Zumbach

SWISS PRIME MEASURING SINCE 1957

High-Tech Measured Value Processor for Ultrasonic Wall Thickness Measurement

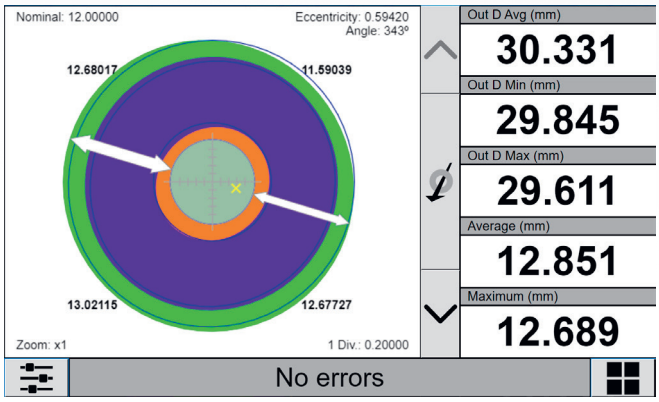
NEW

UMAC CI

Flexible and powerful wall thickness and concentricity measuring solution

The newest UMAC CI processor generation, developed and manufactured by Zumbach, is a compact, high-tech wall thickness data acquisition system that comprises of a processor unit and an associated sensor. The system is intended for use in extrusion lines for measuring wall thickness, eccentricity/concentricity and other relevant parameters.

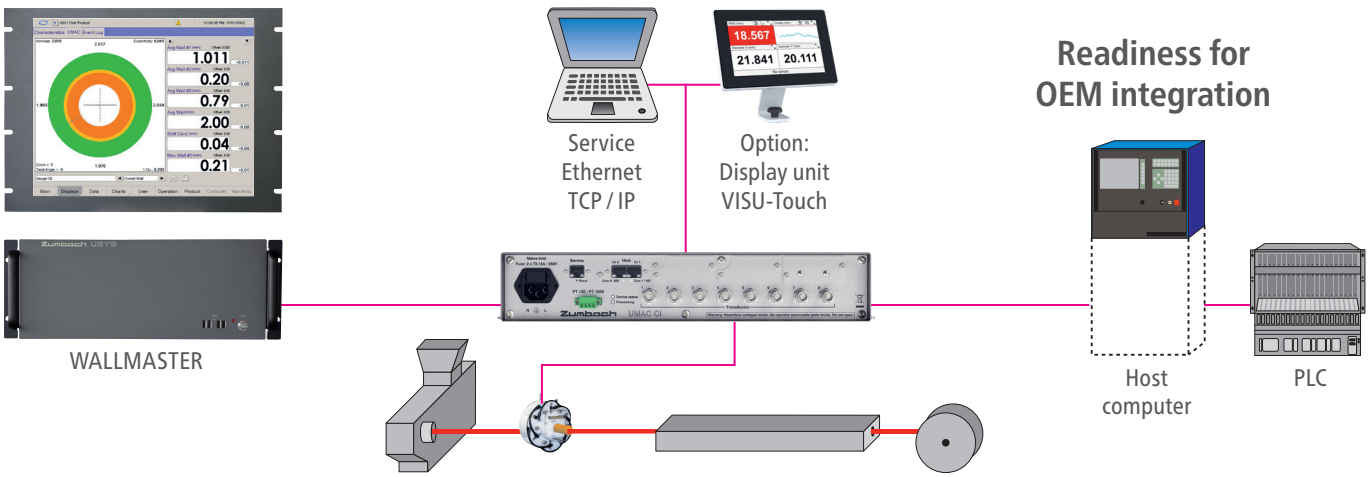
Newest measuring algorithms allow the users an easy integration and setup. The system itself contains a visualisation of the measurements via the embedded Webserver access.



Webserver screen

The measurements can be transferred by Profinet IO, Ethernet TCP/IP, EtherNet/IP, OPC UA or RS communication. Additionally, the well-known WALLMASTER solutions are still available too. Offering with the USYS IPCe processors and HMI software the setup for combining the ultrasonic measurement with additional sensors from Zumbach such as ODAC® laser diameter and ovality gauges, KW lump and neckdown detectors, Sparktester or speed and length gauges.

Connectivity



Readiness for OEM integration

Technical data

Wall thickness	
Range	0.05 mm up to 99.95 mm (.002 – 4 in.), depending on product material
Measurement freq.	1000 Hz per channel
Energy supply	
Mains voltage	100 – 240 VAC, operating range: 85 – 264 VAC typical
Mains frequency	50 / 60 Hz, operating range: 47 – 63 Hz
Power consumption	25 – 35 W typical
Current consumption	1.8 A max.
Fuses	2 fuses inside the appliance inlet: 3.15 A time-lag T, 250 VAC, 5 x 20 mm
Environmental conditions	
Area of application	Indoor use, dry locations only
Ingress protection	Case IP 42 when vertical mounted with front panel downward (protected against objects with > 1 mm diameter, protected against dripping water when tilted < 15°). Else IP 40 (protected against objects with > 1 mm diameter, not protected against water ingress). Front panel: IP 40
Pollution degree	2 (only non-conductive pollution except occasionally temporary conductivity caused by condensation)
Weight	approx. 4 kg (8. lbs)
Interfaces / Connections	
Transducer / Sensor inputs	Number: 1 – 8 (selectable) Pulse voltage: 24 – 400 V Pulse width: 25 – 222 [ns]
Temp. sensor input	PT 100 / PT 1000
Service port	Ethernet TCP/IP, RJ45, 10/100BaseT, PoE (PSE power sourcing equipment, class 3 13 W), galvanically isolated
Host port	UMAC CI-RS: RS-232/-422/-485, 9 pole D-sub male, galvanically isolated UMAC CI-EN: Ethernet TCP/IP, 2x RJ45, 10/100BaseT, galvanically isolated UMAC CI-PN: Profinet IO, 2x RJ45, 10/100BaseT, galvanically isolated, Ethernet/IP, 2x RJ45, 10/100BaseT UMAC CI-EI: EtherNet/IP, 2x RJ45, 10/100BaseT, galvanically isolated
Signalisation	2 LEDs: device status, processing

Transducer holder

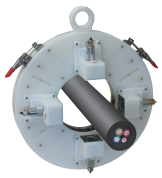
UMAC A8 / A11 / A21 / A28

Model	Meas. points	Diameter range mm	inch
UMAC A8-4K/8K	4 or 8	0.2 ... 8	.008 ... .31
UMAC A11-4K/8K	4 or 8	0.2 ... 11	.008 ... .43
UMAC A21-4K/8K	4 or 8	0.2 ... 21	.008 ... .83
UMAC A28-4K/8K	4 or 8	3.5 ... 28	.138 ... 1.10

K Version – for open trough installations.
V Version – from outside the vacuum tank.

UMAC RZ35 / RZ65

Model	Meas. points	Diameter range mm	inch
UMAC RZ35-4K	4	0 ...35	0 ... 1.38
UMAC RZ35-6K	6	0 ...35	0 ... 1.38
UMAC RZ65-4K	4	0 ...65	0 ... 2.56
UMAC RZ65-6K	6	0 ...65	0 ... 2.56



UMAC Z50 / Z100 / Z180

Model	Meas. points	Diameter range mm	inch
UMAC Z50-4K	4	5 ... 50	.19 ... 1.97
UMAC Z50-6K	6	5 ... 50	.19 ... 1.97
UMAC Z100-4K	4	10 ...100	.39 ... 3.94
UMAC Z100-6K	6	10 ...100	.39 ... 3.94
UMAC Z180-6K	6	25 ...180	.98 ... 7.08

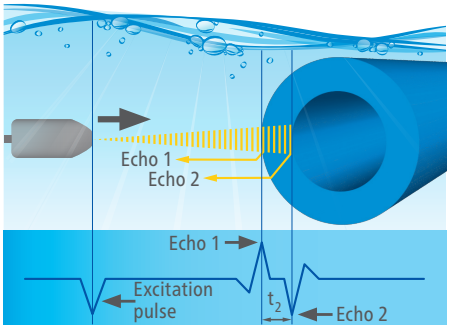
UMAC R

Model	Meas. points	Diameter range mm	inch
UMAC R110-8K	4...8	20 ... 110	.80 ... 4.30
UMAC R180-8K	4...8	20 ... 180	.80 ... 7.09
UMAC R250-8K	4...8	20 ... 250	.80 ... 9.84
UMAC R350-8K	4...8	30 ... 350	1.18 ... 13.78
UMAC R400-8K	4...8	30 ... 400	1.18 ... 15.75

Ultrasonic Measurement Principle

It is based on the time difference (t_2) of the sound echoes from the surface and the inner side of the product. A piezoelectric crystal is excited by a short electrical pulse. The crystal converts electrical energy into mechanical energy, i.e. sound waves. When the sound waves encounter a difference in the propagation medium (for instance when passing from water to a synthetic material), a part of them is reflected back to the crystal (echo).

Wall thickness = Sound velocity of material • t_2 • 0.5



• Technical specifications are subject to change without notice

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