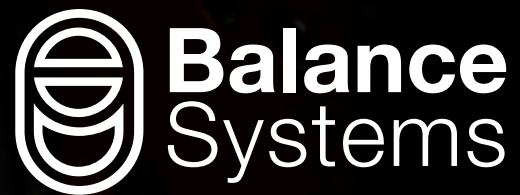


NEW PRODUCT



GTS

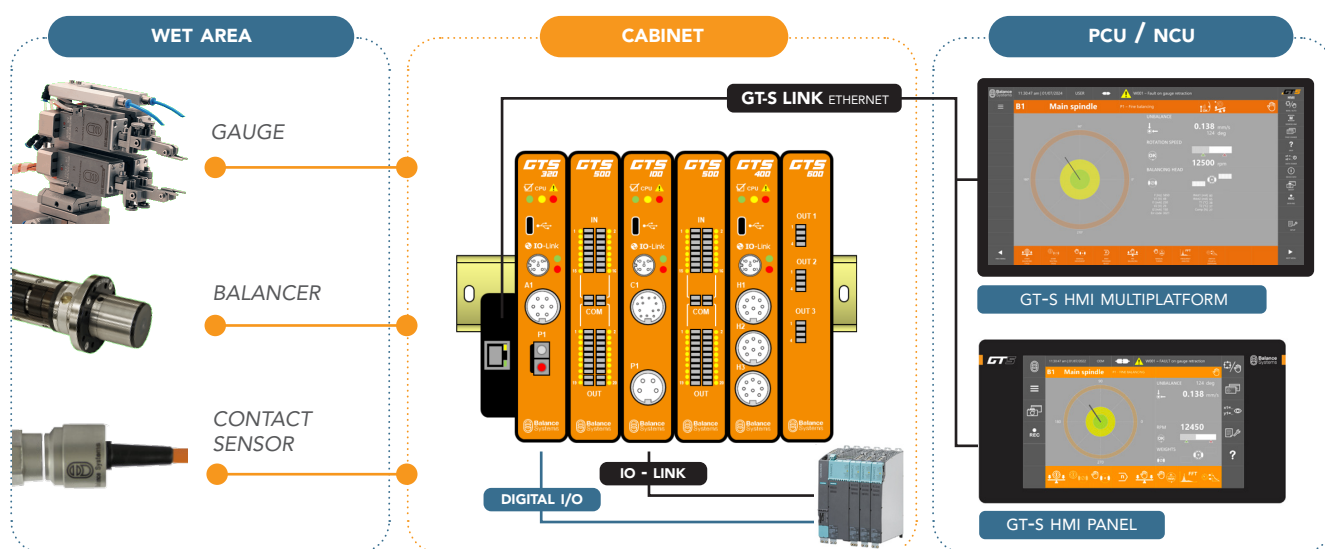
The **new modularity**
to **optimize your**
grinding machine

The **new modularity** to optimize your grinding machine

The new “**GT-S**” product is designed to optimize machining processes on CNC machine tools and grinding machines in particular. GT-S represents a **new concept of cost-effective modularity**, ensuring a **wide scalability of configurations capable of satisfying simple and complex applications with consistently excellent quality and performance**, at an affordable price. GT-S is a **modular system** that **offers three functions in various configurations and options**:

- Automatic and manual balancing of the spindles
- Tool-to-workpiece and tool-to-dresser contact monitoring
- Pre-, in- and post-process measurement of the workpiece

The function modules are designed and engineered for installation in electrical cabinet on a standard DIN rail. Cabinet assembly is extremely simple, and each module can be inserted and removed, for example for maintenance, without affecting the system functionality.

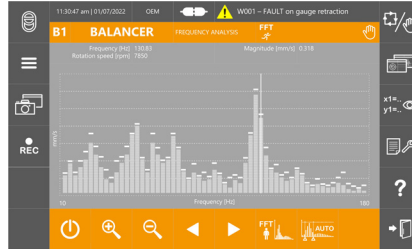
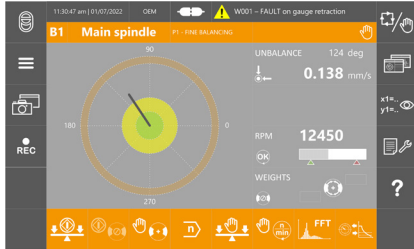


Technical data	
Dimensions	W: 25 mm x L: 124 mm x H: 166 mm
Assembly	Cabinet on DIN rail 35 mm (EN60715)
Power supply	24 ±20% Vdc
Protection grade	IP20
Operating conditions	0° - 50°C – 95% relative humidity
Interface	IO-Link
Measuring units	International, Imperial
PLC/NCU interface	<ul style="list-style-type: none"> • IO-Link (IO commands, parameters R/W, streaming of process variables) • Digital IO • Analog outputs
Diagnostic	Auto test, power good, CPU, IO wiring
Data logger	Events, Parameters modification, Process data
Control	Remote access for start-up and service support
Options	
VMx compatibility	Compatible digital IO interface for “plug & play” retrofitting with Balance Systems series VM5, VM7, VM9, VM10, VM20, VM24, VM15, VM25

For each module is **guaranteed product traceability and access to a user-friendly service portal** (technical data sheets, user manuals, firmware updates, etc.)

The operator interface is designed with advanced cross-platform technologies that allow the **HMI software to be installed in both Microsoft @Windows and @Linux operating systems**. A **7” high-resolution full touch-screen operator panel is also available**, hosting the same HMI software. The **GT-S operator interfaces are equipped with customization functions for the pages to be displayed**, with which the user can create views as desired and based on the phases of the process running on the host machine.

The **primary** function of the **GT-S 100 BA** module is the automatic balancing, on one correction plane, based on **machine learning** and adaptive algorithms optimized for different rotation speeds. Available functions include the **neutral mass cycle**, **manual movement of the balancer weights**, **automatic and manual tuning of the unbalance filter**, and **spindle rotation monitoring**.



GT-S 100 BA
GT-S 110 BA



Technical data

Signalling	3 tolerance limits + 1 warning limit for dangerous unbalance
Power supply	24 ±20% Vdc – 60 W
Interface	IO-Link
Unbalance range	0 ... 99.999 µm
Unbalance resolution	0.001 µm
Measuring units	International: µm, mm/s – Imperial: mil, mil/s
Vibration sensor interface	ICP, Voltage
Rotation speed range	20 .. 60.000 rpm
Connection to balancing head	Wireless or brushes
Part program	8 programs for process phases optimization (i.e. spindle run-up, grinding, tool change, etc.)

Software options

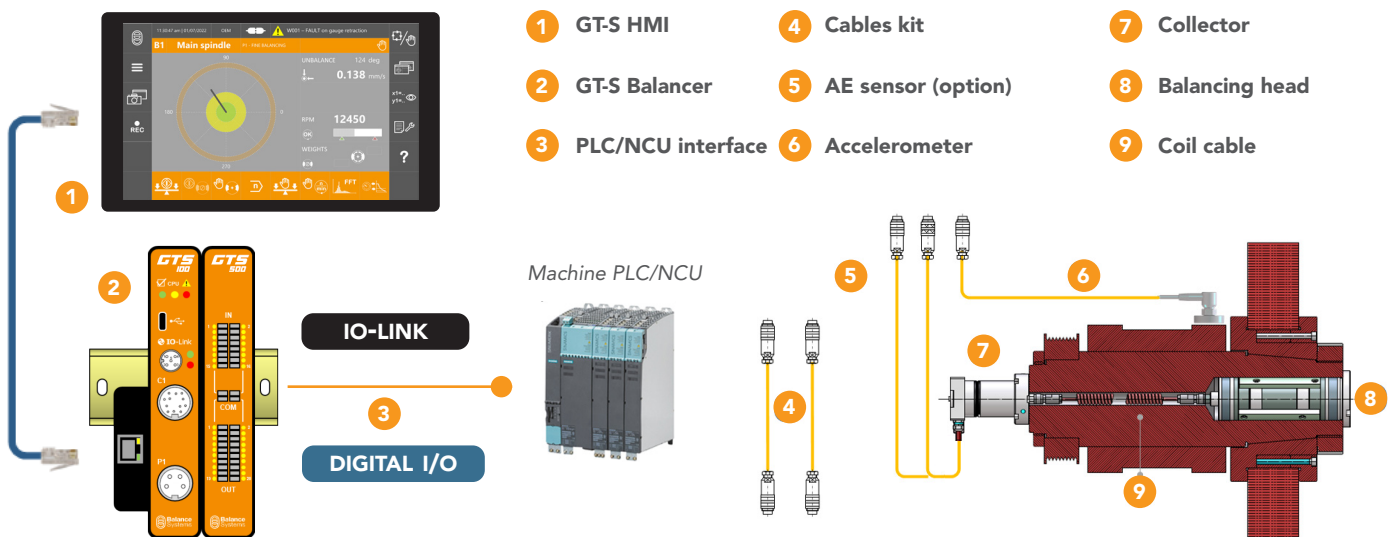
Pre-balancing	Manual balancing performed with step by step guided procedure and various correction algorithms
Frequency analysis	Real-time spectrum analysis (FFT) to monitor vibrations other than pure unbalance
Beat monitoring	Identification of noise due to other equipment which interacts with the main spindle
Wheel dry monitoring	Monitoring of coolant centrifugation after spindle in idle condition

Hardware options

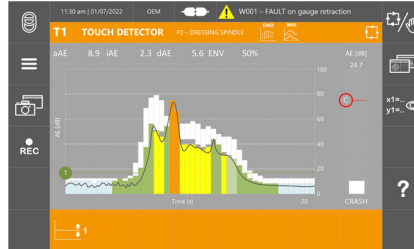
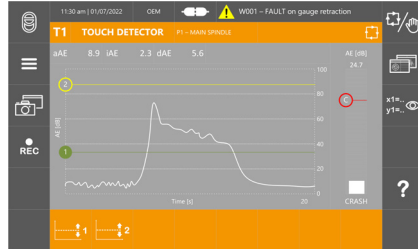
External interface	Module GT-S 500 Digital IO
External interface	Module GT-S 600 Analog outputs

APPLICATION SCHEME

Example: application with built-in spindle balancing head and wireless remoted collector.



The primary **function** of the **GT-S 300 TD** module is based on the **control of grinding wheel-to-workpiece** and **grinding wheel-to-dresser contact** through monitoring of the acoustic emission (AE) and/or spindle power consumption. Available functions include **self-calibration of frequencies, filters, and AE channel gain** for each part-program.



GT-S 300 TA
GT-S 310 TP
GT-S 320 TF



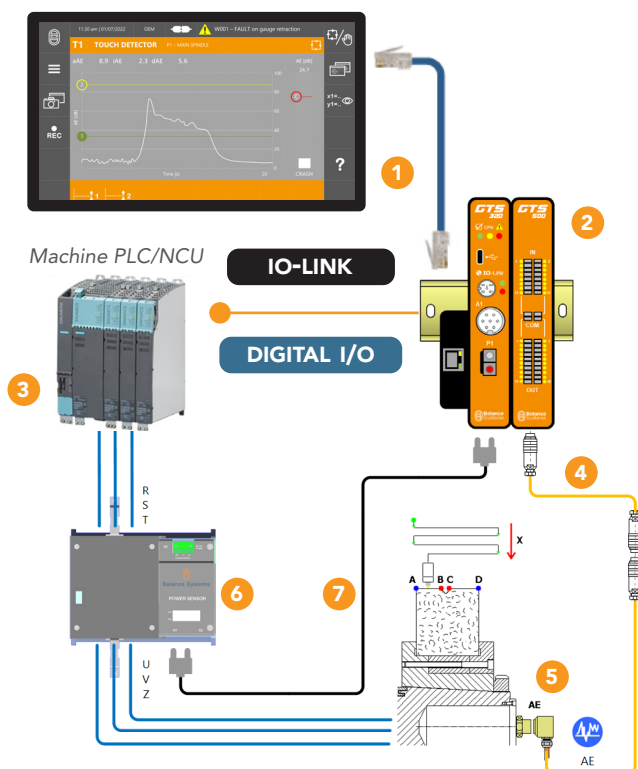
Technical data

Signalling	3 contact limits + 1 crash limit
Power supply	24 ±20% Vdc – 10 W
Interface	IO-Link
Number of AE channels	1
Number of power channels	2
AE frequency range	0 .. 1 MHz
Range of power sensor	Up to 430 kW
Measuring units	%, dB, Watt
AE sensor interface	ICP, ±15V, 0-10V, 4-20 mA
Power sensor interface	Fiber optic

Part program 16 programs for process phases optimization (i.e. grinding wheel-to-workpiece contact monitoring, grinding wheel-to-dresser contact monitoring, grinding wheel shape control during dressing process, etc.)

APPLICATION SCHEME

Example: application of touch detection with AE sensor on spindle nose and power sensor connected to the spindle motor.



Software options

Envelope Control of the profiles and shape of the grinding wheel during dressing process, with automatic acquisition of the master curve

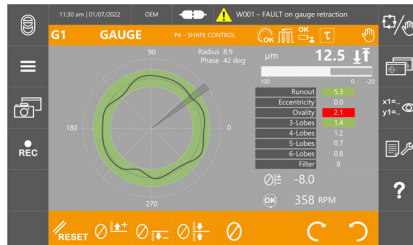
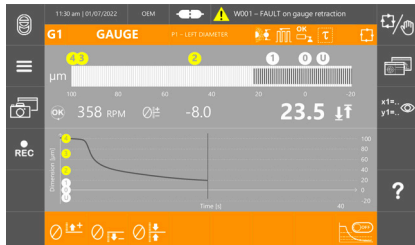
Hardware options

External interface	Module GT-S 500 digital IO
External interface	Module GT-S 510 digital outputs
External interface	Module GT-S 600 analog outputs

- 1 GT-S HMI
- 2 GT-S Touch detector
- 3 PLC/NCU interface
- 4 Cables kit
- 5 AE sensor
- 6 Power sensor
- 7 Fiber optic

The primary functions of the GT-S 400 GA module are:

- **Pre- in- post- process** comparative measurement of **external and internal diameters, thicknesses, heights and tapers**
- **Active and passive** positioning with measurement transmission
- **Automatic** gauge head **recognition**, offset correction, automatic electrical zeroing, controlled mechanical zeroing, synchronization for measurement on continuous and/or interrupted surfaces



GT-S 400 GA



Technical data

Signalling

- In-Process: up to 5 limits (roughing, finishing, super-finishing, dwell, size) for feed control and 1 undersize warning limit
- Post-Process: up to 7 classification bands

Power supply

24 ±20% Vdc – 15 W

Interface

IO-Link

Number of channels

3

Measuring range

± 32 mm

Resolution

0.01 μm – 0.1 μm - 1 μm

Measuring units

International: μm – Imperial: mil

Sensor interface

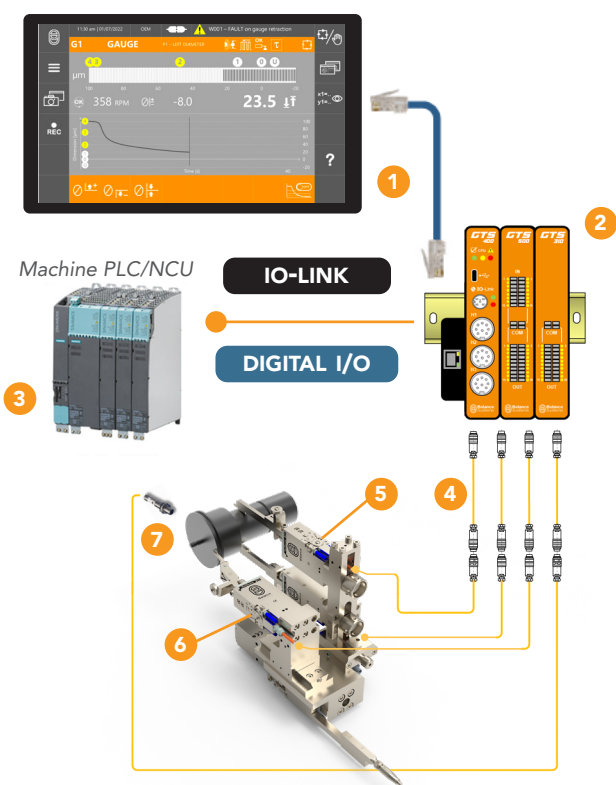
LVDT, HBT

Part program

16 programs for process phases optimization (i.e. pre-process flagging, in-process outer diameter, in-process inner diameter, post-process roundness and shape control, etc.)

APPLICATION SCHEME

Example: application of synchronized in-process measurement of an outside diameter and a shoulder.



Software options

Roundness and shape analysis

Workpiece profile acquisition with calculation of shape components (eccentricity, ovality, 3-lobe, 4-lobe, 5-lobe, etc.)

Trend analysis

Production trend diagram and related statistical calculation on a programmable number of pieces

Hardware options

External interface

Module GT-S 500 digital IO

External interface

Module GT-S 510 digital outputs

External interface

Module GT-S 600 analog outputs

1 GT-S HMI

2 GT-S Gauge

3 PLC/NCU interface

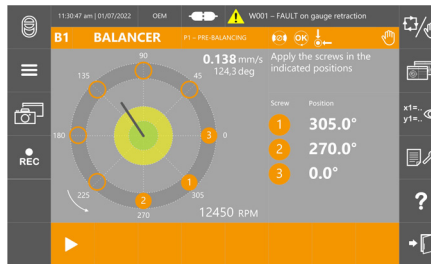
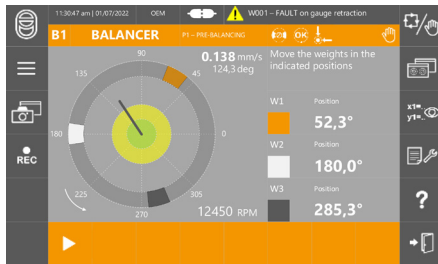
4 Cables kit

5 OD gauge group

6 Flag gauge group

7 Synchronism sensor (option)

The **primary** function of the **GT-S 200 PB** module is **manual balancing on one correction plane**, with a guided procedure based on various algorithms selected by the operator. Available functions include **automatic and manual tuning** of the **unbalance filter** and **spindle rotation monitoring**.



GT-S 200 PB



Technical data

Signalling	2 tolerance limits + 1 warning limit for dangerous unbalance
Power supply	24 ±20% Vdc – 10 W
Interface	IO-Link
Unbalance range	0 ... 99.999 µm
Unbalance resolution	0.001 µm
Measuring units	International: µm, mm/s – Imperial: mil, mil/s
Vibration sensor interface	ICP, Voltage
Rotation speed range	20 .. 60.000 rpm
Part program	8 programs for process phases optimization (i.e. spindle run-up, grinding, tool change, etc.)

Software options

Frequency analysis	Real-time spectrum analysis (FFT) to monitor vibrations other than pure unbalance
Beat monitoring	Identification of noise due to other equipment which interacts with the main spindle
Wheel dry monitoring	Monitoring of coolant centrifugation after spindle in idle condition

Hardware options

External interface	Module GT-S 500 Digital IO
External interface	Module GT-S 600 Analog outputs

GT-S 500 | 510

Digital IO

GT-S 500
GT-S 510



Technical data

Primary function	Digital IO signal for real-time control by PLC/NCU
Power supply	Internal, 5 W
Number of inputs	GT-S 500: 16 – GT-S 510: 0
Number of outputs	GT-S 500: 20 – GT-S 510: 20
Interface type	Clean contact
Common input	24 ±20% Vdc, 0 V
Common output	24 ±20% Vdc, 0 V
Max output current	250 mA (each)
Diagnostic	Wiring control, real time monitoring on HMI

GT-S 600

Analog outputs

GT-S 600



Technical data

Primary function	Programmable analog outputs to export process variables
Power supply	Internal, 10 W
Number of outputs	3
Interface type	0..10V, ±10 V, 4..20 mA, 0..24 mA
Source	Programmable
Sensitivity	Programmable

BALANCER - BALANCING HEADS AND COLLECTORS

BUILT-IN SPINDLE MOUNTING WITH DIAMETER STARTING FROM 26 mm



Flange mounting and wireless remoted collector



Spring lock mounting and wireless remoted collector



Flange mounting and wireless front collector

EXTERNAL MOUNTING ON WHEEL FLANGE

Compensation capacity [gcm]	
Fitting diameter Ø95 mm	Fitting diameter Ø114 mm
230	620
640	1750
1230	3400



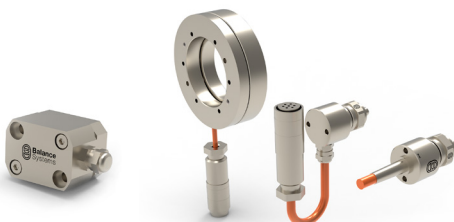
GT-SPE100
Slim profile



GT-TPE100
Thin profile

TOUCH DETECTOR - SENSORS RANGE

AE SENSORS



Static AE

Wireless AE, external spindle mounting



Wireless AE, built-in spindle mounting



Fluid AE sensor (hydrophone)

POWER SENSORS



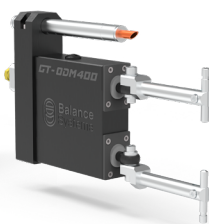
Power sensors

GAUGE - GAUGE HEADS AND ACCESSORIES

GAUGE HEADS



GT IDM 400
Inner diameter gauge head



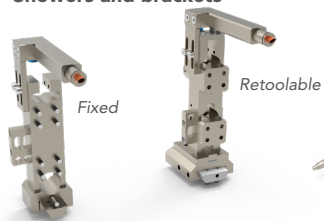
GT ODM 400
Outer diameter gauge head



GT FLEX 400
Modular gauge head

ACCESSORIES (examples)

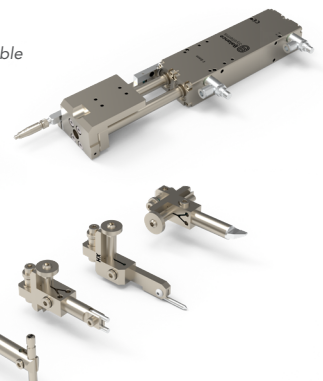
Showers and brackets



Fingers and contacts
Lenght [mm] 50, 70, 100, 120, ...

Slides

Stroke [mm] 50, 75, 100, ...





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optimize your grinding machine



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