

PLANT WIDE MONITORING SYSTEM

The T500 Elite - HOTBUS™ is a serial communications system designed to monitor up to 256 sensors for combined belt alignment, belt speed, continuous bearing temperature, pulley alignment, level and plug conditions on bucket elevators and conveyors.

Having automatic machine shutdown capability and PLC / PC compatibility, this advanced microprocessor based system offers low cost installation, versatility and easy system expansion.

Hazardmon cloud monitoring solution is also available for historic data analysis and preventative or predictive machine maintenance.



HOTBUS™ SYSTEM KEY ADVANTAGES

- ▶ Monitor more than 20 machines (up to 64 communication nodes or 256 sensing points)
- ▶ Single pair RS-485 communication BUS for easy and economic wiring
- ▶ Up to 1km communication BUS length
- ▶ Up to 2km communication BUS length with a repeater module
- ▶ Temperature, belt-alignment, blockage conditions and belt slip / speed monitoring capability
- ▶ In-built Hazardmon cloud monitoring connection capability

HOTBUS™ SYSTEM CONTROLLERS

The T500 Elite HOTBUS™ system is a serial communication network based (BUS) on RS485 for collecting hazard monitoring sensor information from dedicated nodes. The T500 acts as the master of this network and requests data from slave nodes. The T500 processes the nodes' data and makes decisions on whether to raise specific alarms. There may be up to 64 nodes on a single network each having up to 4 sensing points.

The T500 has a dedicated alarm relay which will energise for any alarm condition on the BUS. Relays for specific alarms may be assigned if R500's are used. Each R500 has 16 addressable volt-free contact relays and up to 4 R500's may be used on a single T500 HOTBUS™ network providing 64 addressable alarm relays.

The T500 system is a self-contained system and will operate and make decisions based on the parameters that you program. However, the F500 (Fieldbus Interface) unit may be used to gain external access to the T500 so that the collected data may be displayed and/or used as part of a SCADA/PLC system allowing greater interaction and control capability.



| T500 Elite – Main Controller | | |
|-------------------------------|-------------------------------------------------|-------------------------------------------------|
| Model | T5004V4CAI | T5004V46CAI |
| Power supply | 24VDC | 24VDC / 110-240 VAC, 50/60Hz |
| Power consumption | 10 Watts | 10 Watts |
| Communication BUS connections | RS-485 2 Wire (HOTBUS™) RS-485 4 Wire (F500) | RS-485 2 Wire (HOTBUS™) RS-485 4 Wire (F500) |
| Dimensions (L x W x H) | 246 x 188 x 102 mm | 246 x 188 x 102 mm |
| Weight | 1.2kg | 1.3kg |
| Enclosure apertures | 2 holes, 25 mm dia | 2 holes, 25 mm dia |
| Operating temperature range | -15°C to +50°C | -15°C to +50°C |
| Certificates and approvals | ATEX and IECEx Zone 21 | ATEX and IECEx Zone 22 |
| Protection | IP65 | IP65 |



| R500 Elite – Relay Block | | |
|-------------------------------|------------------------------------|------------------------------------|
| Model | R5004V4CAI | R5004V46CAI |
| Power supply | 24VDC | 24VDC / 110-240 VAC, 50/60Hz |
| Power consumption | 10 Watts | 10 Watts |
| Communication BUS connections | RS-485 2 Wire (HOTBUS™) | RS-485 2 Wire (HOTBUS™) |
| Output Relays | 16 Switch over relays 5A@240VAC | 16 Switch over relays 5A@240VAC |
| Dimensions (L x W x H) | 246 x 188 x 102 mm | 246 x 188 x 102 mm |
| Weight | 1.2kg | 1.3kg |
| Enclosure apertures | 2 holes, 25 mm dia | 2 holes, 25 mm dia |
| Operating temperature range | -15°C to +50°C | -15°C to +50°C |
| Certificates and approvals | ATEX and IECEx Zone 21 | ATEX and IECEx Zone 22 |
| Protection | IP65 | IP65 |


F500 Elite – Fieldbus Protocol Gateway

| Model | F5004V4CAI-XXX (H) | F5004V46CAI-XXX (H) |
|-------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Power supply | 24VDC | 24VDC / 110-240 VAC, 50/60Hz |
| Power consumption | 10 Watts | 10 Watts |
| Communication BUS connections | RS-485 4 Wire (T500) | RS-485 4 Wire (T500) |
| Fieldbus protocols (replace XXX by one of the codes on the right) | ETH – Modbus TCP MGW – Modbus RTU PGW – Profibus DGW - DeviceNet | ETH – Modbus TCP MGW – Modbus RTU PGW – Profibus DGW - DeviceNet |
| Dimensions (L x W x H) | 246 x 188 x 102 mm | 246 x 188 x 102 mm |
| Weight | 1.2kg | 1.3kg |
| Enclosure apertures | 2 holes, 25 mm dia | 2 holes, 25 mm dia |
| Operating temperature range | -15°C to +50°C | -15°C to +50°C |
| Certificates and approvals | ATEX and IECEx Zone 21 | ATEX and IECEx Zone 22 |
| Protection | IP65 | IP65 |

HOTBUS™ SYSTEM COMMUNICATION NODES


HOTBUS™ system currently supports two types of remote communication nodes. Both of them are supplied in an ATEX approved and IP65 rated plastic enclosure.

HOTBOXTN4-CAI – This node should be used to monitor high temperature conditions and any type of volt free contact output sensors, which include belt alignment, machine blockage and level detectors. Individual sensor input types are configured within the T500 controller.

HOTBOXSN2-CAI – This node should be used for machine shaft speed monitoring applications like belt slip and chain breakage. The node has two speed inputs and two machine run inputs, which allow the T500 system to identify when the machines are running.


HOTBOXTN4-CAI – Temperature and Contact Input Node

| Model | HOTBOXTN4-CAI |
|-------------------------------|---------------------------------------------------------|
| Power supply | 12-24Vdc |
| Power consumption | 25mA |
| Communication BUS connections | RS-485 2 Wire (HOTBUS™) |
| Number of inputs | 4 |
| Sensor types supported | NTC Temperature PTC Temperature Volt-free contact |
| Dimensions (L x W x H) | 140 x 111 x 88 mm |
| Weight | 0.7 kg |
| Enclosure apertures | 4 holes, M25 |
| Operating temperature range | -20°C to +50°C |
| Certificates and approvals | ATEX and IECEx Zone 21 |
| Protection | IP66 |


HOTBOXSN2-CAI – Speed Input Node

| Model | HOTBOXSN2-CAI |
|-------------------------------|---------------------------------------|
| Power supply | 12-24Vdc |
| Power consumption | 10mA |
| Communication BUS connections | RS-485 2 Wire (HOTBUS™) |
| Number of inputs | 2 (2 run signals + 2 speed inputs) |
| Sensor types supported | Speed (NPN Output) |
| Dimensions (L x W x H) | 140 x 111 x 88 mm |
| Weight | 0.7kg |
| Enclosure apertures | 4 holes, M25 |
| Operating temperature range | -20°C to +50°C |
| Certificates and approvals | ATEX and IECEx Zone 21 |
| Protection | IP66 |

HOTBUS™ NETWORK DIAGRAM

