Total Solutions of
Real-time Weld Quality Monitoring
& Measuring Equipments

MONITECH

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INNOBIZ Venture for Tomorrow

Total Solutions of
Real-time Weld Quality Monitoring
& Measuring Equipments

www.monitech.co.kr

A LEADING EDGE OF TOTAL WELD MONITORING & MANAGEMENT SYSTEM

MONITECH

1205MNTD4 Designed by NITO. Print in KOREA May 2012. www.nito.co.kr

A LEADING EDGE OF TOTAL WELD M ONITORING & MANAGEMENT SYSTEM

The company has developed and sold a real-time weld monitoring system since its foundation as Monitech Korea in 1998. As a result, the company has been acknowledged as top in Korea, and worldwide top3 real-time weld quality monitoring solution provider based on its technical capability and excellence of quality.

The company is leading the convergence of IT and welding such as National standard calibration equipment, real-time MIG/MAG/TIG/ SPOT/Micro Projection weld quality measurement system, multi network support type weld monitoring equipment, a hybrid-type ARC/SPOT/FORCE METER equipment, an equipment for measurement and management dedicated for WPS/PQR, real-time Orbital TIG weld quality management system, high-speed camera linked measurement technology, smart-phone application for remote management system, etc.

1998	Established Monitech Korea | Developed weld waveform monitoring system
2000	Registered a patent for resistance welding monitoring system Developed an integrated monitoring system for ARC/SPOT
2005	Incorporated Monitech Co., Ltd. | Registered a patent for TIG weld monitoring system
2007	Registered a patent for weld monitoring device
2008	Designated a promising export SMB(Small and Medium Business)
2009	Developed and launched real-time MIG weld quality monitoring system for muffler manufacturing line Made an agreement for Korea exclusive sales agency of CLARA, France | Designated as an Inno-Biz SMB Certified venture company
2011	Developed multi-communication type ARC/SPOT/DUAL Weld checker Developed/Registered a patent for WPS/PQR measuring system Registered a patent for vision tracking system Established an IT convergence Weld Institute (IWI) | Developed real-time NUT Projection quality evaluation algorithm
2012	Developed handy SPOT checker + force meter Developed a hybrid equipment for SPOT+ force meter/DUO+ force meter Made an agreement for Korea exclusive sales agency of PFEIFER, German Made an agreement for Korea exclusive sales agency of Regular SYSTEMS, Sweden

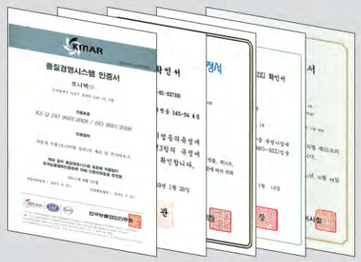
TECHNOLOGICAL KNOW-HOW OF MONITECH

- Certificate for the special material and part corporation 2010. 1. 20
- Quality management system certification 2011. 8. 25
- Acknowledgement of Affiliated Lab 2011. 8. 23
- Re-Assignment as INNO-BIZ Company 2010. 1. 13
- Venture Company Re-Confirmation 2011. 10. 28

INTELLECTUAL PROPERTY RIGHTS

- Patent Registration No. 10-0525013
- Patent Registration No. 10-0561087
- Patent Registration No. 10-0760655
- Patent Registration No. 10-0958038
- Patent Registration No. 10-1017503
- Patent Registration No. 10-1081750
- Patent Registration No. 10-1125216
- Registration of Design No. 30-0533640
- Registration of Design No. 30-0533638
- Registration of trade marks NO. 40-0894512

KMAR · KAB · INNOBIZ · Venture for Tomorrow



MAJOR CLIENTS

AUTOMOBILES
KIA MOTORS · DAS · DONGHEE · MANDO · SACHS · (주)삼보모토스 · SEWON · SEJONG · SEJONG INDUSTRIES CO.,LTD · Wooshin · HYUNDAI · Johnson Controls · HYUNDAI Rotem · HWASHIN · 신락금업

ELECTRONICS
SAMSUNG 삼성전자 · SAMSUNG 삼성테크윈 · 삼성SDI · SAMSUNG · 태성전자 · OHSUNG · Rinnai · LG전자 · LG화학 · LG디스플레이

SHIPBUILDING AND HEAVY INDUSTRIES
DOOSAN 두산건설 · DOOSAN 두산인프라코어 · DOOSAN 두산테크텍 · SAMSUNG 삼성중공업 · 한진중공업 · posco · bnB 미주제강 · VOLVO · SeAH · DSME · stx 조선해양 · 현대삼호중공업 · HYOSUNG · 동양철관주식회사 · 웸텍 주식회사 · DK 동국제강 · SUNGJIN

WELDING MATERIALS
CHOSUN WELDING · KOBELCO · KISWEL · 대우종합기계 · 한국웰드텍(주) · 세아 ESAB · (주)삼영금속 · POSTECH Supertech

UNIVERSITIES AND RESEARCH INSTITUTES
한국전기연구원 · 부경대학교 · 부산대학교 · KITECH · 한국폴리텍대학 · IAE고등기술연구원 · 전남대학교 · 동의대학교 · 한국항공대학교 · RIST 포항산업과학연구원 · POSTECH · GIFT

AGENCY
CLARA VISION · Regula · PFEIFER

Total Solutions of Real-time Weld Quality Monitoring & Measuring Equipments

Patent Registration No.10-0525013 No.10-0561087

MULTI Welding Expert

Exclusive weld waveform analyzer for the weld research and quality management

MAJOR FEATURES

- Real-time waveform analysis for ARC / RESISTANCE / SAW TIG / PLASMA welding
- Max. 200,000 Cycle/sec waveform sampling
- Exclusive for waveform analysis
  (Expansion and reduction of waveform, various calculations, analysis of comparative waveform, analysis of dynamic resistance, etc.)
- 15"LCD, embedded PC for industrial purpose & optimal usability for portable usage
- Various output ports (USB X 4, LAN X 1, RGB X 1)

MAJOR USES

- Essential equipment for weld related researches, process improvement and management
  (A basic equipment supplied for most of large corporations, research institutes, universities)
- Embedded S/W dedicated for collection of various weld result waveforms and easy analysis
- Best solution to identify problems of weld process and improvement status (6 Sigma management, etc.)
- Base equipment for internal calibration of weld machines and various measuring instruments
- Free, continuous S/W update
- In case of research purpose, various combinations and manufacturing of measurement channel (Max. 8 channels)

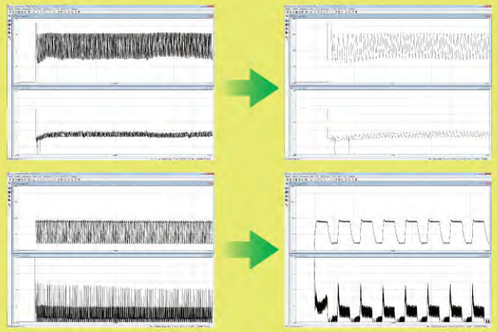
SPECIFICATION

ITEM	ARC / SAW	RESISTANCE	TIG / PLASMA
Model name	WEM-3000 / 6000 / 7000		
Size (mm)	460(W) X 325(D) X 170(H)		
Weight (Kg)	About. 8Kg		
Power source	AC 100/220V, 50/60Hz (Free Vlotage)		
Measuring channel	Current, voltage, feeding speed, etc	Current, voltage, force, etc	Current, voltage, feeding speed, etc
Current range	Max. 2,000A (AC &DC)	Max. 200kA (AC, DC &Inverter DC)	Max. 2,000A (AC &DC)
Voltage range	Max. 100V (200V possible)	Max. 10V (20V possible)	Max. 100V (200V possible)
Feeding speed	Max. 2,800CPM	-	Max. 2,800CPM
Force	-	Max. 2Ton (10kgf, 30kgf, 100kgf,1Ton, 2Ton)	-
Others	Onto one equipment, ARC+RESISTANCE+TIG(PLASMA) can be combined. ■ ARC+RESISTANCE ■ ARC+TIG(PLASMA) ■ RESISTANCE+TIG(PLASMA) ■ ARC+RESISTANCE+TIG(PLASMA) It can be linked with other high-speed camera. (optional)		

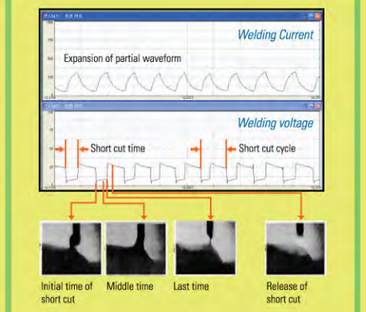
EXAMPLES OF SOFTWARE FUNCTIONS

- Overall performance evaluation of welding machine
- Workability evaluation of welding materials
- Evaluation of arc stability
- Evaluation of wire feedability
- Automatic calculation of short circuit times (normal/abnormal)
- Evaluation of ARC START characteristics
- Evaluation of pulse waveform at pulse welding
- Automatic creation of dynamic resistance graph
- Real-time force change of resistance welding (optional)
- 4 types of measurement method and Autozero function
- Analysis, comparison, reduction and expansion of waveform
- Long time and continuous measurement (related with sampling number)
- Measurement value conversion into text and Excel

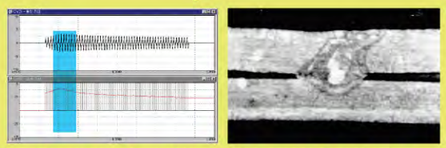
Example of ARC / RESISTANCE waveform expansion



Short circuit waveform of arc welding



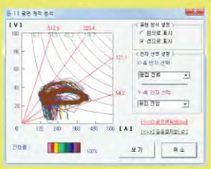
waveform of resistance welding



→ *Generation of expulsion due to increase of peak value of dynamic resistance*

Waveform calculation by range

Current-Voltage distribution curve



MAJOR CLIENTS

HEAVY INDUSTRIES	POSCO Research Institute, Samsung Heavy Industries Co., Ltd., Hyundai Heavy Industries Co., Ltd., Hyundai Steel, Dongkuk Steel Mill Co., Ltd., VOLVO, Hanjin Heavy Industries & Construction Co., Ltd., Doosan Infracore, STX Offshore and Shipbuilding Co., Ltd., DSME, SPP Shipbuilding, STX (Dalian Shipyard)
AUTOMOBILES ELECTRONICS	Hyundai Motor Company, Kia Motor Company, Sejong Industrial Co., Ltd., Hwashin Co., Ltd., Donghee, LG Electronics, Samsung Electronics Co., Ltd., Nexcon Technology, Power Logics, Teckraf, SKME, Samsung SDI (Vietnam factory)
RESEARCH INSTITUTES UNIVERSITIES	KITECH, RIST, Pukyong National University, Hanyang University, Yonsei University, Chonnam National University, Chonbuk National University, Korea Polytechnics, POSTECH GIFT, Dongeui University, Korea Aerospace University, Korea Electrotechnology Research Institute, Institute for Advanced Engineering
WELDING MATERIALS WELDING EQUIPMENT	KISWEL, Chosun Steel Wire, Seah ESAB, Hankook Weldtech, KOBE Welding, Hyosung Power & Industrial System, Maeil Precision Machinery, Easywel

Total Solutions of Real-time Weld Quality Monitoring & Measuring Equipments

ARC · SPOT Welding Expert
DUO(ARC+SPOT)

Patent Registration No. 10-0561087 · Application No. 10-2012-0018000

Weld checker for real-time ARC and resistance welding quality management

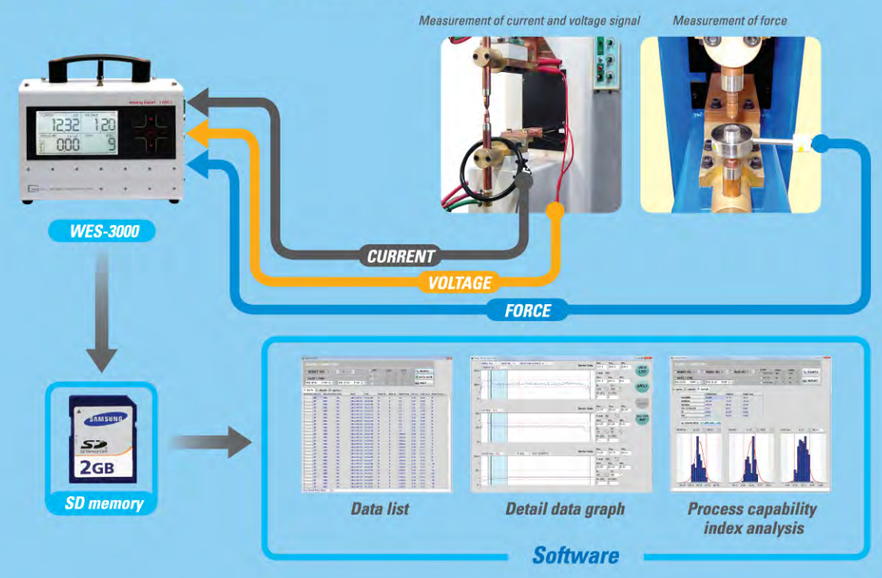
MAJOR FEATURES

- Automatic storage, analysis and evaluation function of all welding data in large SD memory (including S/W)
- Best for real-time welding data management
- Concurrent support of various communication methods (Wi-Fi, LAN(TCP/IP), RS-485, RS-232; at network composition)
- Input and output port embedded (each 8 port)
  - INPUT : car type, series, start and end signal
  - OUTPUT : Alarm light, buzzer, interlock signal
- Various data analysis and automatic report output function included

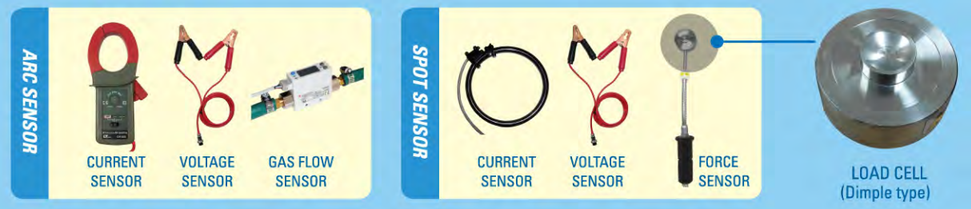
MAJOR FEATURES

WEA-3000(ARC)	WES-3000(SPOT)	WES-3000F (SPOT + Force meter)	WED-3000 (ARC + SPOT)	WED-3000F (ARC + SPOT + Force meter)
Current, voltage, gas flow, welding time, Start part deletion, upper and lower limit management, etc.	Current, voltage, pneumatic, welding time, resistance value, up slope automatic deletion, upper and lower limit management	WES-3000 function + digital force meter	Both functions for ARC and SPOT included	Both functions for WED-3000 + digital force meter included

APPLICATION OF WELD CHECKER SERIES (IN CASE OF SPOT WELDING)



MEASUREMENT SENSORS



MAJOR FUNCTIONS OF SOFTWARE

- Automatic creation of data DB and statistical analysis management for all welds
- Upper and lower limit management of real time data
- Automatic analysis of average, standard deviation, Cp, Cpk
- Average value marked in graph
  Display of data value for 3CH at mouse click
- Search of detail data and graph by bead (in case of ARC)
- Final report creation and output

SPECIFICATION

*Optional **In case of one network, it is provided at the same time. *** Choose 1 from gas flow or pneumatic.

Model name		WEA-3000	WES-3000	WES-3000F	WED-3000	WED-3000F
Process		Arc	Resistance	Resistance	Arc + Resistance	Arc + Resistance
Current range		Max. 2,000A	Max. 200kA	Max. 200kA	Arc : Max. 2,000A Resistance : Max. 200kA	Arc : Max. 2,000A Resistance : Max. 200kA
Voltage range		Max. 100V	Max. 10V	Max. 10V	Max. 100V	Max. 100V
*Gas flow		○	-	-	○***	-
Force		-	-	○	-	○
*Pneumatic		-	○	-	○***	-
Measurement welding machine		AC, DC, Inverter DC, Rectifier type DC, Condenser type DC				
Measurement frequency		3,200 Cycle/sec				
S/W		WeldManagerViewer				
Size (mm)		220(W) X 189(D) X 110(H)				
Display (mm)		110(W) X 59.5(H) Graphic LCD				
Weight (Kg)		2.5				
Power source		AC100 / 220V, 50 / 60 Hz				
Data storage		2 Giga SD MEMORY CARD				
Communication type **	RS-232	○	○	○	○	○
	RS-485	○	○	○	○	○
	LAN	○**	○**	○**	○**	○**
	Wi-Fi	○**	○**	○**	○**	○**

MAJOR CLIENTS

Hyundai Motor Company (Ulsan), Sewon Co., Ltd., Hwashin Co., Ltd., ZF Sachs Korea, Chasys, Dongyang Steel Pipe Co., Ltd., ROTEM, Shinhan Electro Mechanics, Daedong Hi-lex, Gyungin Industry, Joyang Industry, Sungil Industry Co., Ltd., Duckshin Housing, Kwang Myung Industry Co., Ltd., Mando Corporation, DSC (Gyeongju)-Czech-China), Ajin Car Intech, ECS Korea, Hanjung Co., Ltd., Manyoung Engineering, Younil Metal, Woojin Industry, Buyoungsa Co., Ltd., A&P Crebiz, Daehan STS pipe, Susung Tech Co., Ltd., Siheung Metal, Daesin Steel, Woori industry, etc.

Total Solutions of Real-time Weld Quality Monitoring & Measuring Equipments

Patent Registration No. 10-0525013 No. 10-0561087 No. 10-0760655

INLINE Welding Expert

Real-time network ARC and resistance welding quality evaluation and management system

MAJOR FEATURES

- Concurrent management of several welding lines in one system
  Production information mgmt. function can be included
- Max. 20 (or above) per one system can be controlled
- Various communication methods are provided : RS-485, LAN, Wi-Fi, etc.
- Real-time weld quality evaluation and max./min. management + Weld data storage and analysis + Cp, Cpk mgmt.
- Various data analysis functions (S/W) and automatic report creation and output function
- Remote data management and system access

MAJOR USES

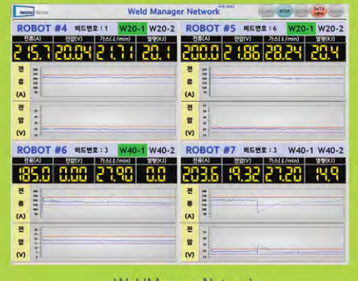
- Real-time quality evaluation and data management of automated welding process for automobiles parts, electronic parts, ESA (Electric/Electronic Sub Assembly), etc.

SPECIFICATION

*Optional

ITEM	ARC	RESISTANCE
Size (mm)	Rack case : 600(W) x 650(D) x 1600(H) Kiosk type and various compositions supported.	
Power source	AC 100/220V, 50/60Hz (Free Voltage)	
Measurement channel	Current, voltage, gas flow* etc	Current, voltage, pneumatic* etc
Current scope	Max. 2,000A	Max. 200,000A
Voltage scope	Max. 100V	Max. 10V
Option*	Gas flow, 1 to 50ℓ/min	Pneumatic of electrode cylinder. Max. 1Mpa
Real-time quality evaluation	Basic supply	Development and application of real-time quality evaluation algorithm suitable for process*

SOFTWARE (NETWORK MONITORING S/W MAIN SCREEN)



WeldManagerNetwork

WeldMonitor

MAJOR FUNCTIONS

Software #1 : WeldManagerNetwork®

- Data search : By Robot, Model, Bead, and date
- Comparison and analysis of both pass data
- Time series result data analysis
- Cp, Cpk process capability analysis (6 sigma management)
- Print out of final report

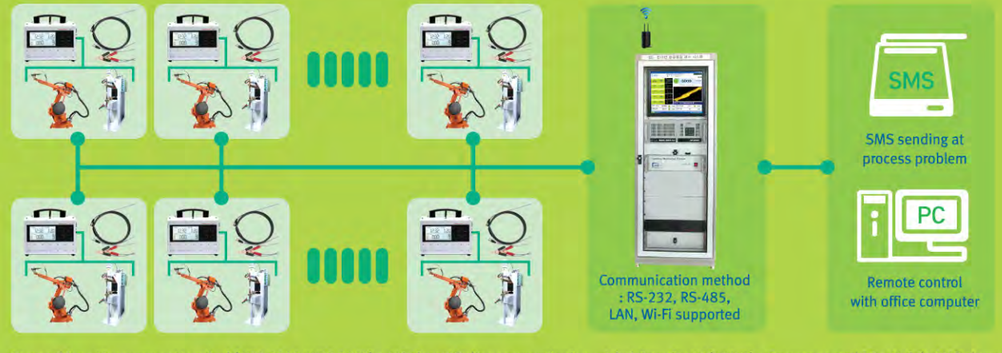
Software #2 : WeldMonitor®

- Omission of weld spot, production counter, TIP dressing, TIP change
- Data search
  - Search by date, series, NG, model
  - Current, voltage, resistance waveform view by bead
- Time series result data analysis
- Cp, Cpk process ability index analysis (6 sigma mgmt.)
- Automatic output of final report

Software #3 : WeldManagerServer®

- Remote management of several WeldManagerNetworks

REAL-TIME INLINE NETWORK SYSTEM COMPOSITION (WELDMANAGERNETWORK APPLICATION CASE)



Composition : Measurement terminal (WEA-3000, WES-3000) + Wireless·Wireline communication + Administrative PC(INLINE) + Remote control PC + Mobile SMS alarm

MAJOR CLIENTS VOLVO(NGW), Hyundai Motor Company(Asan), Hwashin Co., Ltd.(Yeongcheon, U.S.A.), Sejong Industrial Co., Ltd.(Ulsan, Czech, Slovakia, U.S.A., China, etc), Sejung Co., Ltd., Sewon Co., Ltd., Kumkang Co., Ltd., Shilla Industrial Co., Ltd., Joeun Tech, Wooshin Industrial Co., Ltd., Ohsung Co., Ltd., Shinsung Deltatech Co., Ltd., Junggwan Tech., LG Electronics, Samsung Electronics Co., Ltd., Samsung Gwangju Electronics, Beijing Subway, Hyundai Hysco, Hankook Capability Co., BMC Co., Ltd., Joeun Tech, Iljin Industry, Chasys, HSL Electronics, Daekook INT, ROTEM, etc.

Total Solutions of Real-time Weld Quality Monitoring & Measuring Equipments

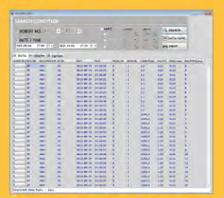
Measurement equipment for MICRO resistance welding (SPOT/Projection)

MICRO welding expert

MAJOR FEATURES

- Automatic management of current, voltage, and force(optional) data at Micro SPOT, Projection welding
- Max. 50,000 Cycle/sec waveform samplings
- Software for data analysis
  (Measurement value analysis, time-series graph, Cp, Cpk, automatic report creation, etc.)
- Control of upper and lower limit at each pulse in multi pulse welding stages pulse (1 to 9 stages)
- Automatic exclusion of up/down slope at measurement
- Resistance weld process management with micro second base
  (Condenser DC, Inverter DC, etc.)
- Each 8 I/O and 4 communication methods (TCP/IP, Wi-Fi, RS-485, RS-232)

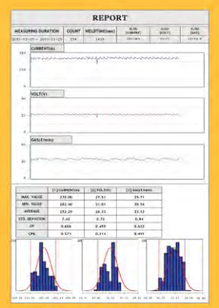
SOFTWARE



Search of data by model, bead

Display of graph including average, data
- Display of data value for 3CH at mouse click

Process capability index Cp, Cpk



Final report storage and output function

SPECIFICATION

*Optional
**In case of only for network, provided at the same time

Model name	WEL-3000
Process	Micro SPOT & Projection
Current scope	Max. 20kA, 10kA, 5kA (3 stages range defined)
Voltage scope	Max. 10V
force*	Max. 300N, 1kN, 2kN
Measurement weld machine	AC, DC, Inverter DC, Rectifier type DC, Condenser type DC
S/W	Software for data analysis provided
Size(mm)	220(W) X 189(D) X 110(H)
Weight(Kg)	2.5
Display	110mm(W) X 59.5mm(H) Graphic LCD
Power source	AC100 / 220V, 50 / 60 Hz
Data storage	2 Giga SD MEMORY CARD
Communication type	RS-232, RS-485, LAN**, Wi-Fi**

MAJOR USES

- Secondary cells and module for angle type, and cylinder type smart phone and mobile phone
- Smart card module
- Suitable for weld quality and data management of ESA production process

HANDY Type weld checker for SPOT + FORCE measuring

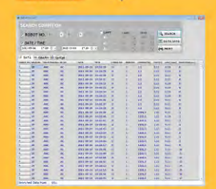
welding expert HANDY

MAJOR FEATURES

- One equipment can measure current, voltage and force of resistance weld at the same time
- A size improves its portability
  Use of embedded charging battery
- Selection of 4 lines Graphic LCD : All measurement results can be checked in one screen
- SD Memory and internal data storage function are included
- Dedicated software for data control and analysis is provided
- Perfect support of AC, single-phase & three-phase rectifier type DC, Condenser type DC, inverter DC
- Print-out of waveform by linking with an oscilloscope
- It can check max. force or instantaneous value

MAJOR USES

- Necessary equipment for weld quality control when producing automobile parts and electronic products
- Excellent performance when actual output of welding equipment is periodically checked and maintained
- It can be used for internal calibration of welding machines



Analysis of measured current, voltage and force

SPECIFICATION

Model name	WEH-3000
Size (mm)	105(W) X 170(D) X 45(H)
Weight (Kg)	0.8
Input (charging/use)	AC100/200, 50/60Hz(Free Voltage)
Measurement channel	Current, voltage, cycle time (welding time), welding force
Current measurement range	AC : ±200 kA, DC : 1 ~ 200 kA
Voltage measurement range	AC : ±10 V, DC : 0 ~ 10 V
Force measurement range	Max. 300N, 1kN, 2kN, 10kN, 20kN (Selectable at order)
DATA storage	SD Memory

Total Solutions of Real-time Weld Quality Monitoring & Measuring Equipments

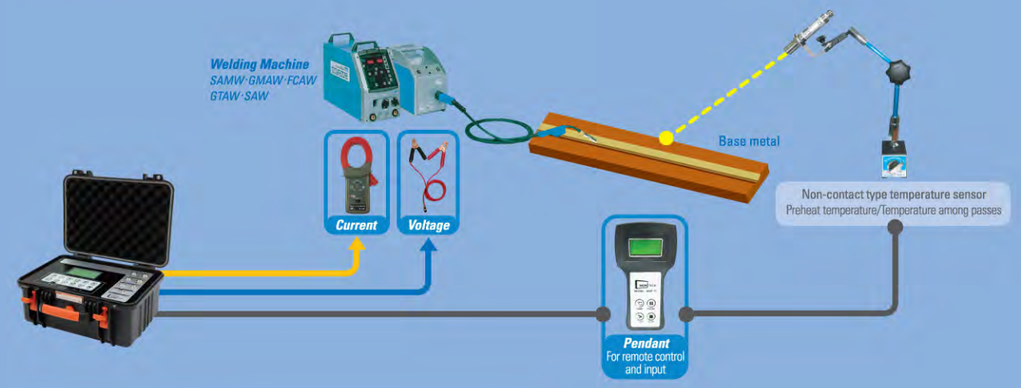
Patent Registration No. 10-1081750 No. 10-1125216

WPS Welding Expert

Automatic measurement, record and analysis equipment for WPS/PQR

MAJOR FEATURES

- Only one worker can conduct precise welding up to 500 pass and collect data
- SMAW, GMAW, GTAW*, FCAW, SAW, TANDEM weldings are possible(GTAW is option)
- Automatic control of current, voltage, welding speed, heat input, preheat, inter-pass temperature (advanced input of welding place)
- Current, voltage, heat input distribution graph and data analysis function by each pass
- Automatic report output and Excel print out of record result
- High capacity rechargeable battery included (18,000mAh)



SPECIFICATION

*Optional

ITEM	WELDING EXPERT WPS
Model name	WEW-6000
Size (mm)	415(W) X 325(D) X 195(H)
Weight (Kg)	5.5
Applicable process	SMAW, GMAW, GTAW*, FCAW, SAW(TANDEM Available)
Max. number of Pass	Consecutive measurement and storage of up to 500 pass per one test specimen
Data inquiry	Inquiry of dedicated LCD (main body) or inquiry and analysis in dedicated S/W
Data storage	Automatic storage of 2 Giga SD Memory
Measurement channel	Current, voltage, welding speed, time, heat input, preheat temperature, inter-pass temperature management
Product composition	Main body + Pendant + Sensor + S/W

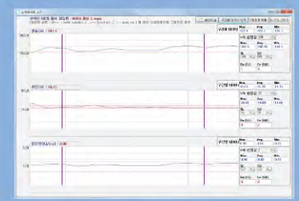
MAJOR USES

- Essential equipment in nuclear power plant industries, chemical plant, shipbuilding, heavy industries, steel pipe, wind force generation, etc.
- The most reliable WPS, PQR data acquisition is possible
- It can be used for basic equipment for internal calibration of welding machine

MAJOR FEATURES

- View DB LIST: Bead number, interpass temperature, current value(Max, Min, Ave), voltage value(Max, Min, Ave), Welding speed, Heat input(Max, Min, Ave)
- View detail data: It displays a graph for one bead to control the upper and lower limit and calculate the range
- It can be saved into Excel file
- WPS/PQR record document can be printed

DB LIST



DETAIL DATA

WPS/PQ Record output

- Customized recording document can be printed out using the measured data

Welding Record of Procedure Qualification

시 험 용 접 기 록 서

PQ Test No. :

Page of

Bead No.	Temp (℃)	Amps(A) MAX	Amps(A) MIN	Amps(A) AVE	Volt(V) MAX	Volt(V) MIN	Volt(V) AVE	Speed (cm/min)	Heat Input(KJ/cm) MAX	Heat Input(KJ/cm) MIN	Heat Input(KJ/cm) AVE
1	156	363.7	226.5	341.7	37.16	30.3	36.75	112.6	7.1	3.65	6.69
2	179	370.6	321.9	344.2	37.21	33.14	36.85	91.5	8.87	7.11	8.31
3	205	356.7	302.1	332.2	37.46	34.86	37.06	76.9	10.24	8.8	9.6
4	232	391.4	342.5	366.7	42.73	40.65	40.98	101.2	9.43	8.38	8.9
5	219	407.9	335.4	377.9	45.95	35.37	40.87	69.2	14.28	10.38	13.38
6	224	412.2	351.3	390.3	40.91	37.54	40.62	64.2	15.54	12.31	14.8
7	249	0	3000	340.8	0	150	45.52	86456.3	0	0.31	0.01
8	222	424.6	359.8	397.9	41.69	38.14	40.55	60	17.1	13.71	16.13
9	263	404.6	331.7	383.6	43.06	39.33	40.72	55.6	17.63	14.07	16.85
10	205	421.6	277.5	389.4	43.21	38.14	40.73	54.6	18.65	11.61	17.41
11	237	422.4	251.7	385.4	52.69	40.25	40.84	54.6	18.67	13.3	17.28
12	124	446.4	376	417.5	44.42	43.3	43.89	53.2	21.88	18.82	20.65
13	180	429	257	397.2	43.29	37.75	42.9	49.5	22.13	11.74	20.63
14	195	440.2	366.8	397	44.5	41.92	42.87	49.4	22.61	19.22	20.65
15	247	0	3000	342.2	0	150	48.73	82496.5	0	0.32	0.01
16	221	450.5	373.4	405.8	43.28	42.36	42.83	50.2	22.79	19.3	20.77
17	264	464.1	228.1	406.6	43.14	32.97	42.8	48.2	24.34	9.35	21.65
18	260	433.5	369	400.2	44.52	42.22	42.85	48.5	22.68	19.69	21.18
19	199	486.1	365.2	414.7	44.49	41.2	42.68	45.2	26.86	19.93	23.46

Pass Sequence :

Welding Machine Brand Name :
Welding Process :
Coupon Size :
Position :
Material Spec. :

Polarity :
Filler Metal Type :
> AWS class :
> Size :
> Lot No. :

Shielding Gas(es) :
Gas Flow Rate(l/min) :
Tungsten Electrode :
Flux Type :

Welding Engineer :
Welder :
Date :

MAJOR CLIENTS

Doosan Heavy Ind., Doosan Mecatec, Sungjin Geotec Co., Ltd., etc.

Total Solutions of Real-time Weld Quality Monitoring & Measuring Equipments

Portable resistance weld force meter

FORCE welding expert

Algorithm development of weld quality monitoring system

Weld quality monitoring system

MAJOR FEATURES

- Its small size and lightness make the portability easy
- Its simple use method makes everyone easily use
- Instantaneous value and holding function by change of force
- Automatic holding of max. force
- Alarm by setting the upper limit at the measurement
- Automatic reset at the measurement of the upper limit
- Perfect noise solution at servo gun

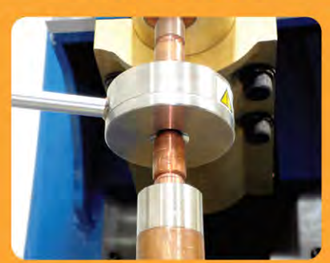
MAJOR USES

- Force of SPOT welding machine line in automobiles·electronic industry

SPECIFICATION

Model name	WEF-1000
Measurement scope	Max. 300N, 1kN, 10kN, 20kN (Selectable at order)
Nonlinearity	0.5% R.O
Safe Overload	150% R.O
Accuracy	2% F.S
Number of display digit	1 decimal place
Major functions	Peak hold function
Load cell dimension	52(D) X 14(H) X 355.5(L) mm
Power supply	1.5 V AAA Battery X 4

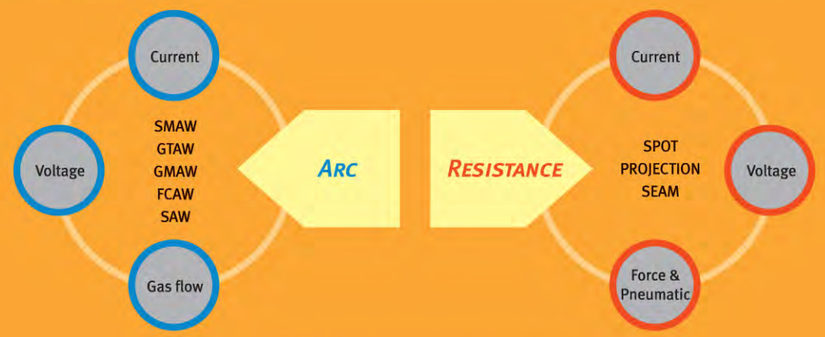
Upper picture of load cell



Lower picture of load cell

WHAT IS A REAL-TIME WELD MONITORING?

It refers to the technology that expects, evaluates and manages the quality of welding through real-time measurement and result analysis.



Real-time measurement with various sensors suitable for each weld process

Stage 1: Measurement DATA DB

WEA-3000 / WES-3000 / WED-3000

- Storage of average value of current, voltage, etc in weld processes
- Management of max. and min. limit

Stage 2: Weld quality management system

Welding Expert : INLINE

- Concurrent measurement of several welding machines and management of maximum and minimum of measured values
- Measurement of automatic trigger by linking start signal by each weld bead and weld-series signal with PLC.
- Link with main PC using various communication methods
- Management of upper and lower limit with dedicated S/W, external output at NG generation, automatic DB of measured value, Data analysis

Stage 3: Weld quality evaluation system

Welding Expert : Intelligence

- In actual welding site, it is almost impossible to identify inferior goods only with maximum and minimum control of average current and voltage!
- After analysis of various inferior patterns in working site, an algorithm for real-time evaluation can be developed and applied to central monitoring software. Then the probability of inferior decision can be increased by six times!
- To raise the quality decision capability of the algorithm, it is necessary to analyze your inferior types in your working site at the beginning time under mutual cooperation.

Monitech Co., Ltd., which has the specialty in real-time weld quality evaluation management is operating IWI that provides the world first and world-level real-time weld quality evaluation and various control tools. If you need a weld quality evaluation solution which is the most suitable for your company, please contact us any time.