph 3-wire
	Output voltage	220 V
1 pc.		Vented lead Acid battery on rack

3.3.7.2 UPS System

1 pc. UPS System, 230 VAC 1-phase, including Rectifier, PWM Inverter, Bypass transformer

Mechanical data

Cabinet	free standing cabinet w. front door
Protection Class	IP 31
Cable entry	Bottom
Standards and labels	acc. To IEC

3.3.8 Generator Protection system

3 pcs. Generator Protection system, consisting of:

1 pc.	control cubicle 2200x800x600mm(HxWxD), front side accessible
2 pcs.	numerical protection relays (Software protection functions) including internal auxiliary control equipment

All protection functions required for the protection of the generator for one unit are available. The system therefore replaces several relays of a conventional protection scheme for such power system equipment.

- 1 set control cables
- 1 set HMI software
- 1 set Fiber optic interface cable

3.3.9 Unit Transformer and Aux. Transformer Protection System

The numerical transformer protection unit is designed for the fast, selective protection of two- or three-winding transformers. In addition the applications for the protection of auto-transformers and block generator-transformer units are possible. The protection and metering will be installed in one control panel.

Numerical transformer protection system supply:

1 pc. Transformer Protection system, each consisting of:

1 pc.	control cubicle 2200x800x600mm(HxWxD), front and rear side accessible
2 pcs.	numerical protection relays (Software protection functions) including internal auxiliary control equipment
1 pc.	Digital energy meter

All protection functions required for the protection of the transformer are available.

3.3.10 Static Excitation System

3 pcs. Excitation system consisting of:

- 1 pc. control cubicle including voltage regulator, internal protection and control as well as interface equipment
- 1pc. cubicle including field de-excitation, field breaker and power electronics
- 1 pc. Excitation transformer, 3-phase, dry type

The excitation system is designed as a single channel version with automatic and manual mode of operation. The remote control and monitoring will be possible from the DCS system. The proposed system includes a local control panel, which is for local operation of the system. System data such as field current can be displayed when selected in digital form in the local control panel. System status as excitation ON/OFF, AUTO/MAN etc. are also displayed in the local control panel.

3.3.11 Automatic Synchronizing System

The digital synchronising device Synchrotact®5 is used to automatically synchronise a generator to the power system. The field of application extends from straightforward synchrocheck tasks to fully automatic paralleling. Manual synchronising mode includes synchrocheck function.

3 pcs. Automatic Synchronizing System, each including:

1 set Dual-channel synchronizing system for automatic and manual synchronizing, consisting of

1 pc.	microprocessor based synchronizing device type, establishing a dual-channel system for automatic and manual operation
1 set	mimic control panel at front door for manual synchronising operation
1 set	synchronizing measuring instruments (double voltmeter & frequency meter, synchronoscope) including internal auxiliary control equipment
1 pc.	Digital energy meter

It will be controlled by the DCS system through a hardwired standard interface. The selection of the unit to be synchronised will be done through the DCS system. Matching functions of generator voltage (through excitation) and frequency (through DCS or governor) will be via potential-free contacts.

3.3.12 Black Start Diesel

The total output of the Black Start Diesel specified at the Generator terminals is: 2 MWe

The following mentioned components are part of the black start plant:

- Generator Set
- Mechanical Auxiliary System, incl. Fuel system, Lubrication oil system, Compressed air system, Cooling system, Charge air system, Exhaust system
- Automation system

3.3.13 Earthing/ Grounding and Lightning System

1 pc.	Earthing / Grounding system including:
1 x 1,5 km	240mm^2 Copper cord for outdoor earthing
1 x 400 m	70mm^2 Copper cord for indoor earthing system
1 x 400 m	240mm^2 Copper cord for indoor earthing system
1 x 100 km	240mm^2 Copper cord for indoor earthing system
1	Transformer box
100	Cold weld connections
1 lot	Lightning protection for all buildings, chimneys according to the present overview drawing adequate to ABB standard

3.3.14 MV- and LV Cables

1 set of MV- and LV cables for 3 x GT

Type	**Qty.**
N2XS2Y 1x300/25 6/10 kV	1000 meters
N2XY 4x240 0,6/1 kV	200 meters
N2XY 4x95 0,6/1 kV	180 meters
N2XY 4x70 0,6/1 kV	350 meters
NYY-J 5x35	800 meters
NYY-J 5x16	1200 meters
NYY-J 5x10	1800 meters
NYY-J 5x4	1200 meters

3.4 Instrumentation and Control

For this project the turbine control and monitoring system Egatrol®6 based on the DCS control system Procontrol P14 is offered. Please refer to the system overview (see Attachment Schedules and Drawings).

Please refer to the functional overview of the turbine control System Egatrol (see Attachment Schedules and Drawings).

Our offer includes the design / engineering, manufacturing, workshop tests according to ISO 9001.

Our scope of supply for the gas turbine control system includes the following :

3.4.1 Scope of Supply I&C Equipment for G 24 Control

- two-channel gas turbine governor system (Egatrol®6) for speed and load adjustment; analog output 4-20 mA (position signals for max. 2 EHT's); position controllers and eventual modifications by turbine manufacturer

-two-channel turbine protection (control of 2 Emergency Stop Valves) including 3 – channel overspeed protection

- extended turbine I&C, i.e. 1 master program, 13 function groups and 47 drive controls

- analog / binary signal conditioning (4...20 mA; dry contacts - interrogation voltage 24VDC); calculated quantities : 180 analogue inputs 4…20 mA, 30 binary inputs

- redundant operator control station POS30 for operating, monitoring, diagnosis, archiving and reports consisting of :
  - 2 redundant servers (common for 3 gas turbines)
  - 3 single clients (1 for each gas turbine, incl. keyboard and mouse)
  - 2 color monitors (CRT) for each gas turbine (doublehead)
  - 1 printer

-1 engineering tool EDS20 (common for 3 gas turbines)

- 2 standard Procontrol P14 cubicles containing 4 controller stations with the required modules incl.

1 marshalling cubicle
cabinet dimensions : H x W x D = 2200 x 900 x 400 mm
protection type : IP 30 for use in electronic rooms (conforming to DIN40050)
terminals for field wiring: Maxi-Termipoint
power consumption : app. 500 W per cubicle electronic cubicle feed-in of 2 x 24 V DC (redundant)

- 10 junction boxes IP 65, stainless steel

- Field instrumentation including transmitters and supporting structures for the following measurements :

- temperature
- pressure
- flow
- speed
- vibration
- position
- electrical

- binary

- cabling (single and multicore cables PVC, cross-section 0,5 mm²)

3.4.2 Sope of Services for G 24 Control System

-system and detail engineering documentation according to ABB-UTD standards, which follow the international relevant standards. The documentation will be in English language and includes a logical designation system. Final documentation will be submitted 6-8 weeks after conclusion of the commissioning work. The documentation will be produced and stored electronically and will be provided paperless, using current Standard Software.

- Functional workshop test including 2 days for FAT participation of client or his representative (transportation from client's country to Germany only for the first unit. Hotel cost, local transportation and daily allowance are not included).

3.4.3 Exclusions for G 24 Control System

- local control panel
- hydraulic components
- spare parts
- training

3.5 Engineering and Documentation

Standard documentation will be submitted in English, with two hardcopies and one data media version.

3.6 Supplier's Limits of supply

- All supply and discharge lines as well as the mains connection are not included in the supplier's scope of supply (including fuel supply) and shall be connected by the supplier within one meter in the building.
- The scope of electrical equipment and instrumentation and control ends at the high-voltage connection of the main transformer.
- Type-tested equipment will be delivered. Any repetition of type tests are excluded. Any costs arising from witnessing of Purchaser’s or Contractor’s personnel on factory tests additional to those offered at any Vendor’s premises are excluded.

3.6.1 Training

Training is not included in this proposal. Training can be offered upon request.

4 Customer's Obligations and Scope of Supply

- All import activities and presentation of licenses required for the import of the goods

5 Attachments: Schedules and Drawings

5.1 Turbine and Generator

- 3 pages for the G 24 turbine

5.2 Mechanical Balance of Plant

- Could be submit later

5.3 Electrical System

- Single line diagram 3 x G24, dwg No. 1KGC 007 002
- Local Room Layout: dwg No.:1KGC 007 003 (6 containers for 3 GT palnts)
- 3 reference photos for a 4-container solution housing the complete electrical, the control system and CCR for a GT plant installed in Iraq

5.4 Instrumentation and Control

- System Configuration G 24 Control
- Egatrol 6 Functional Overview

5.5 Civil Engineering

- Could be submit later

PROCONTROL P

Power Plant Control System

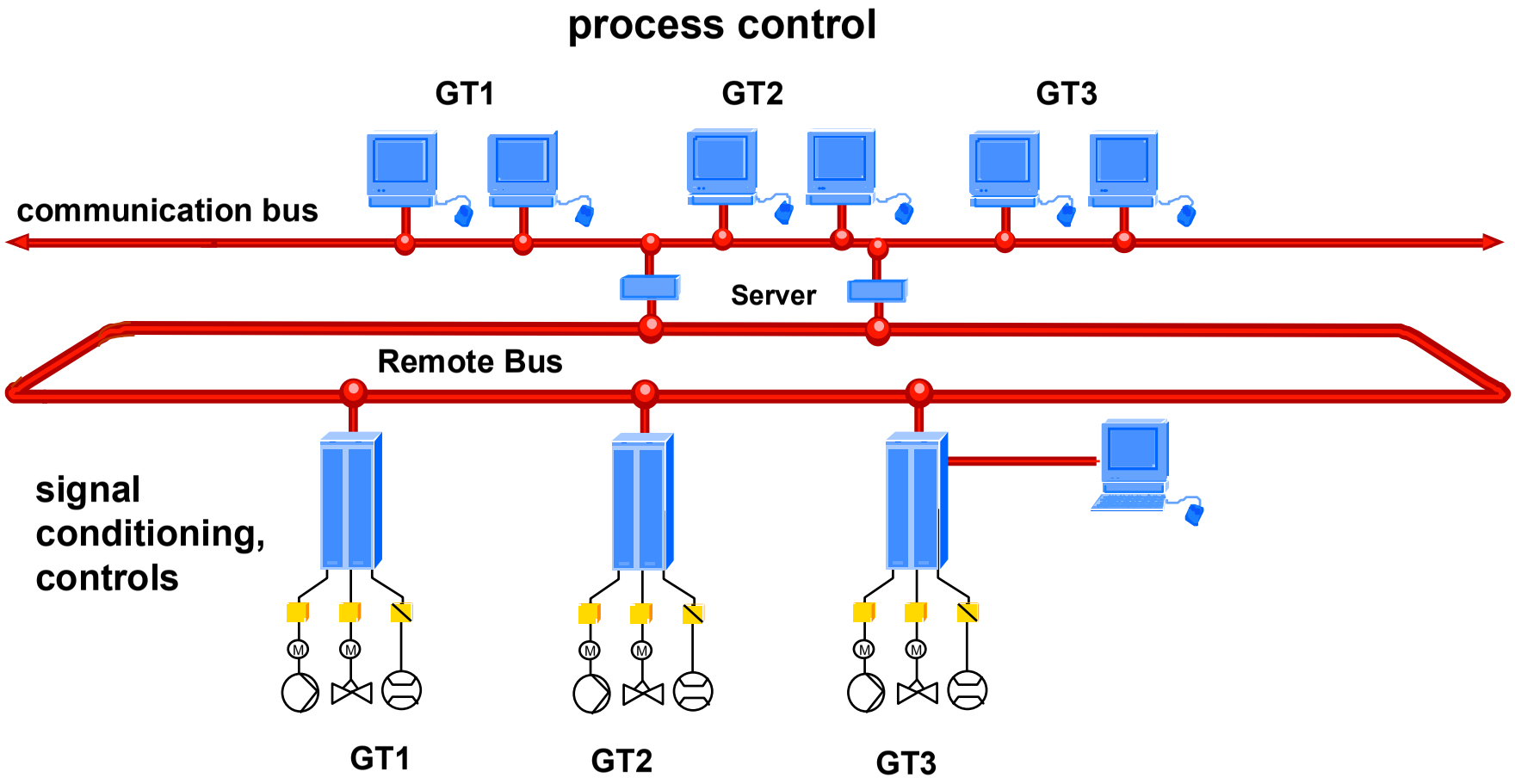
ABB Utilities GmbH

DEUTA/D P14IC 2000 1

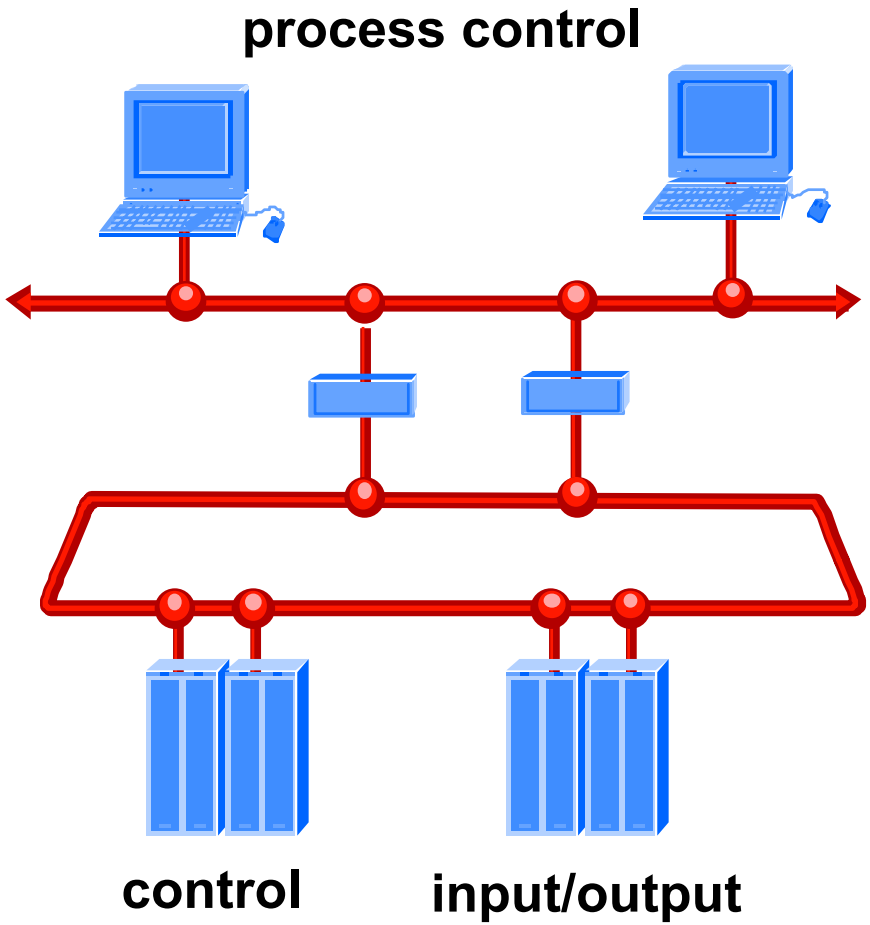
PROCONTROL P

Power Plant Control System

System Configuration Procontrol P - example for 3 units



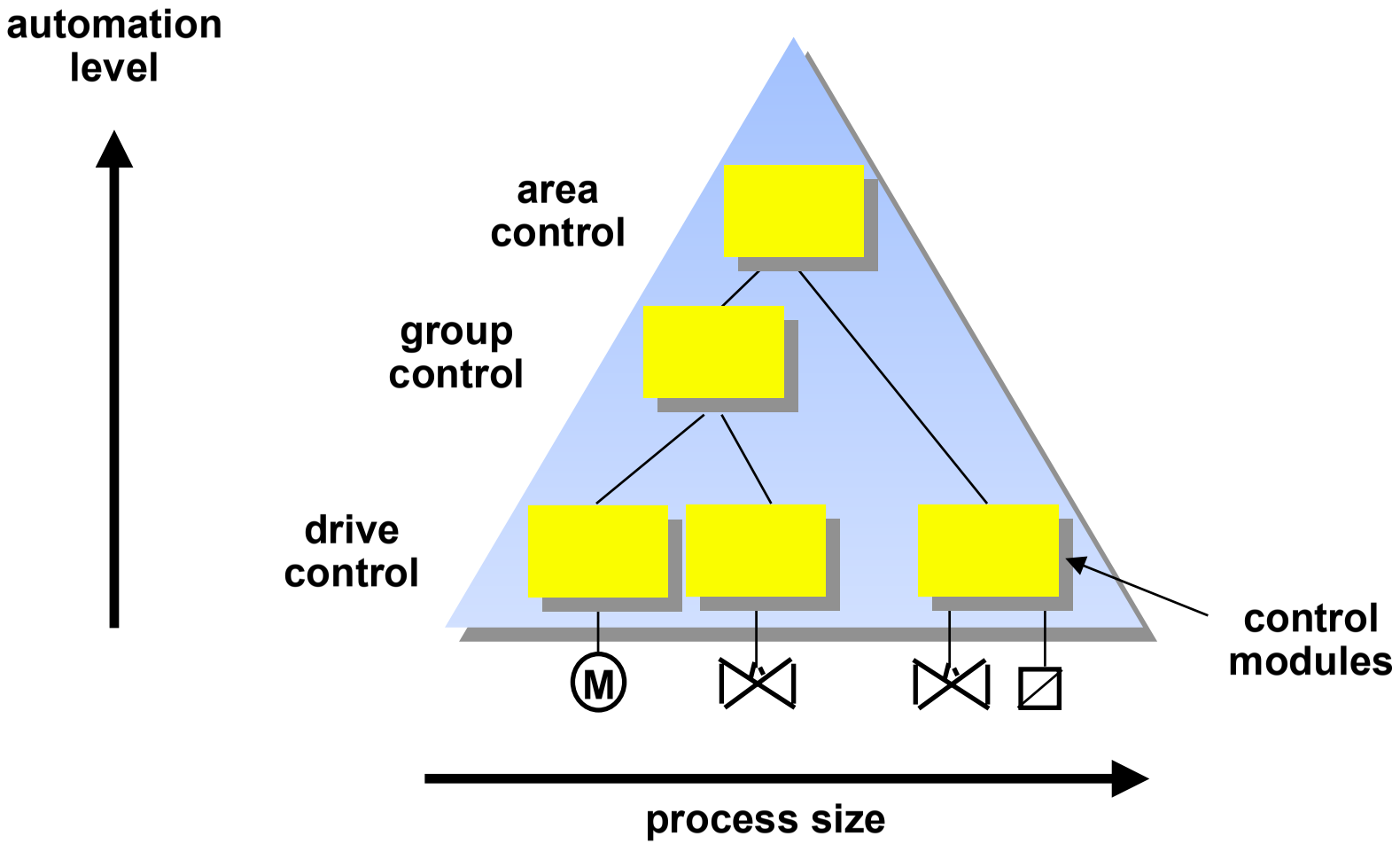
Redundant Configurations



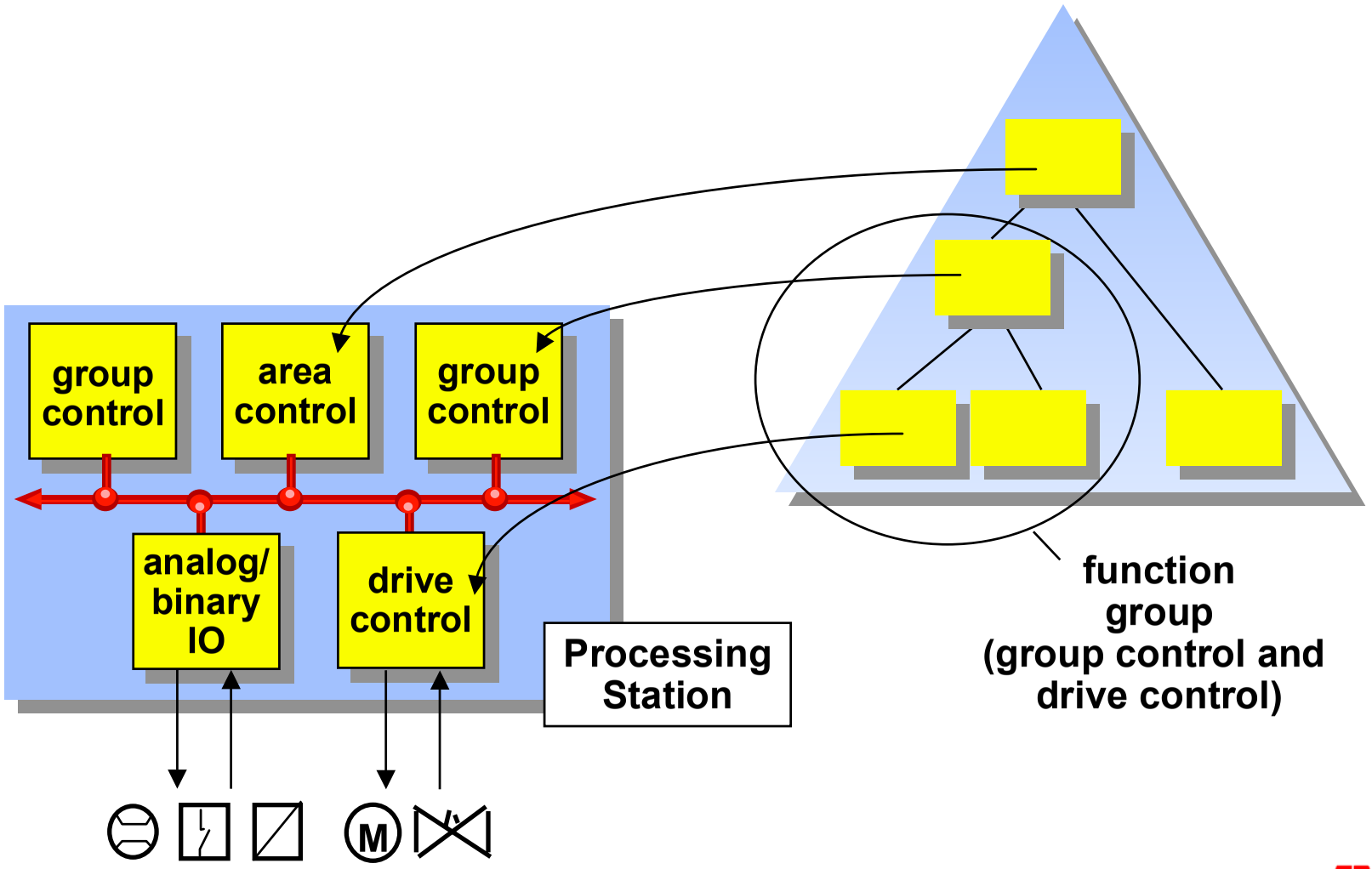
redundancy for major components

- ❑ remote bus
- ❑ remote bus coupling modules
- ❑ POS-server optional
- ❑ communication network
- ❑ control and I/O modules (optional)

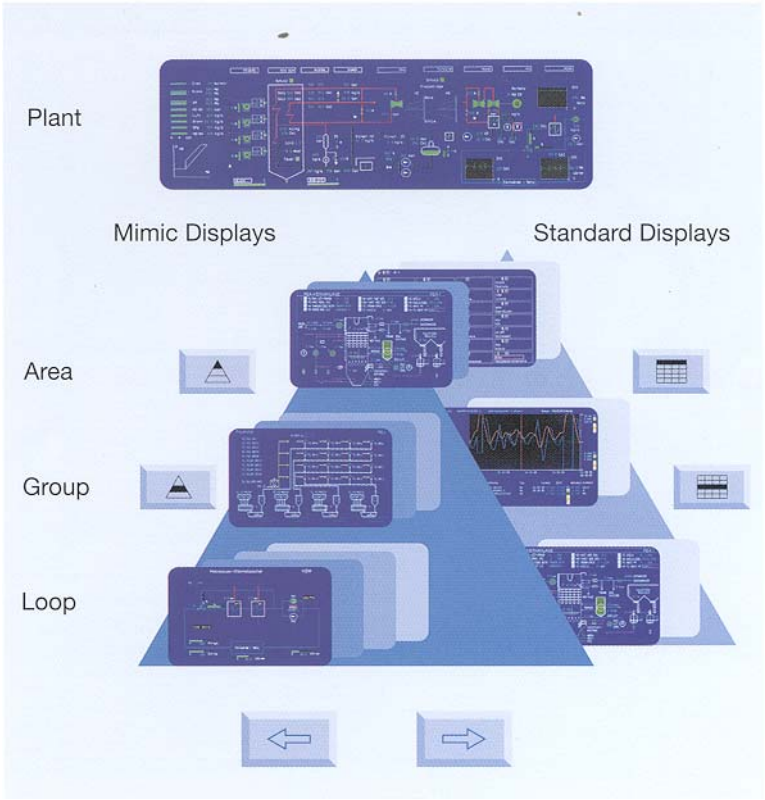
Decentralized System Structure



Mapping Structure to Hardware

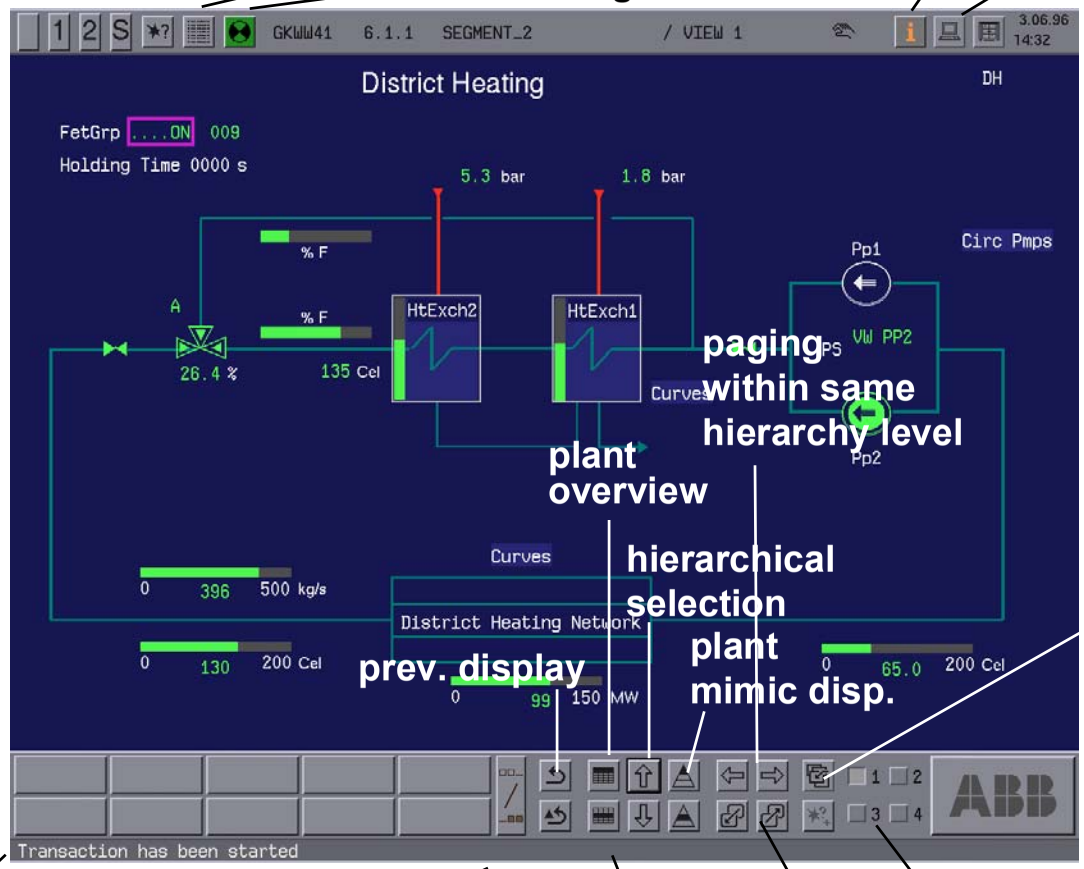


POS 30: Structured MMI Configuration



- hierachy of mimics for fast functional navigation
- hierachy of standard displays for a structured analysis
- levels : area, group, loop

POS30: Display Window



alarm summary

alarm search

sequence of event

acknowledge

POS-system information

User Authorisation

paging within same hierarchy level

plant overview

hierarchical selection plant mimic disp.

prev. display

menu for special display selection

Soft keys for
- additional functions for displays
- direct selection of displays of display groups

Information line

shift key for direct display selection

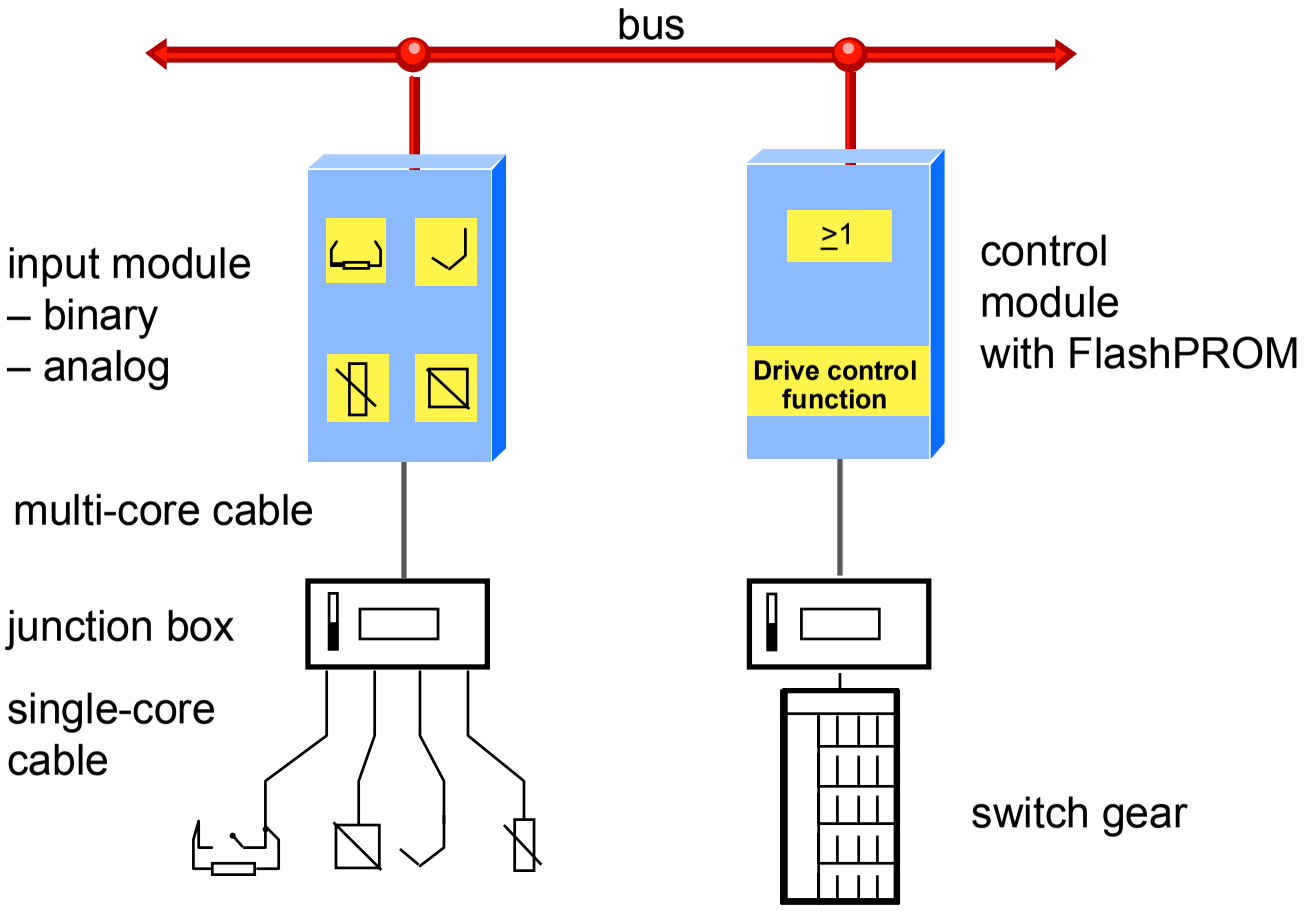
prev. mimic display

area display

paging

additional windows

Innovative Connection Concept



savings:

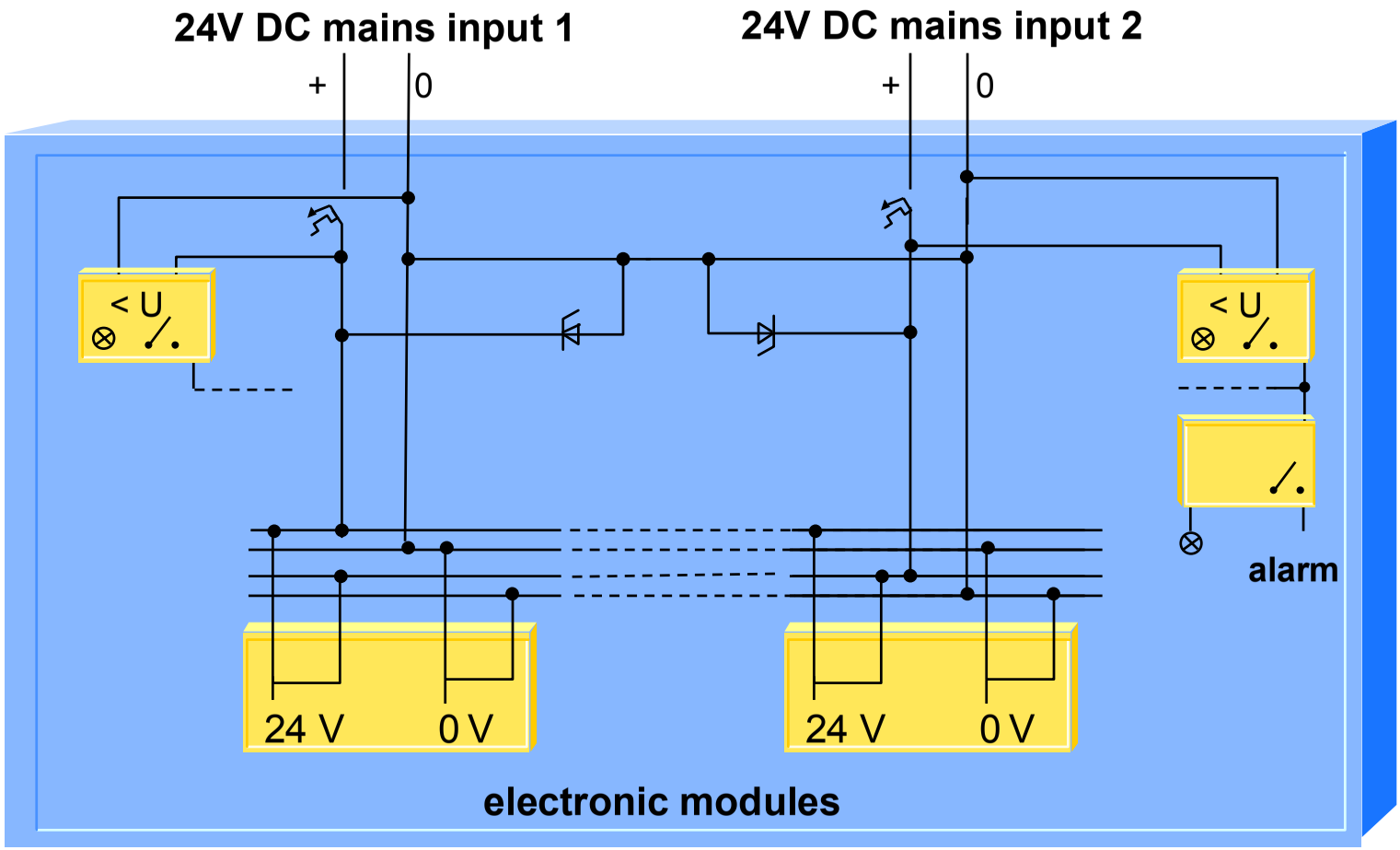
- ❑ **marshalling rack**
- ❑ **installation effort**

allows simultaneous engineering, cabling

features:

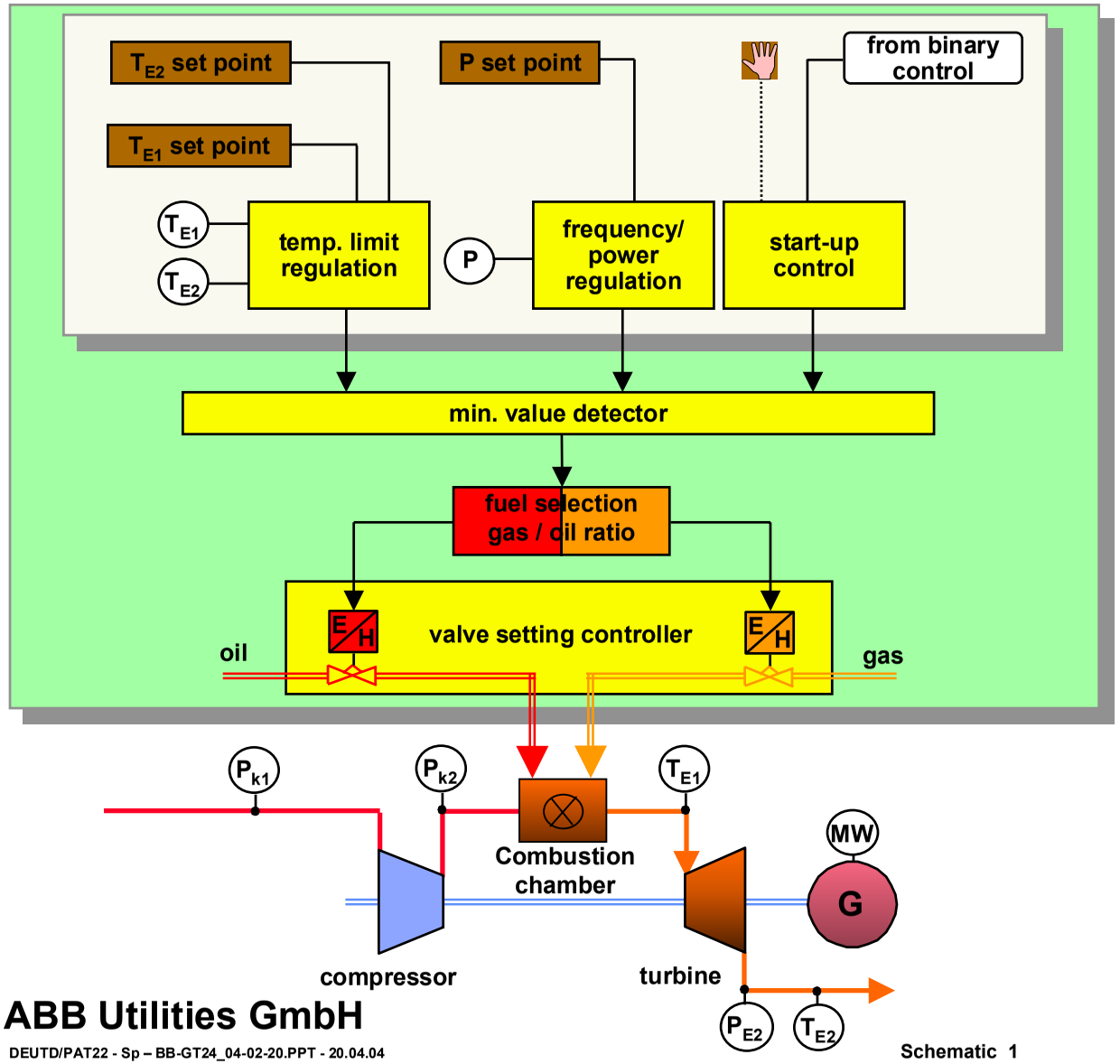
- ❑ **universal input module**
- ❑ **universal control module**

Redundant Power Supply for Station



Gas Turbine Control Egatrol®6

Gas Turbine Controller : Structure



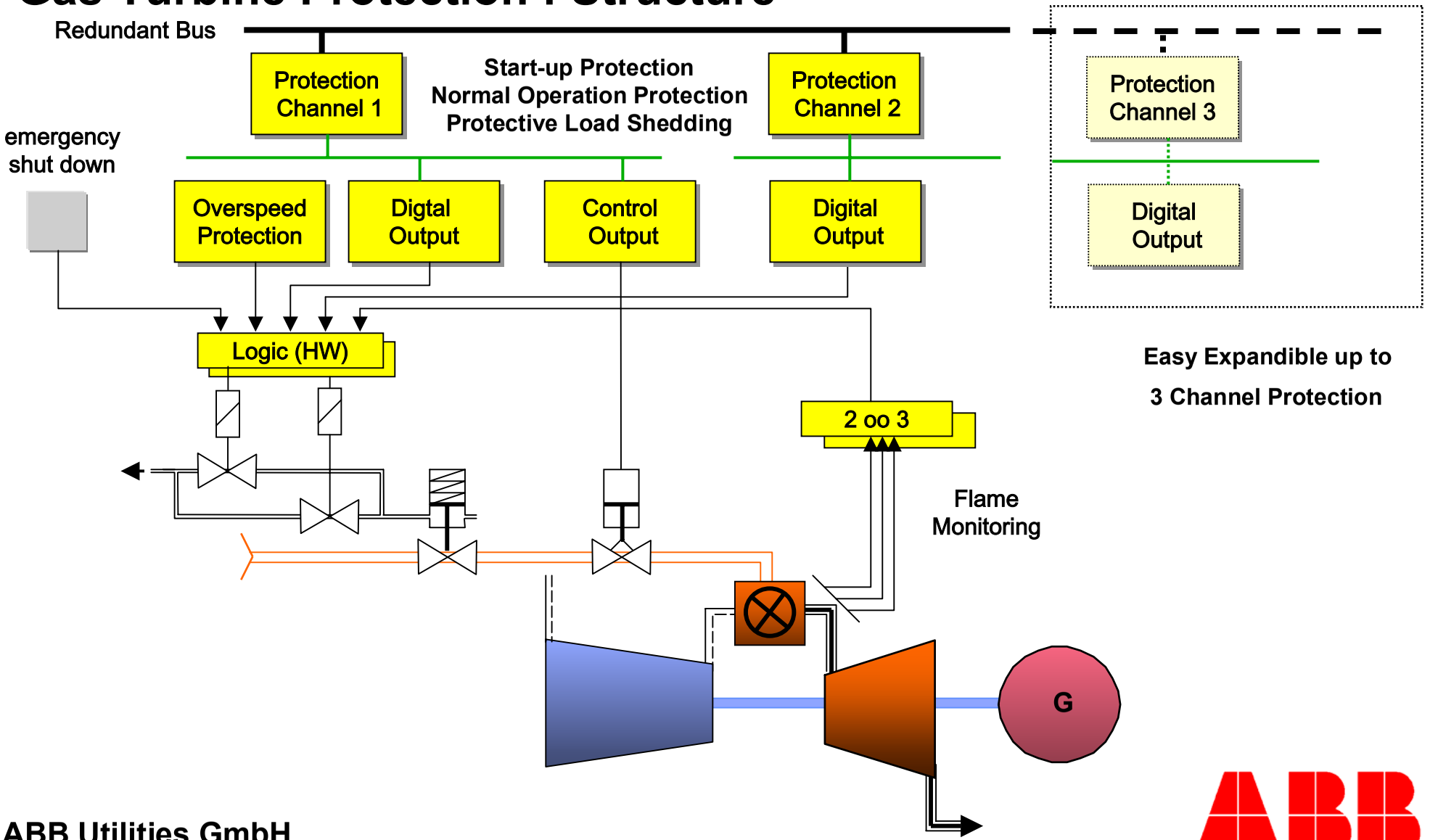
Features :

- ❑ speed control
- ❑ frequency control
- ❑ load control
- ❑ manual start-up
- ❑ temperature limiter
- ❑ fuel selection
- ❑ automatic load shedding
- ❑ fast loading

P_{k1} = compressor suction pressure
P_{k1} = compressor output pressure
P_{E2} = measured exhaust gas pressure
T_{E1} = gas turbine inlet temperature
T_{E2} = gas turbine exhaust temperature

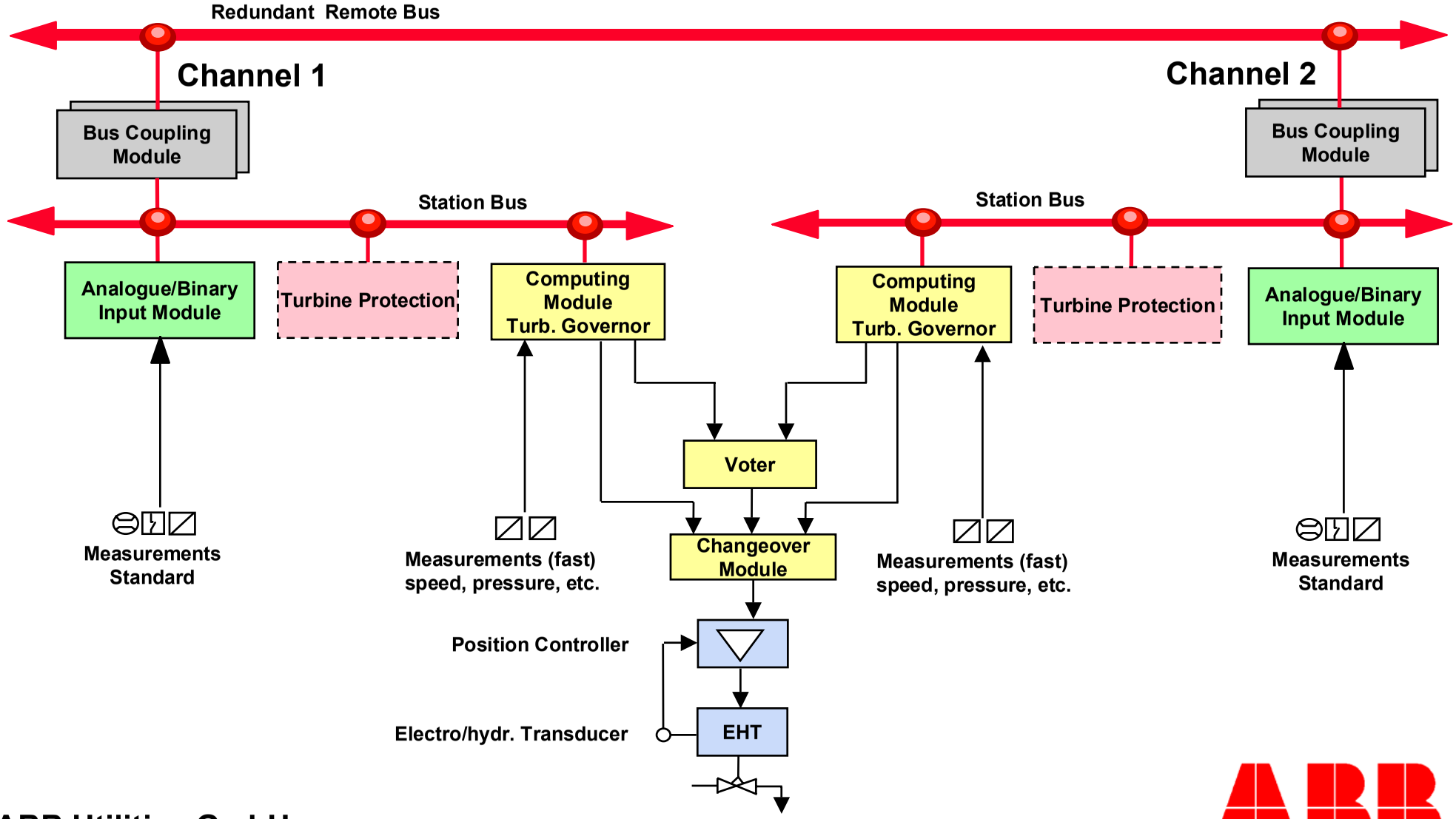
Gas Turbine Control Egatrol®6

Gas Turbine Protection : Structure



Gas Turbine Control Egatrol®6

Hardware Configuration : Turbine Governor



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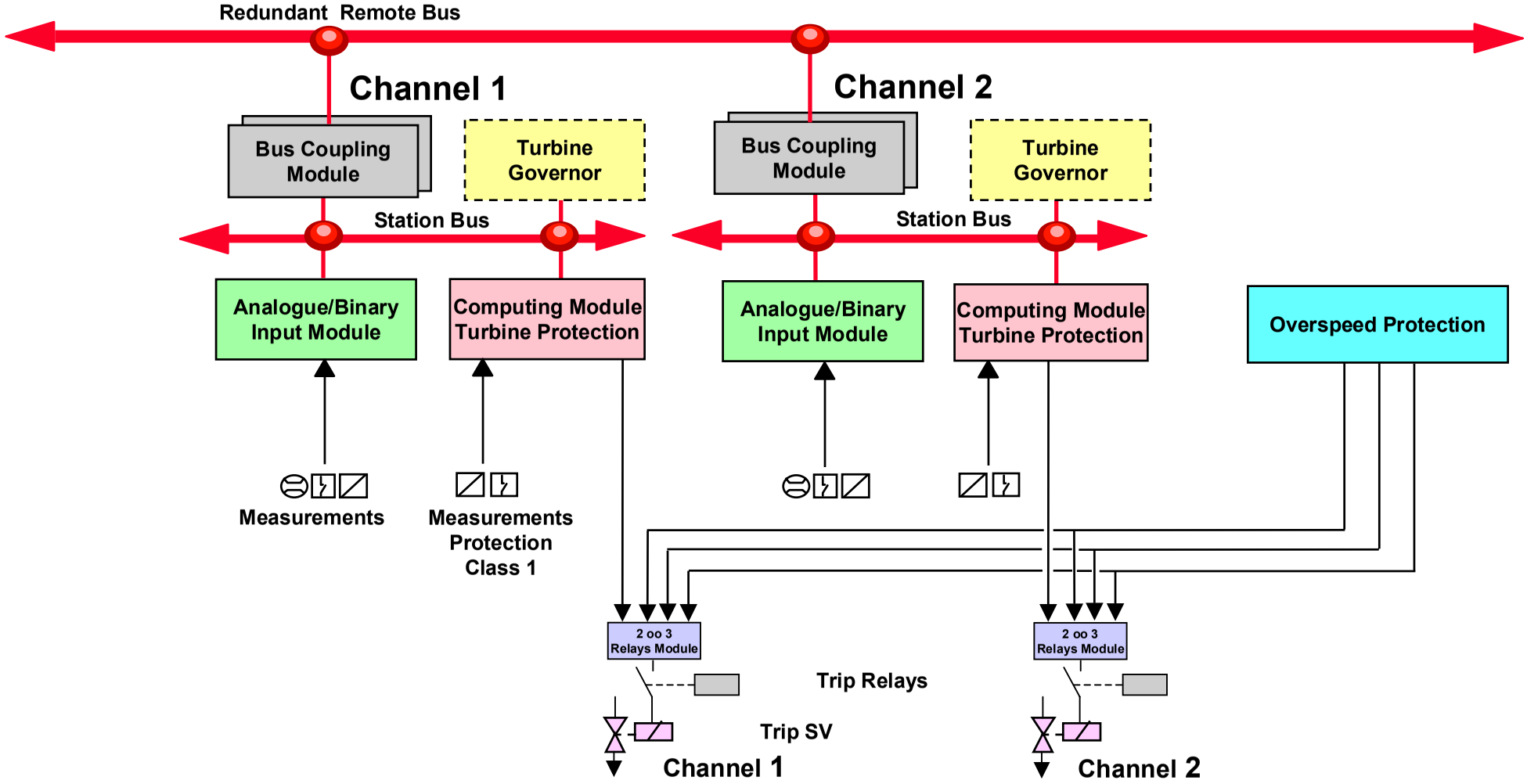
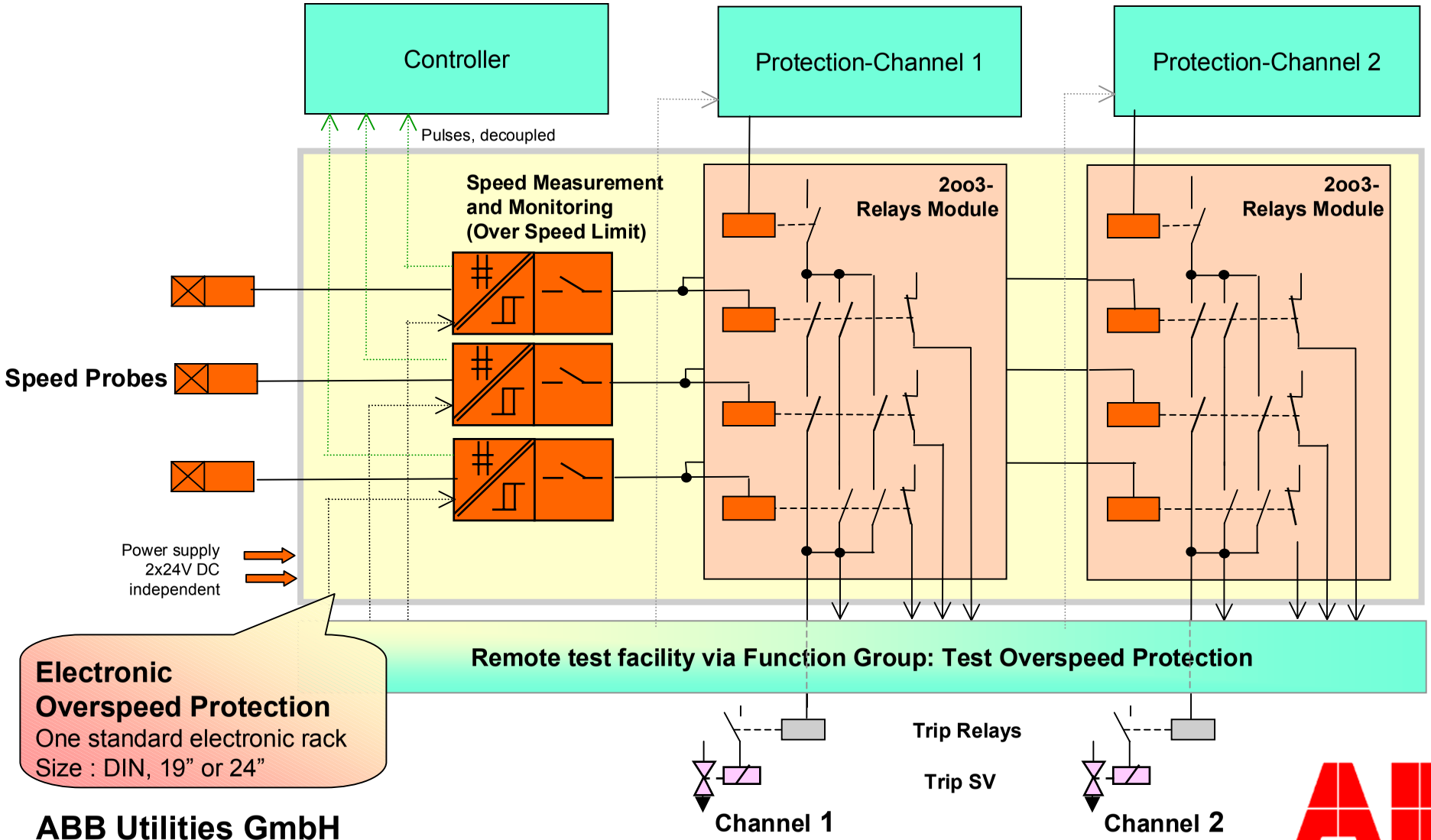
Hardware Configuration : Turbine Protection



Gas Turbine Control Egatrol®6

Overspeed Protection for Safety Systems with two 1oo 2 working Trip Solenoid Valves and Remote Test Facility



Electronic Overspeed Protection
One standard electronic rack
Size : DIN, 19" or 24"


30 8:25AM


12 7:49AM


29 3:13PM