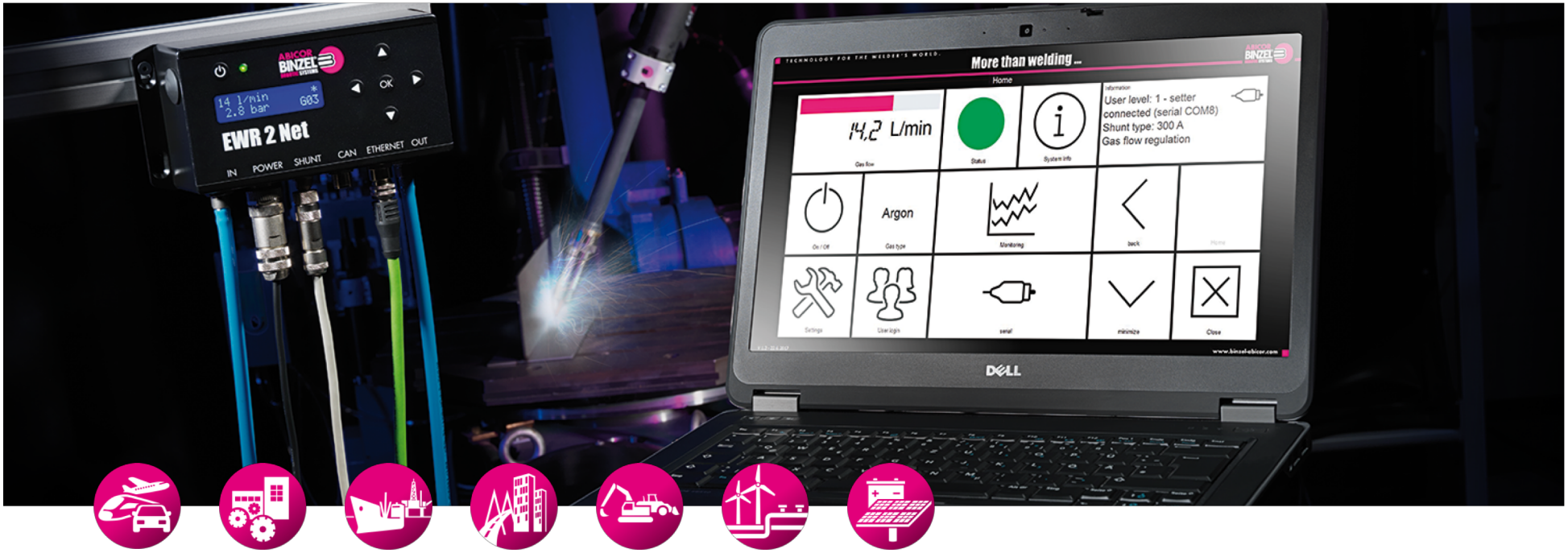
TECHNOLOGY FOR THE WELDER´S WORLD.



Webinar:

How Electronic Gas Management Cuts Cost & Improves Production

ABICOR BINZEL® ROBOTIC SYSTEMS

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TECHNOLOGY FOR THE WELDER´S WORLD.

How Electronic Gas Management Cuts Cost & Improves Production

Host and Panel Speaker

Matthew Sciannella
Director of Marketing
ABICOR BINZEL USA, Inc.

Scott Huber
Key Accounts Manager, Sensors & Robotics
ABICOR BINZEL USA, Inc.

How Electronic Gas Management Cuts Cost & Improves Production

Agenda!

- Cost overview for an example weld seam
- Overview of different gas saving systems
- What is Electronic Gas Management?
- Device Components & Overview
- Software Monitoring (the secret sauce)
- CASE STUDY: Con-Ag Manufacturer
- CASE STUDY: Automotive Supplier
- CASE STUDY: Automotive OEM
- Wrap
- Questions?

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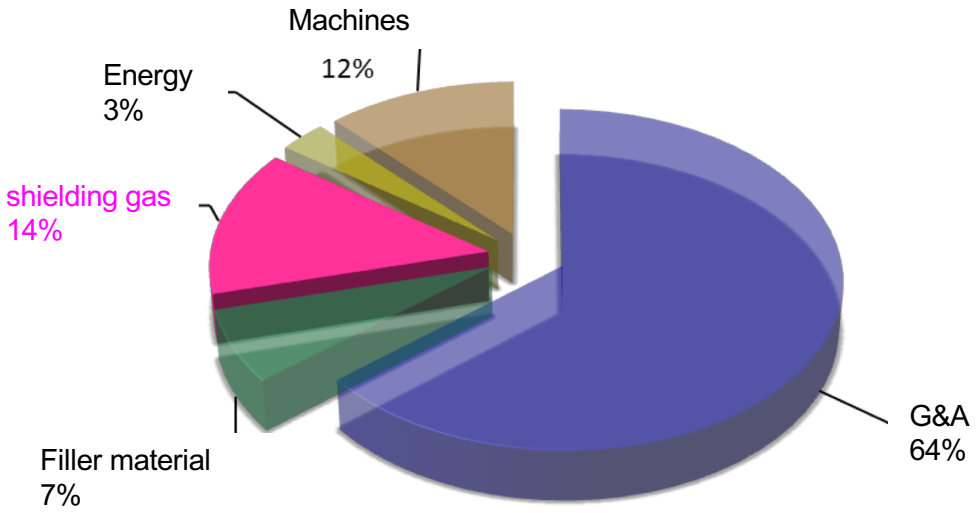
How Electronic Gas Management Cuts Cost & Improves Production

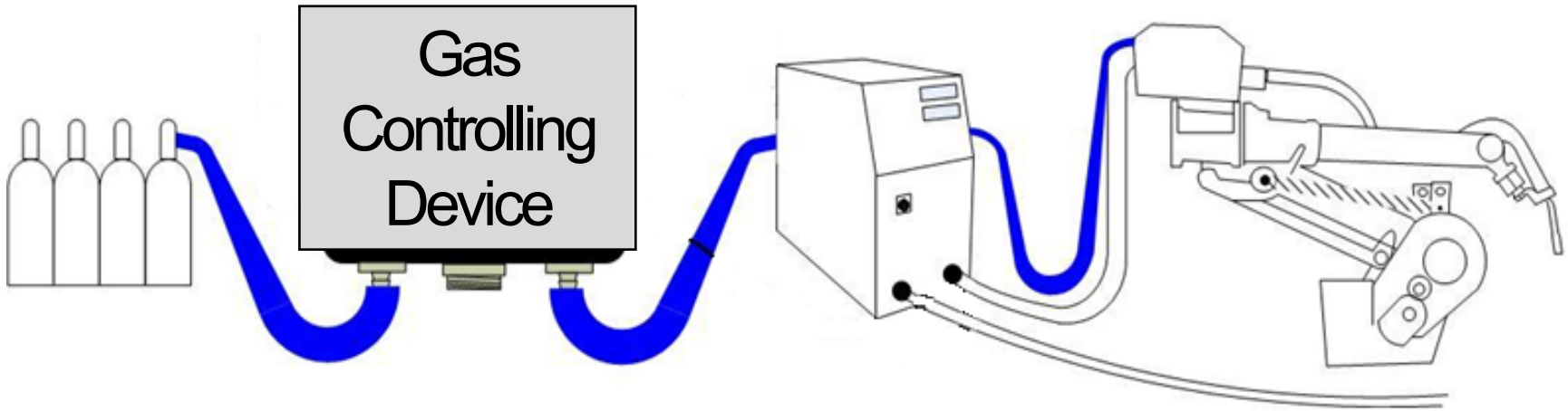
Weld seam cost breakdown



Shielding gas costs are the only costs that can be reduced without reducing weld quality!

How Electronic Gas Management Cuts Cost & Improves Production

Typical gas delivery system



Shielding gas costs are the only costs that can be reduced without reducing weld quality!

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How Electronic Gas Management Cuts Cost & Improves Production

Comparison of Different Gas Saving Systems

Overview of different gas saving solutions

Flow Meter

Orifice

Hose

Electronic

Electronic gas management combines the advantages of previous mechanical saving systems while also being a calibrated gas control unit with a closed gas control circuit.

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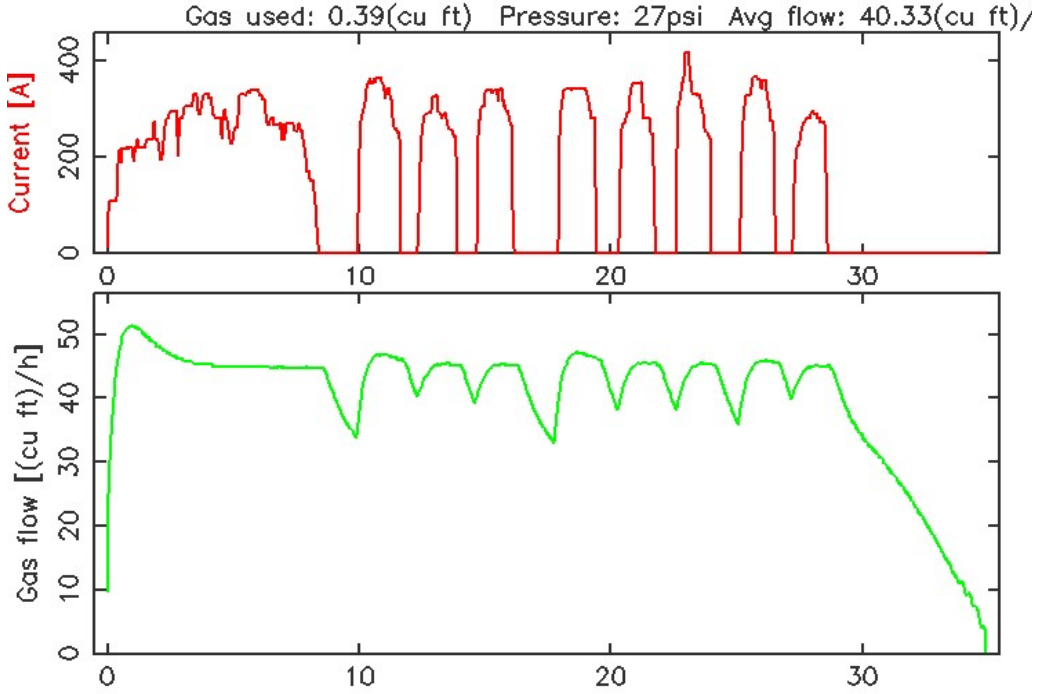
Comparison of Different Gas Saving Systems

Flow Meters



Flow Meters connect to gas supply and regulate gas to achieve proper flow rate.
Difficult to measure gas savings over any period of time.
Limits max gas flow based on setting.

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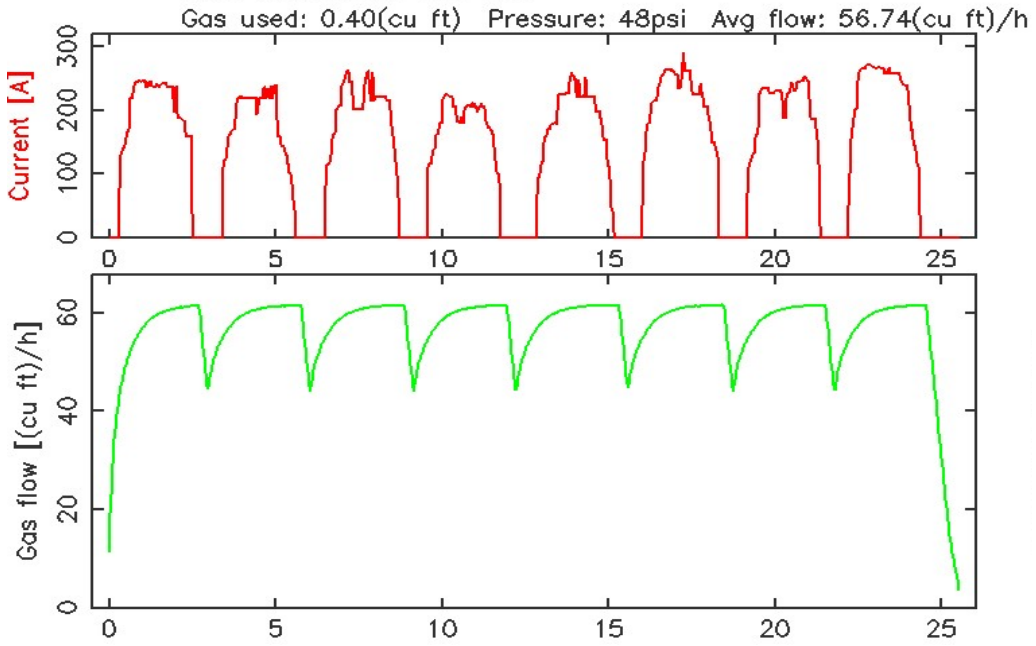
Comparison of Different Gas Saving Systems

Orifice



Orifice eliminates surges of gas at the weld start.
Response time to achieve correct flow is 1 – 2 seconds.
Does not allow for proper gas coverage at the start.

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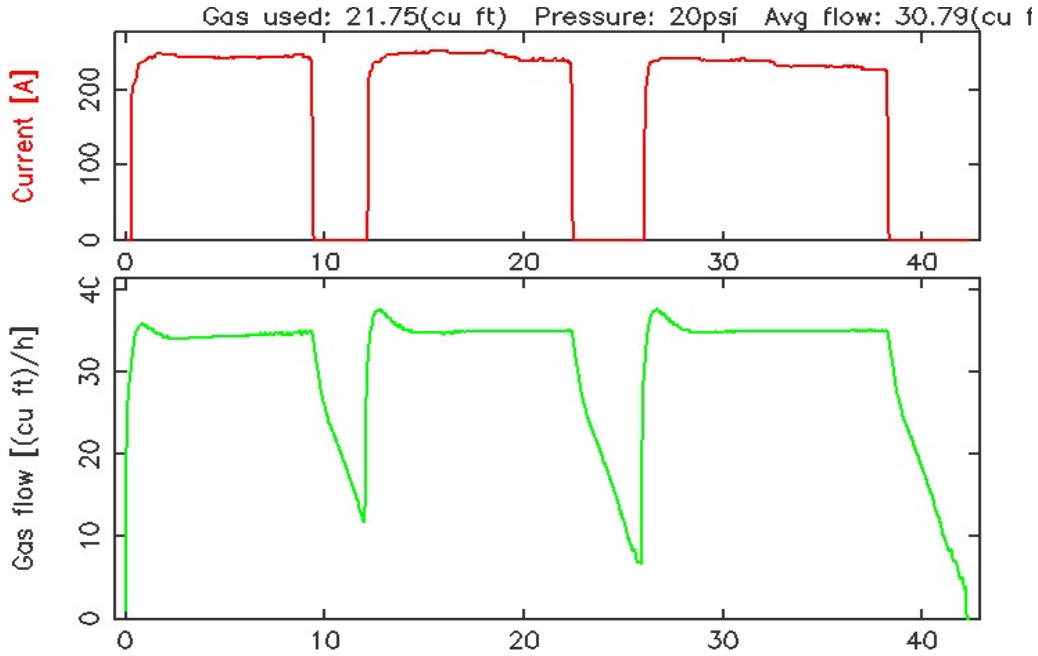
Comparison of Different Gas Saving Systems

Hose



Hose is designed to have a fixed flow at either end.
End with a greater flow removes the low flow issue at the arc start.
Other end is designed to maintain the pre-set flow rate.

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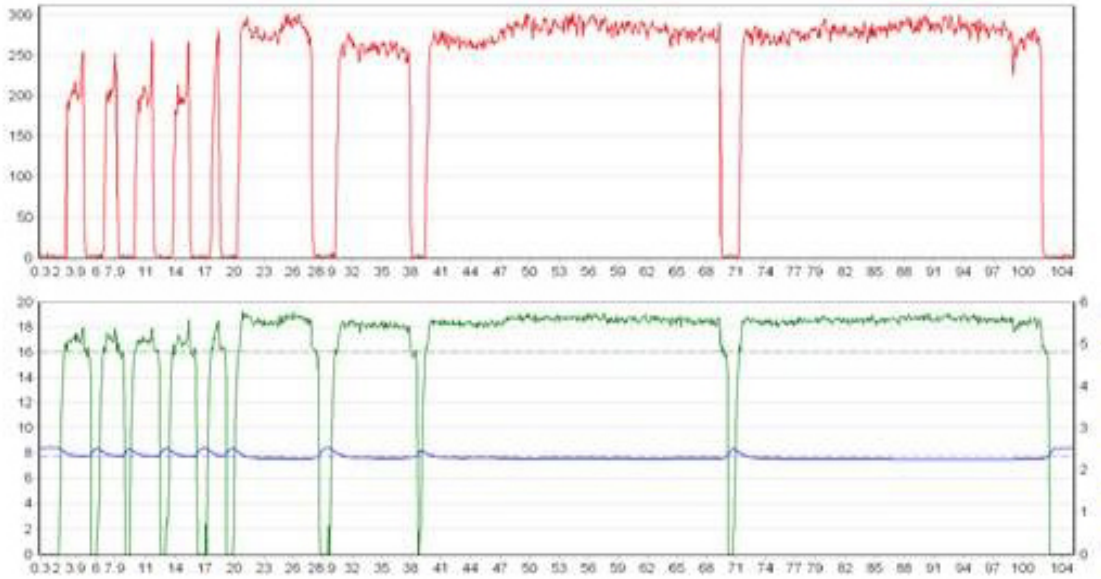
Comparison of Different Gas Saving Systems

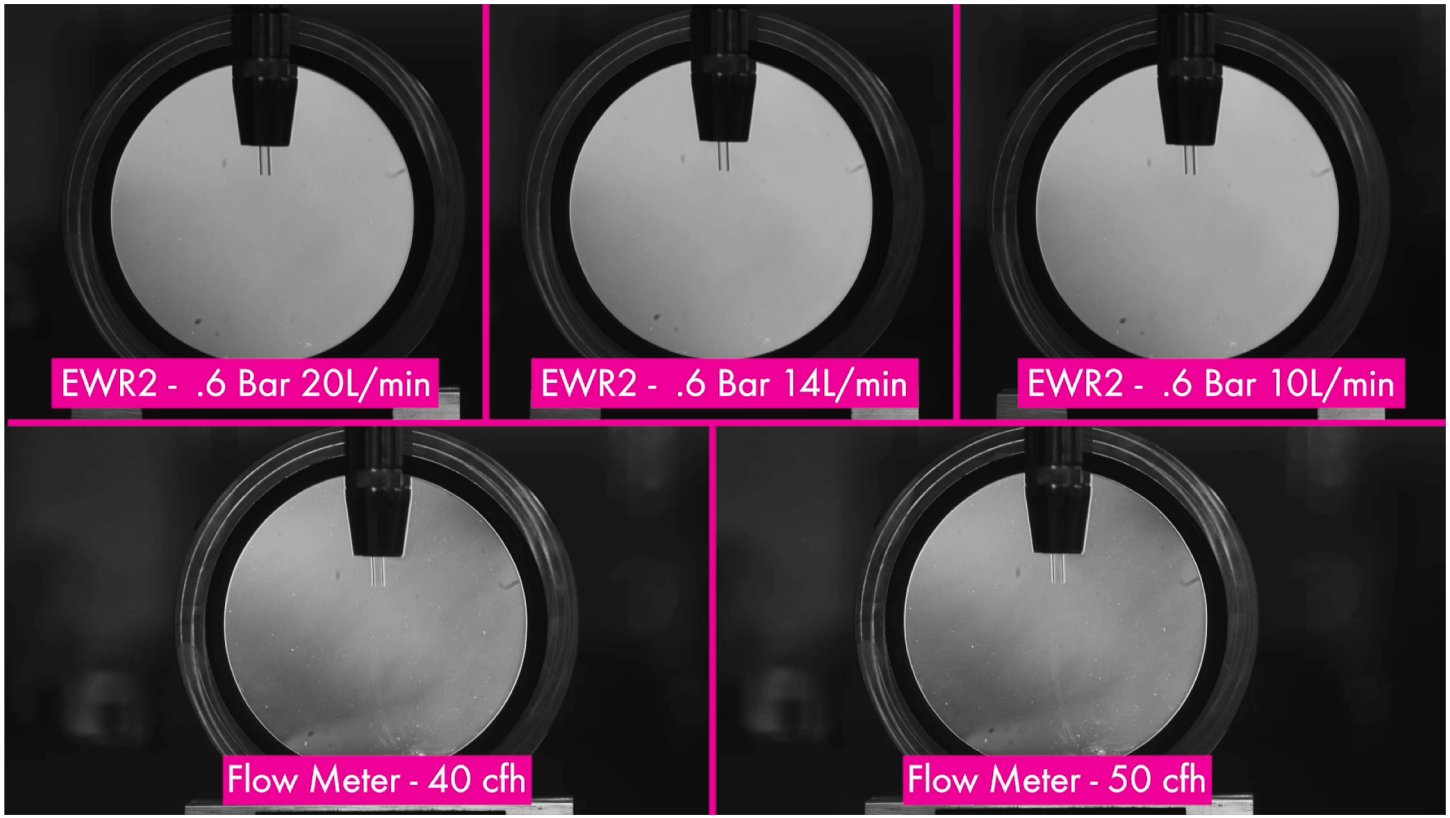
Electronic Welding Regulation



Electronic is designed to mimic the amperage curve.
Dispenses gas in correlation with amperage.

How Electronic Gas Management Cuts Cost & Improves Production

Video Comparison



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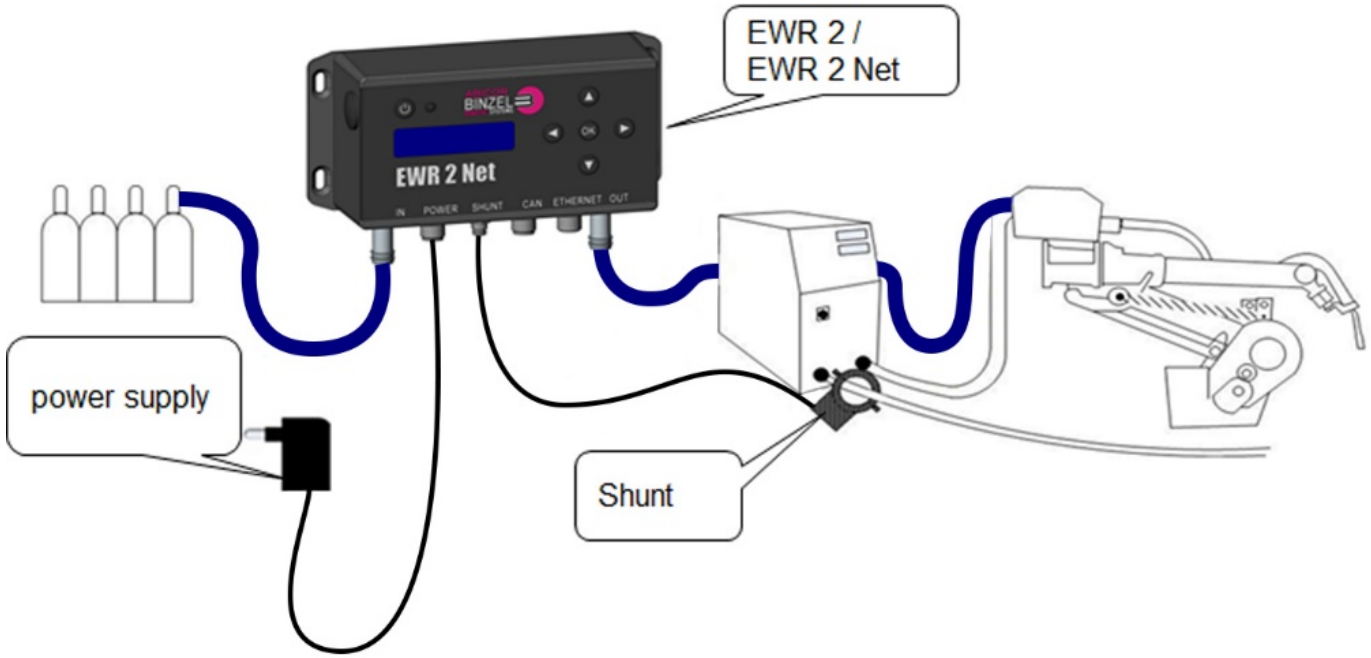
How Electronic Gas Management Cuts Cost & Improves Production

What is Electronic Gas Management?



Device should be placed as close as possible in front of the solenoid valve in the feeder in the gas direction.

How Electronic Gas Management Cuts Cost & Improves Production

What does Electronic Gas Management Achieve?

1. Monitors static pressure for controlled gas release
2. High flow peaks at the start of the arc eliminated
3. Fast responding magnetic valve that regulates flow with amperage
4. Able to monitor incoming and outgoing pressure for a closed loop delivery system

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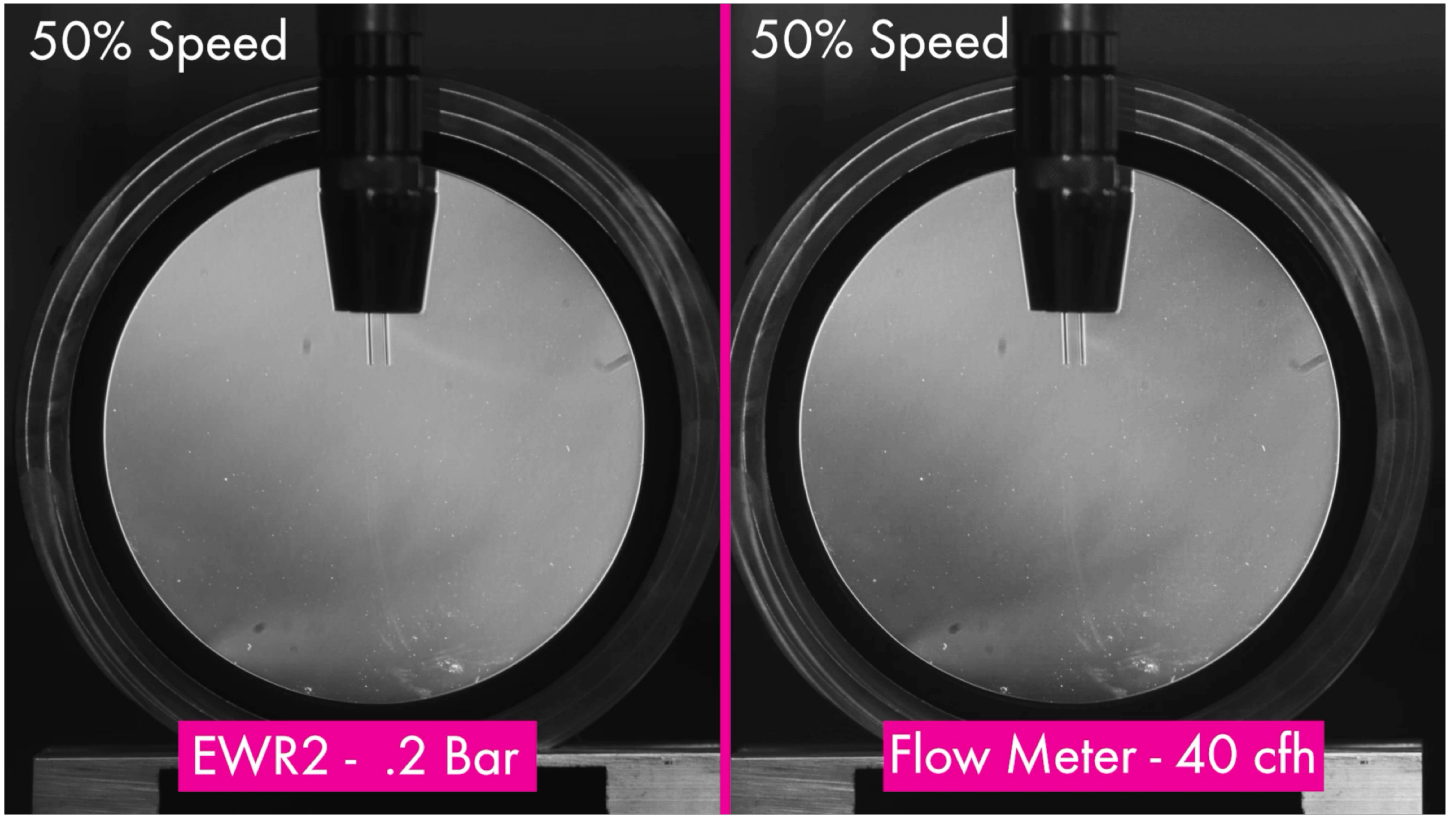
How Electronic Gas Management Cuts Cost & Improves Production

1. Monitoring Static Pressure



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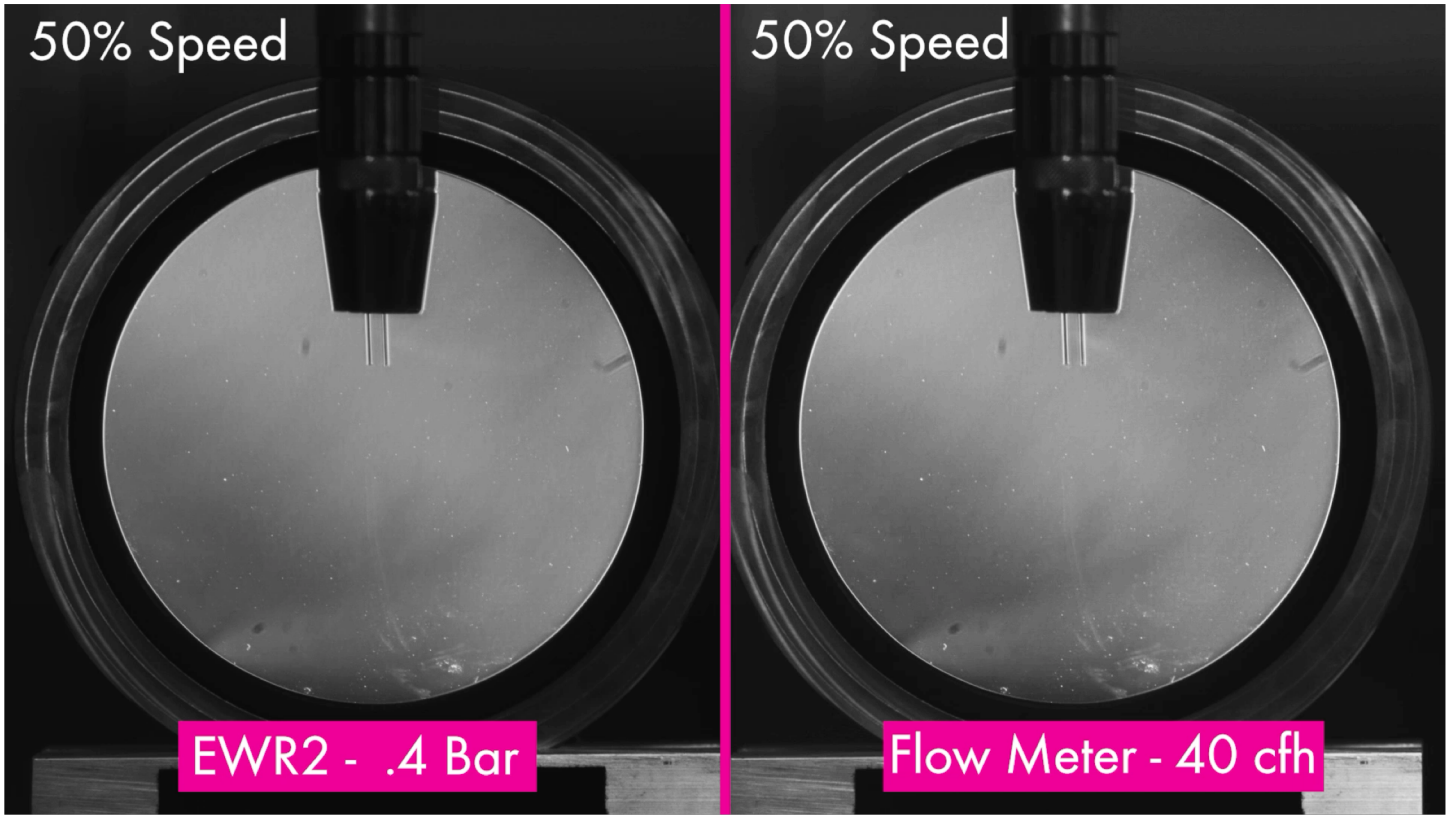
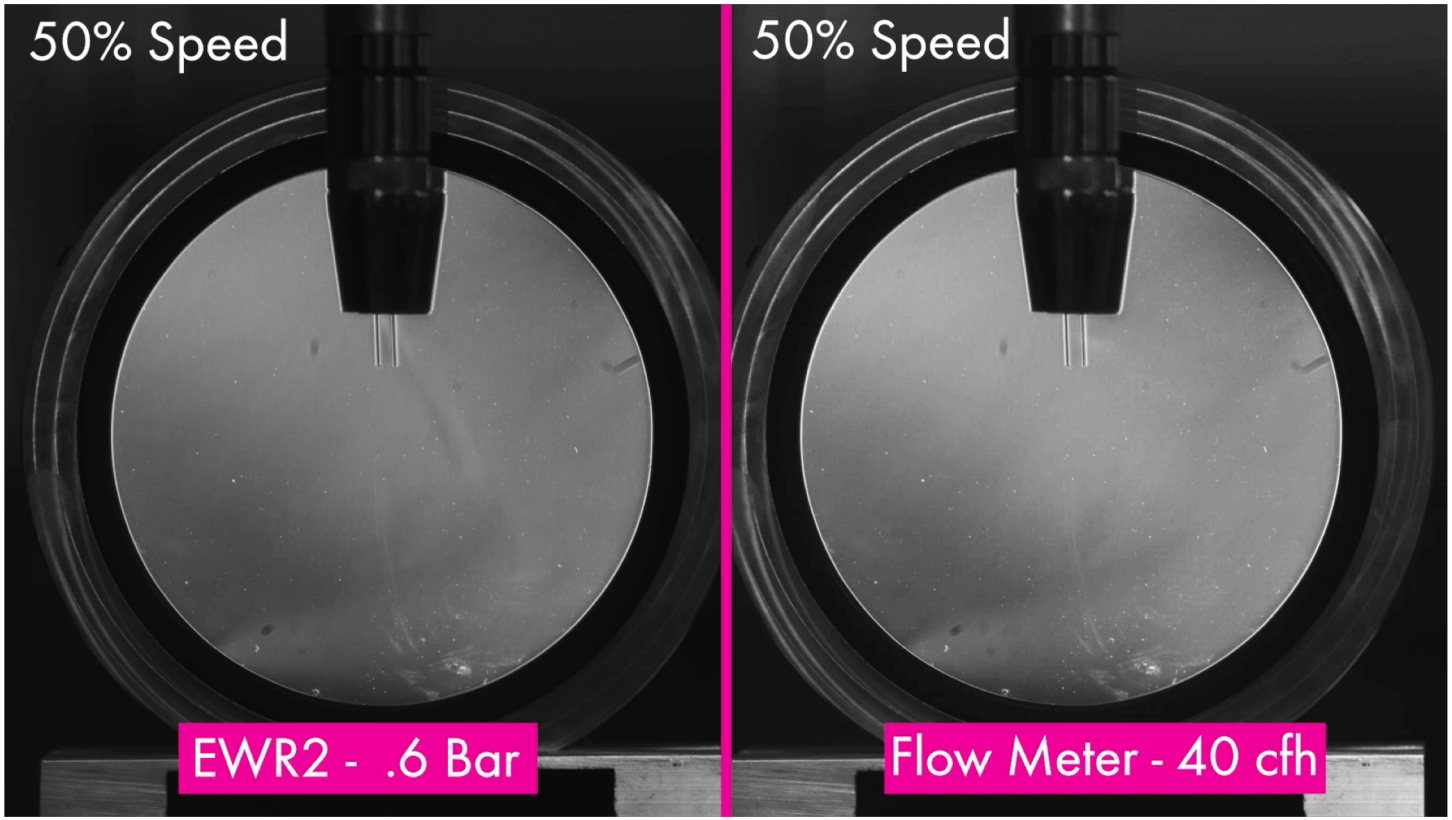
How Electronic Gas Management Cuts Cost & Improves Production

1. Monitoring Static Pressure



How Electronic Gas Management Cuts Cost & Improves Production

1. Monitoring Static Pressure



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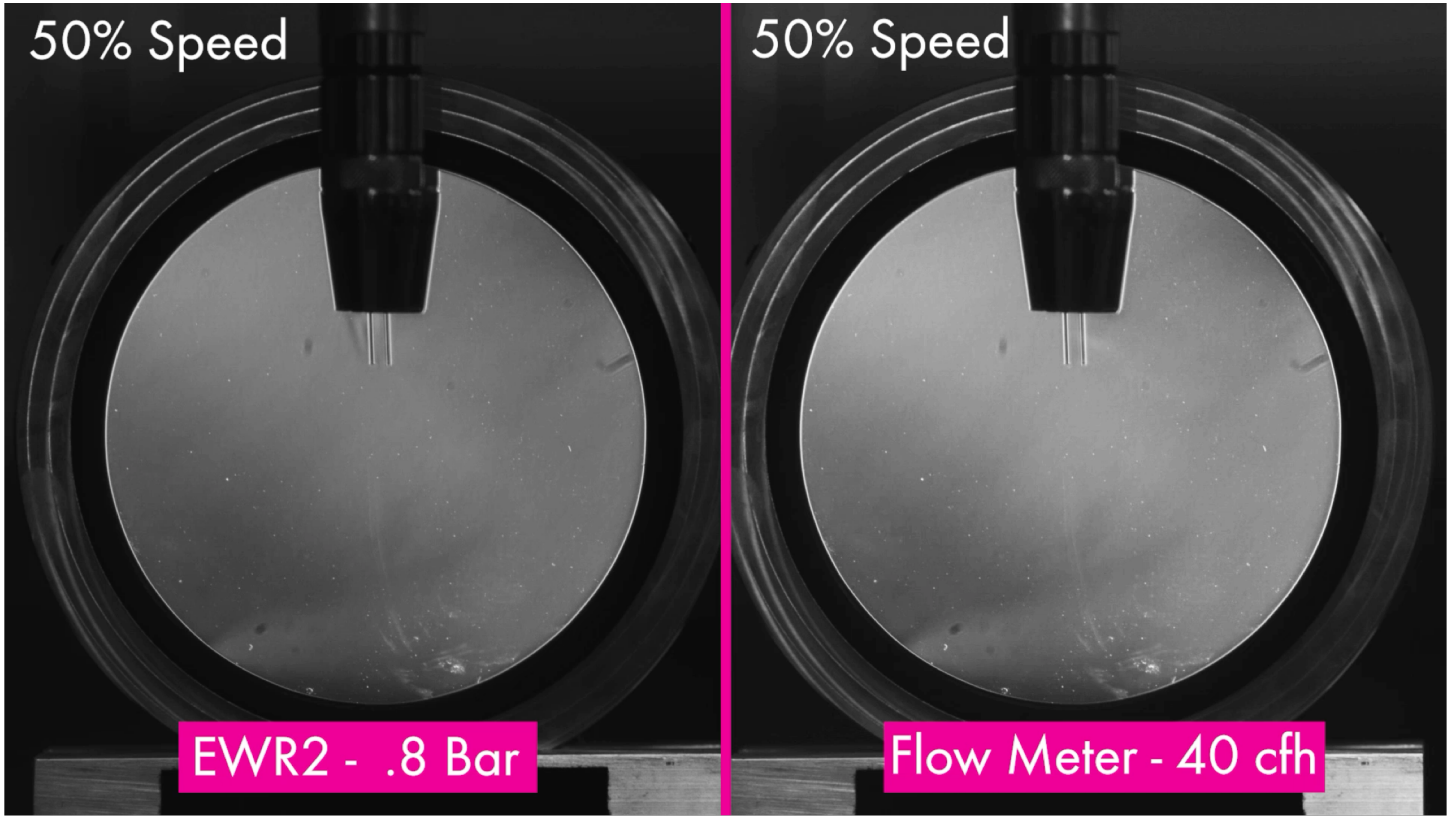
How Electronic Gas Management Cuts Cost & Improves Production

1. Monitoring Static Pressure



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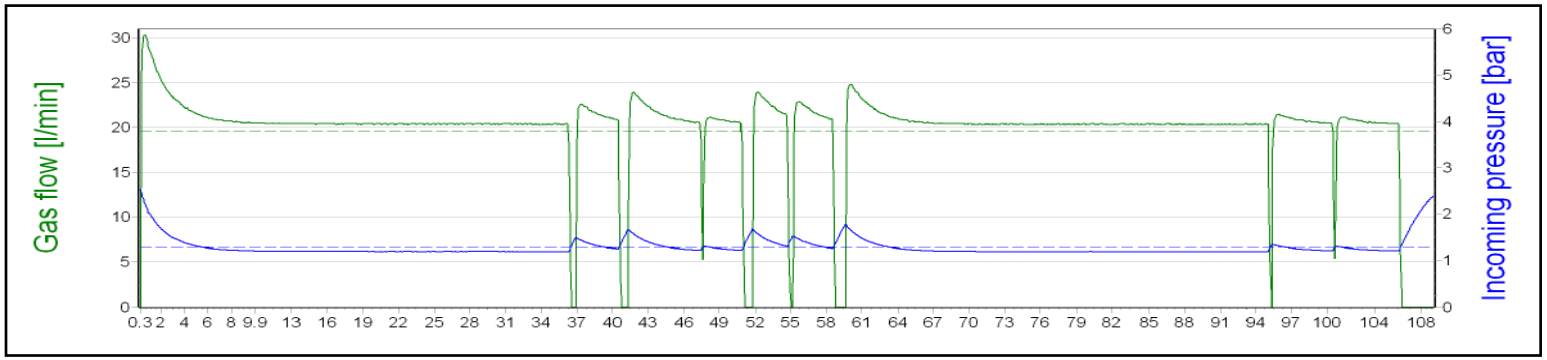
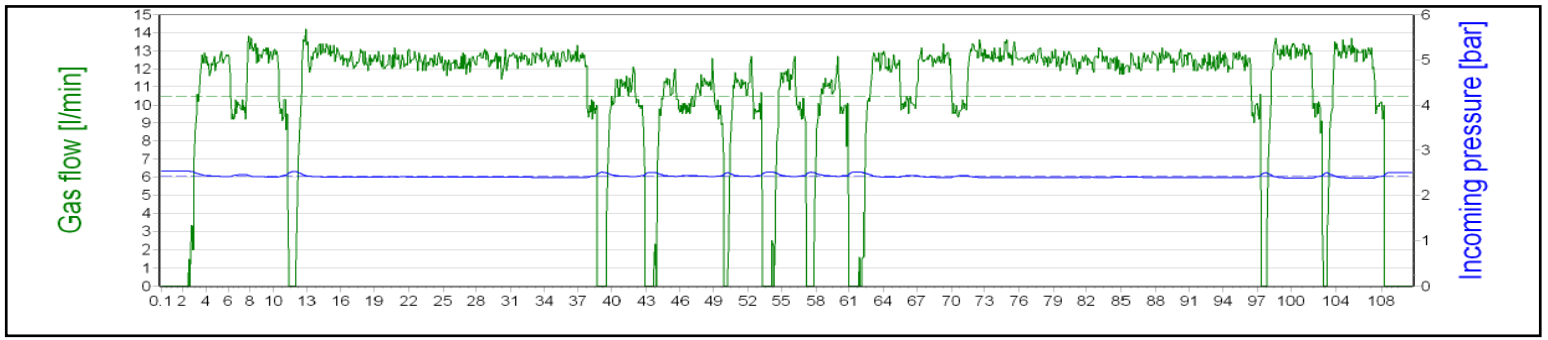
How Electronic Gas Management Cuts Cost & Improves Production

1. Monitoring Static Pressure (Flow Meter vs. Electronic)



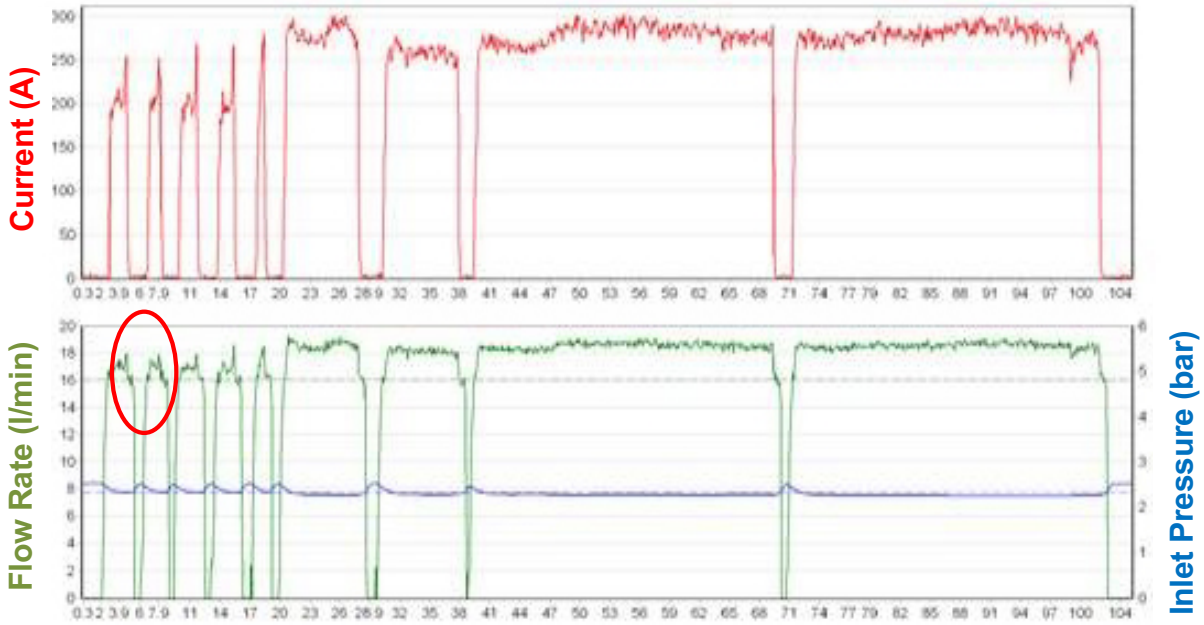


How Electronic Gas Management Cuts Cost & Improves Production

2. High flow peaks at the start of the arc eliminated

Eliminates the gas peaks at the weld start. Controls the flow of gas in relation to current.

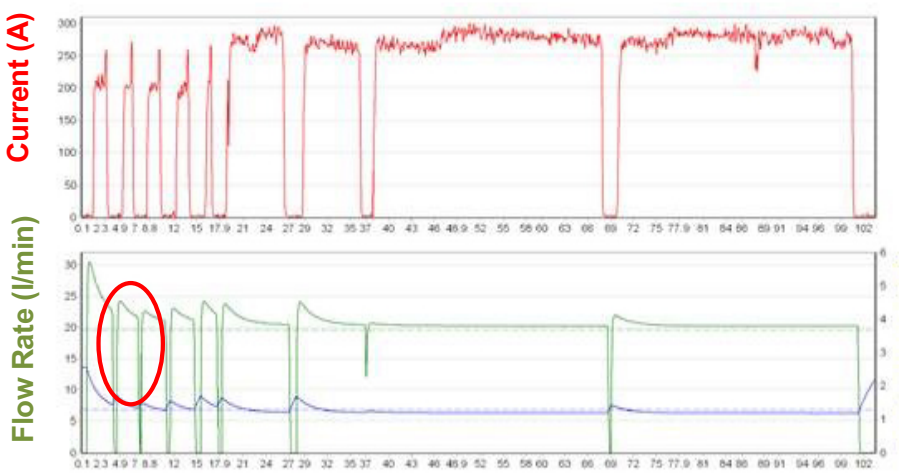
Graphs the weld and gas use data for compare.



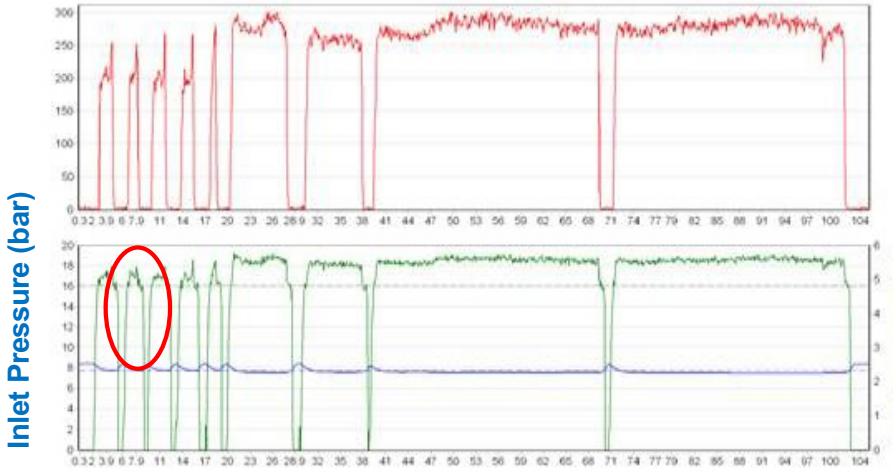
How Electronic Gas Management Cuts Cost & Improves Production

2. High flow peaks at the start of the arc eliminated

In Comparison:



with Flow Meter



with Electronic

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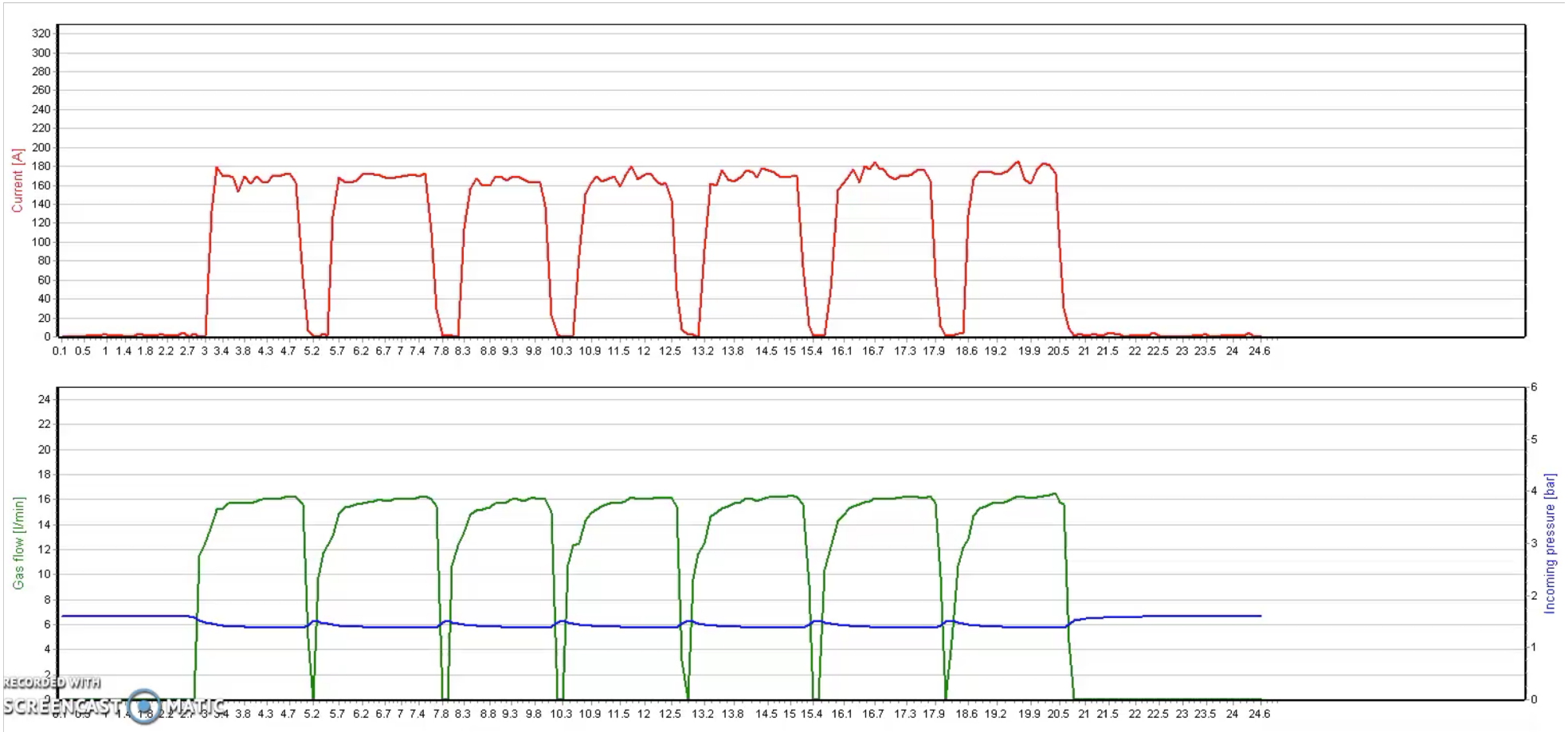
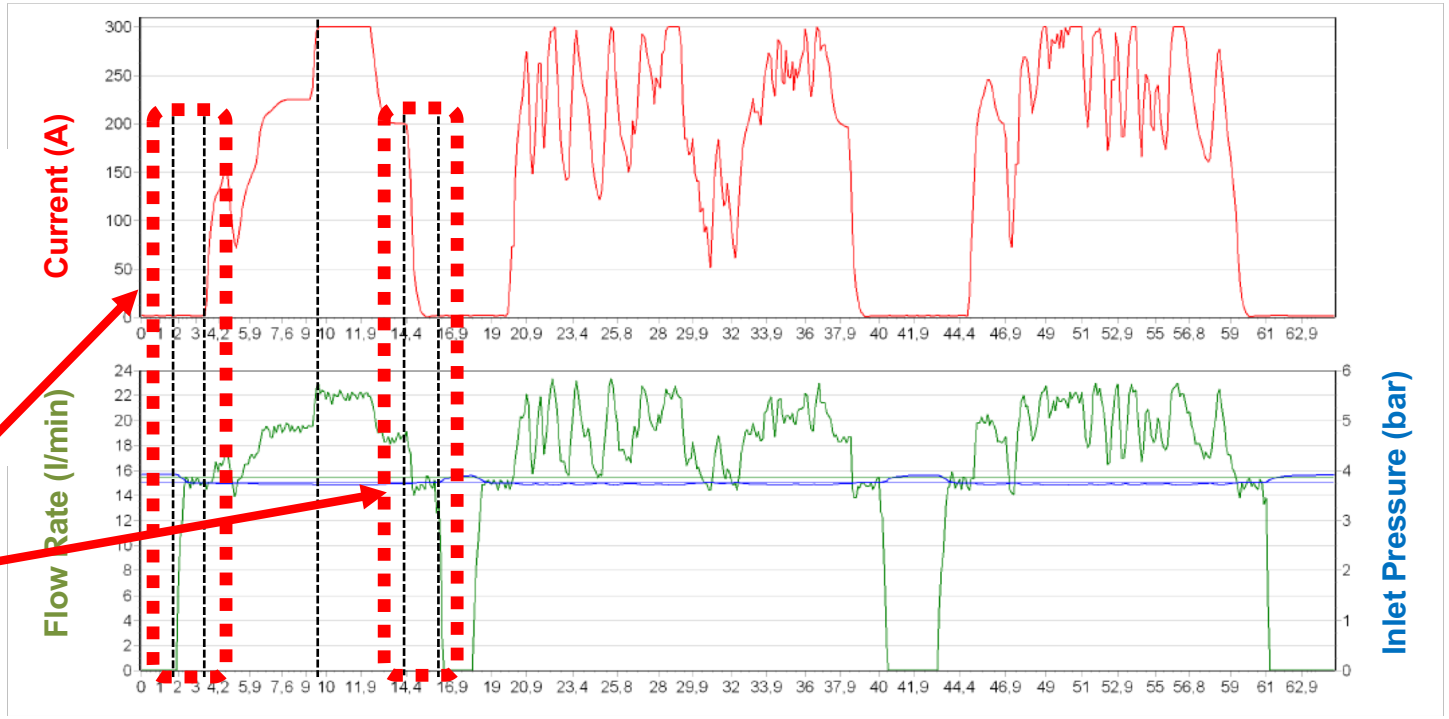
How Electronic Gas Management Cuts Cost & Improves Production

3. Quick regulation magnetic valve regulates flow with amperage



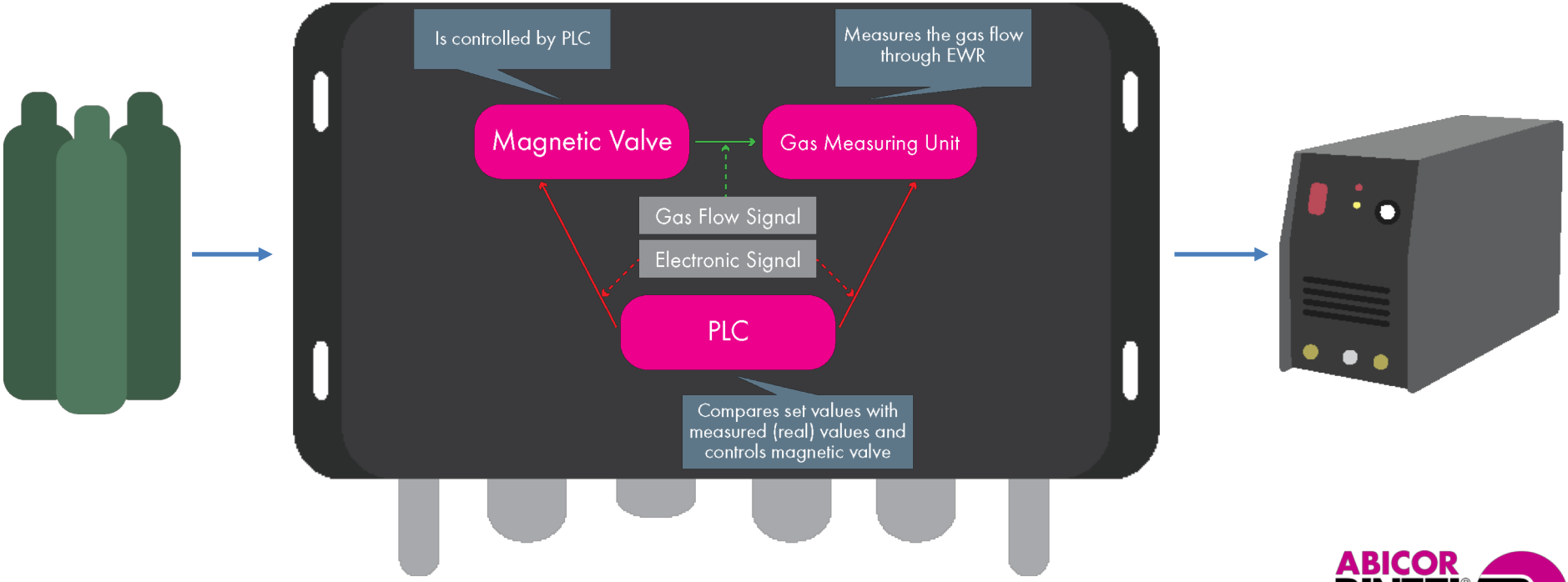
How Electronic Gas Management Cuts Cost & Improves Production

3. Quick regulation magnetic valve regulates flow with amperage



How Electronic Gas Management Cuts Cost & Improves Production

4. Monitors incoming and outgoing pressure for a closed loop delivery system



Closed Loop

How Electronic Gas Management Cuts Cost & Improves Production

System Overview

Electronic Welding Regulation Devices

Basic Device Features:

- Flow rate range 2-30 l/min (4 – 60 cfh)
- For automated and manual welding processes
- Inlet gas pressure range 1-6 bar (14.5 – 87 psi)
- Simple installation in new and existing applications
- Suitable for MIG/MAG and TIG processes
- Active volume flow control
- Calibrated unit
- Suitable for all gas types

Features for Network Compatible Versions:

- Additional Can and Ethernet interface
  - CANopen: With a gateway, can integrate into higher-level controllers via fieldbus
  - Ethernet:
    Office Ethernet TCP/IP to use different devices
  - Communicates via 24-volt signal to assess status as in ‘good’ or ‘faulted’ state

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How Electronic Gas Management Cuts Cost & Improves Production

System Overview

Relay Device

- Communicates via 24-volt signal
- Assesses whether device is in a good or faulted state
- Gives you ability to shut down process due to a gas fault
- Safeguards against excessive rework due to lack of shielding gas

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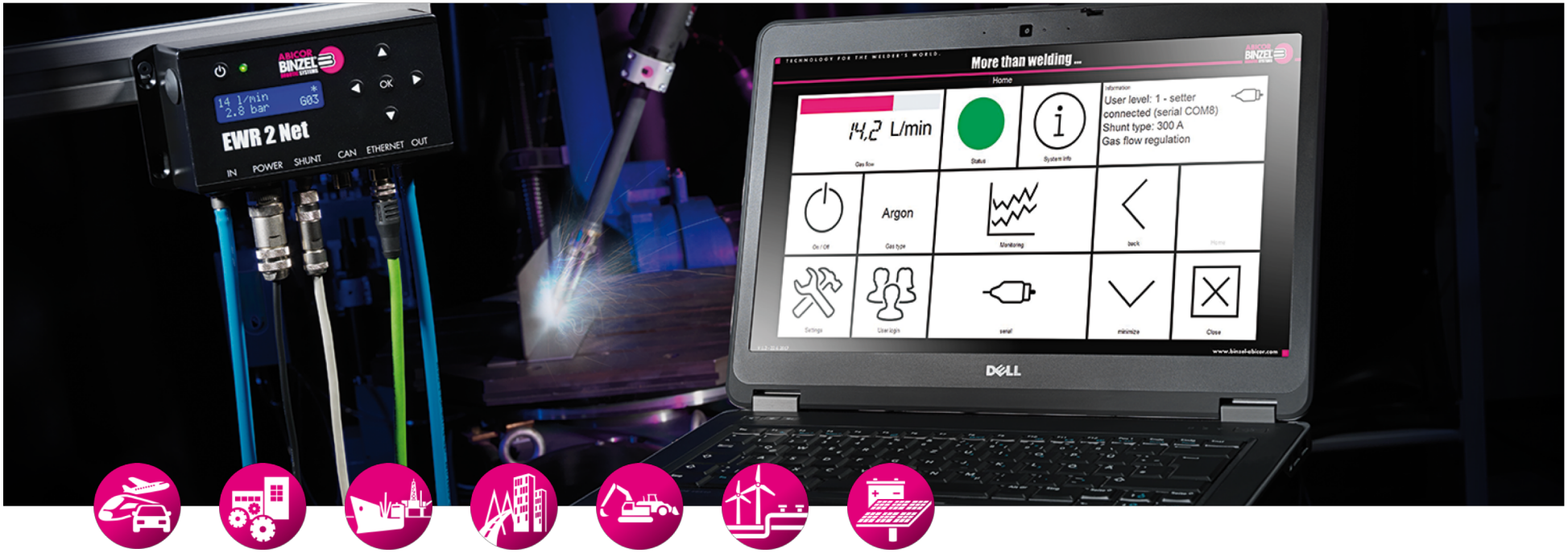

Software Monitoring

Electronic Welding Regulation

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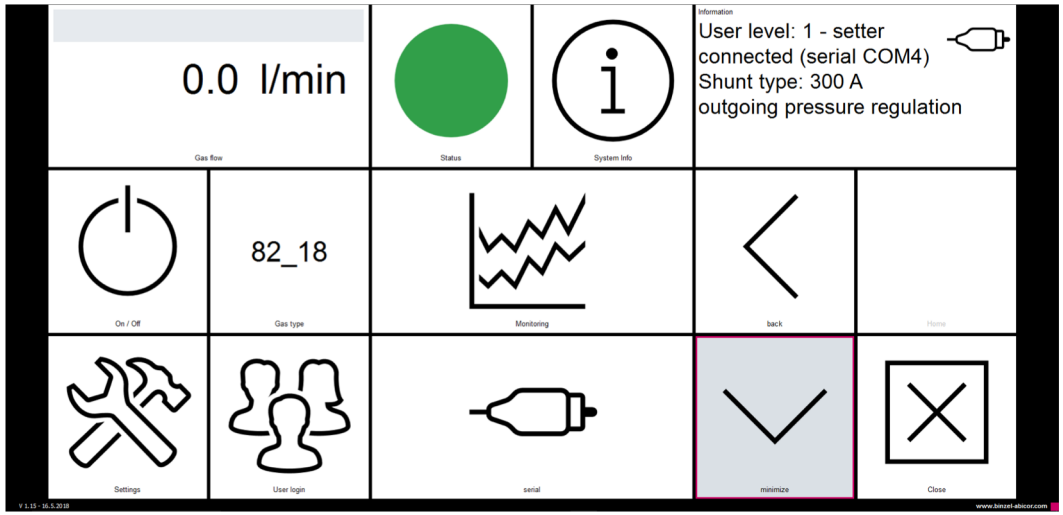
How Electronic Gas Management Cuts Cost & Improves Production

Monitoring

Service Software Features



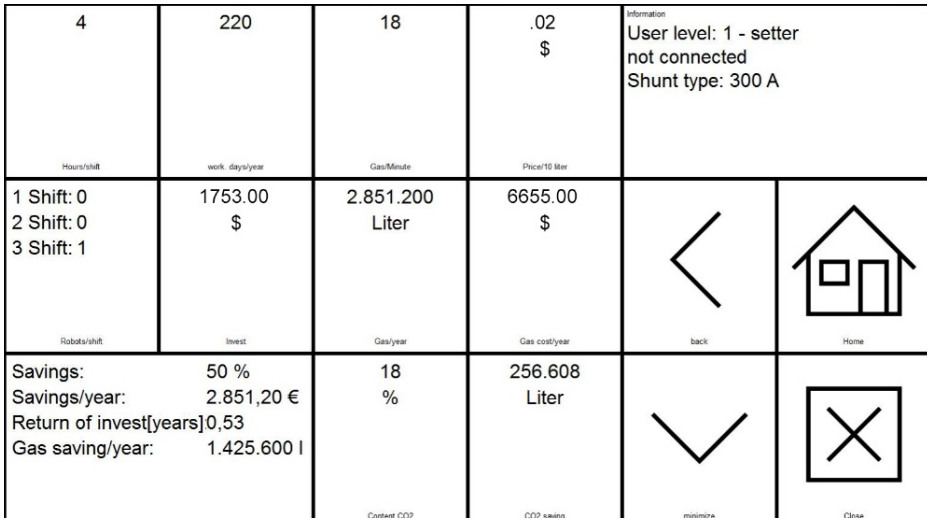
- Setting the devices
- Determination of gas savings with device
- Status display incl. error display and error log
- Selecting and configuring the used shielding gas
- Remote access via local network to devices

Electronic regulation devices can also be easily set up and commissioned without the service software.

How Electronic Gas Management Cuts Cost & Improves Production

System Overview

Service Software Features – ROI Calculator



- Savings in currency, percentage, payback period, gas volume

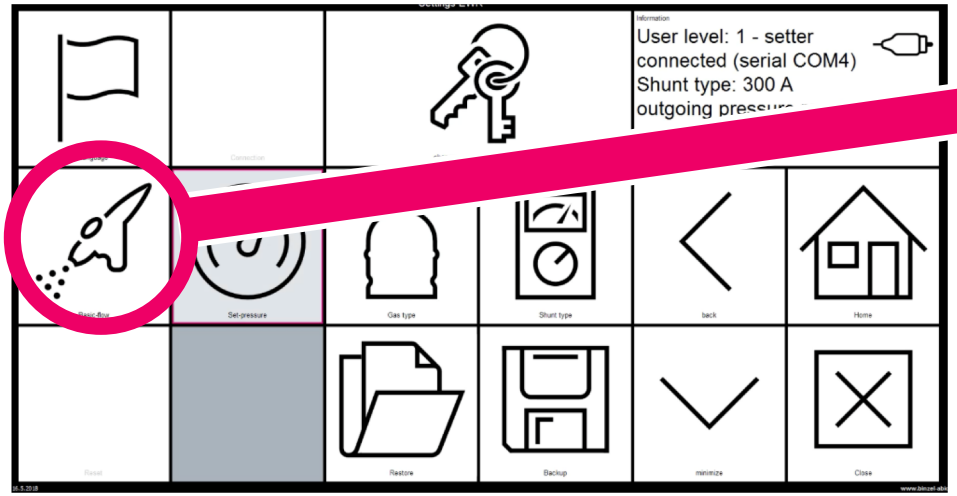
Electronic regulation devices can also be easily set up and commissioned without the service software.

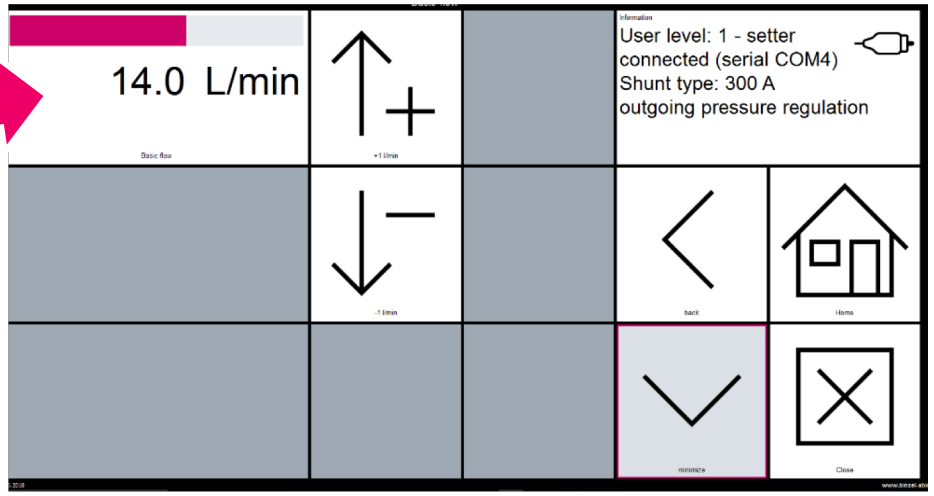
How Electronic Gas Management Cuts Cost & Improves Production

Setup

Setting up devices

Base flow:





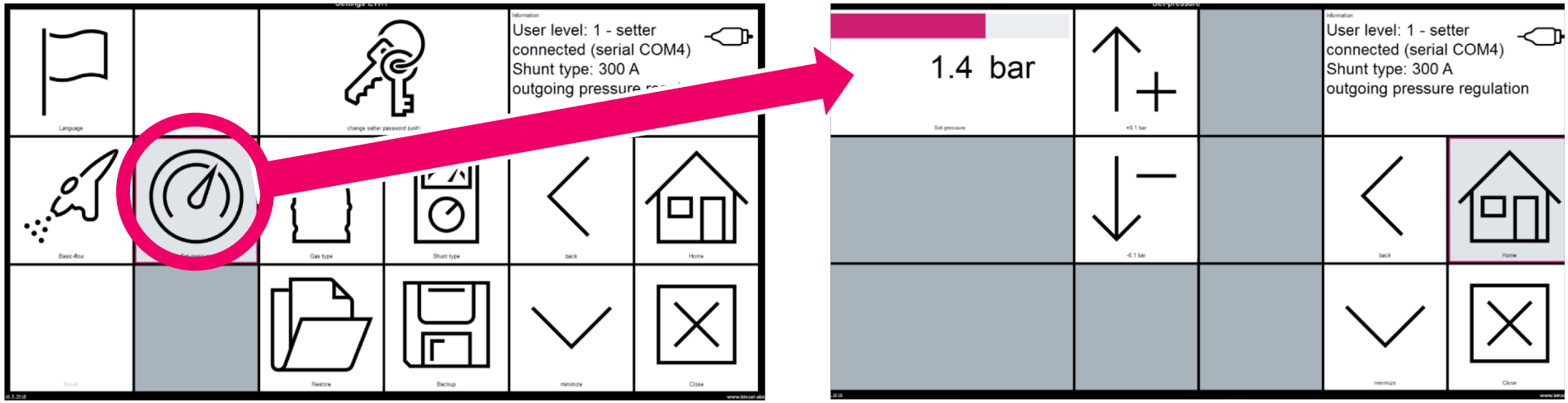
This is the gas volume flow which the device regulates at a shunt signal (welding current signal) up to 30%. At 100% shunt signal, the device regulates +7 l/min to the base volume flow. With a shunt signal between 30 - 100%, the device is in a linear volume flow control.

How Electronic Gas Management Cuts Cost & Improves Production

Setup

Setting up devices

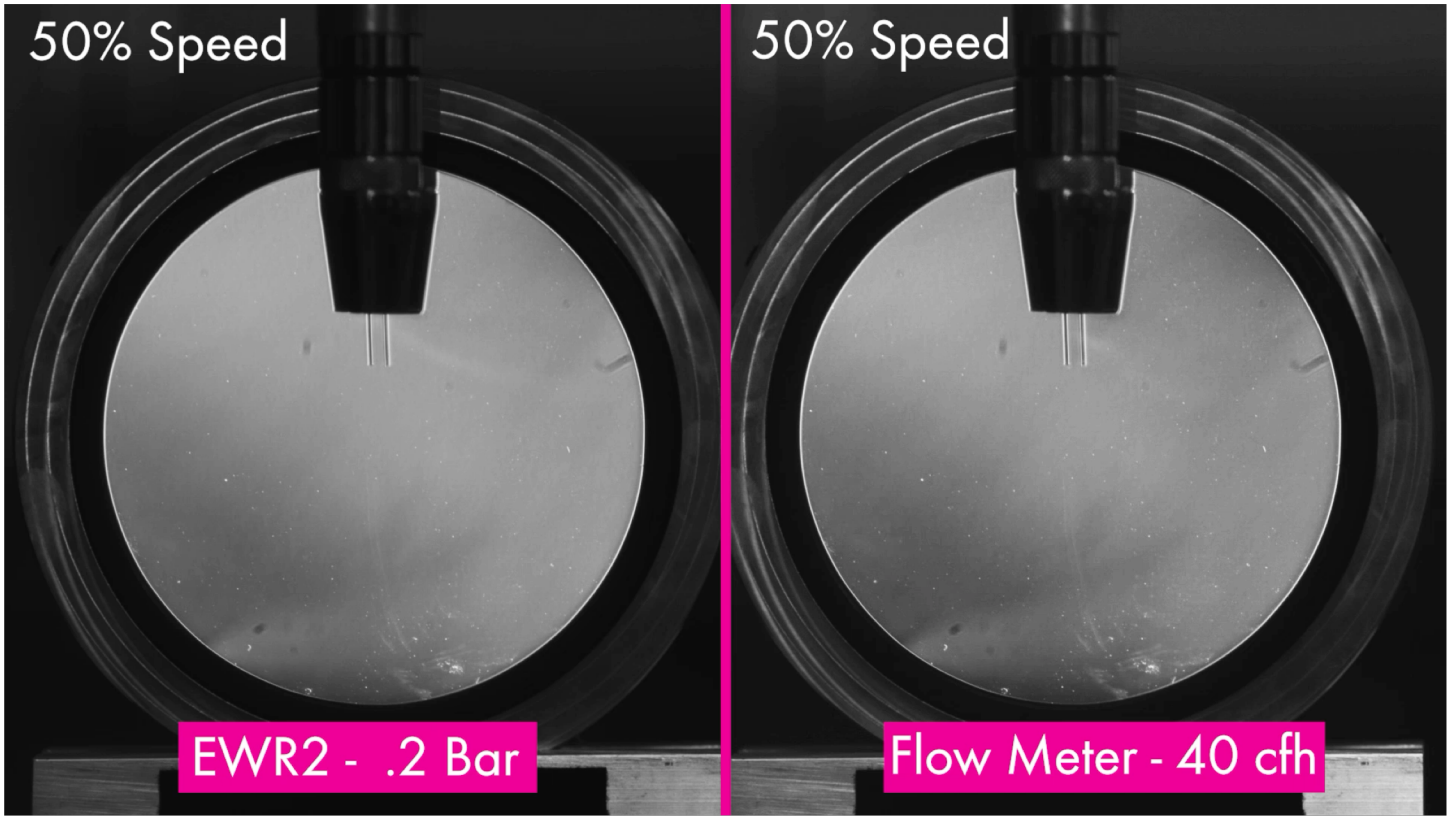
Set Pressure:



This is the dynamic pressure to which the device regulates when the shunt signal is less than 5% of the max. shunt signal. In this back pressure control, the maximum volume flow is the set basic flow. When the solenoid valve in the feeder is closed, this back pressure is regulated between the device outlet and the closed solenoid valve in feeder.

How Electronic Gas Management Cuts Cost & Improves Production

Setup: Set Pressure



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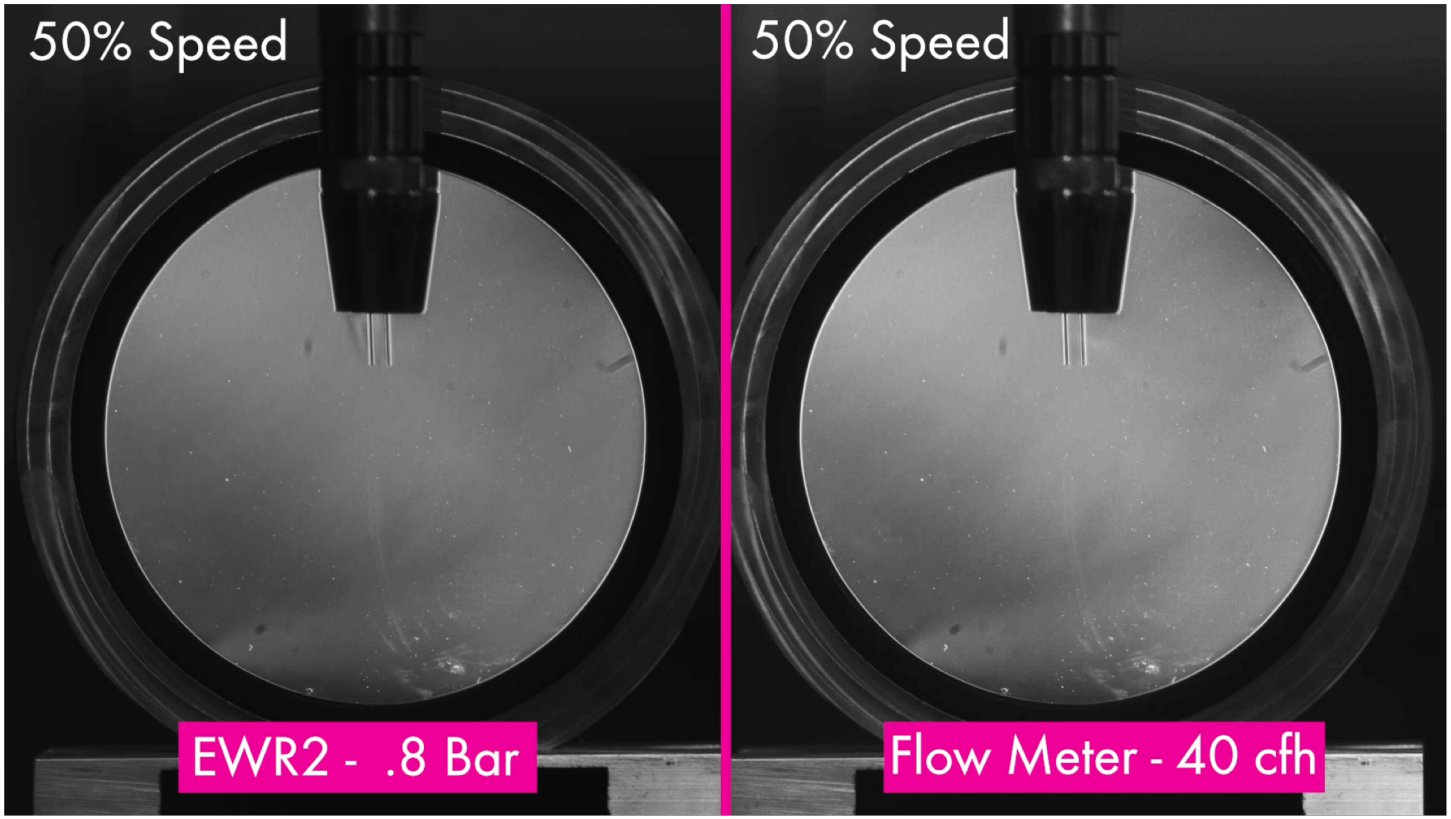
How Electronic Gas Management Cuts Cost & Improves Production

Setup: Set Pressure



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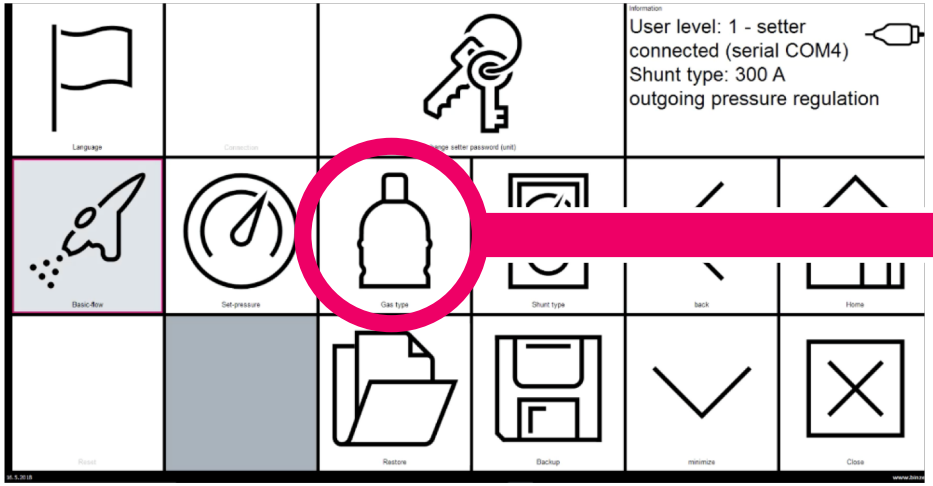
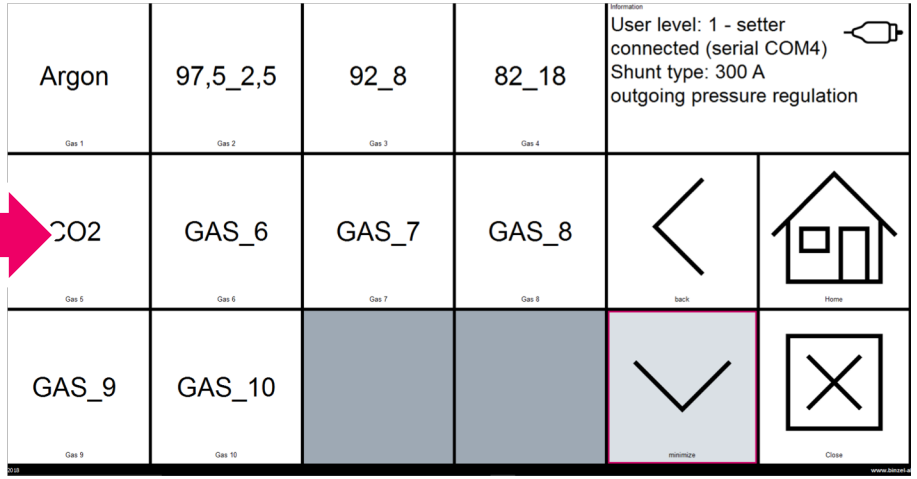
How Electronic Gas Management Cuts Cost & Improves Production

Setup

EWR 2 Setting up devices

Gas type select:





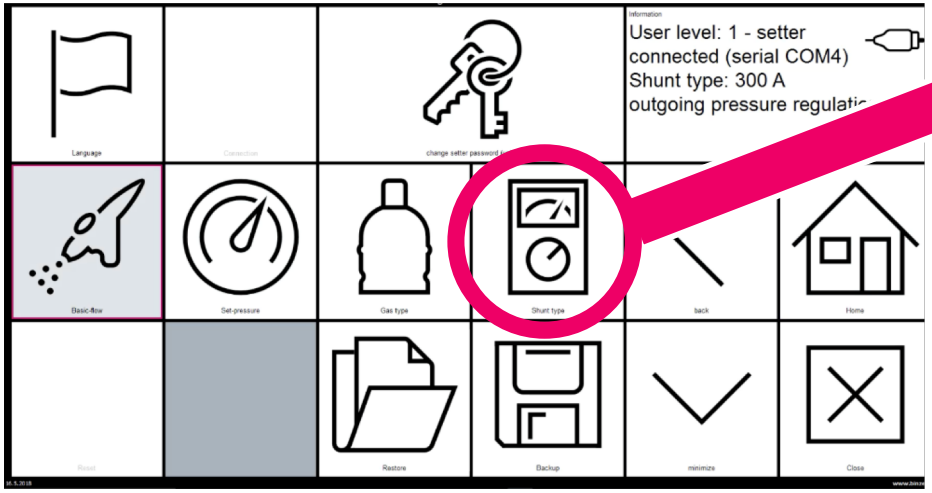
The most common welding gases are already pre-configured and can be easily installed, including gas conversion. Factor can be selected. Other gas types and mixtures can easily be added by the user.

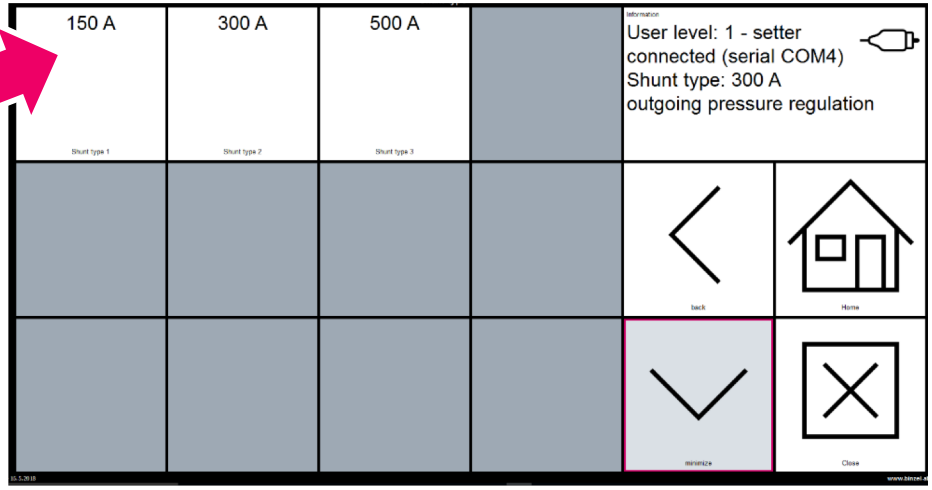
How Electronic Gas Management Cuts Cost & Improves Production

Setup

EWR 2 Setting up devices

Shunt Setting:



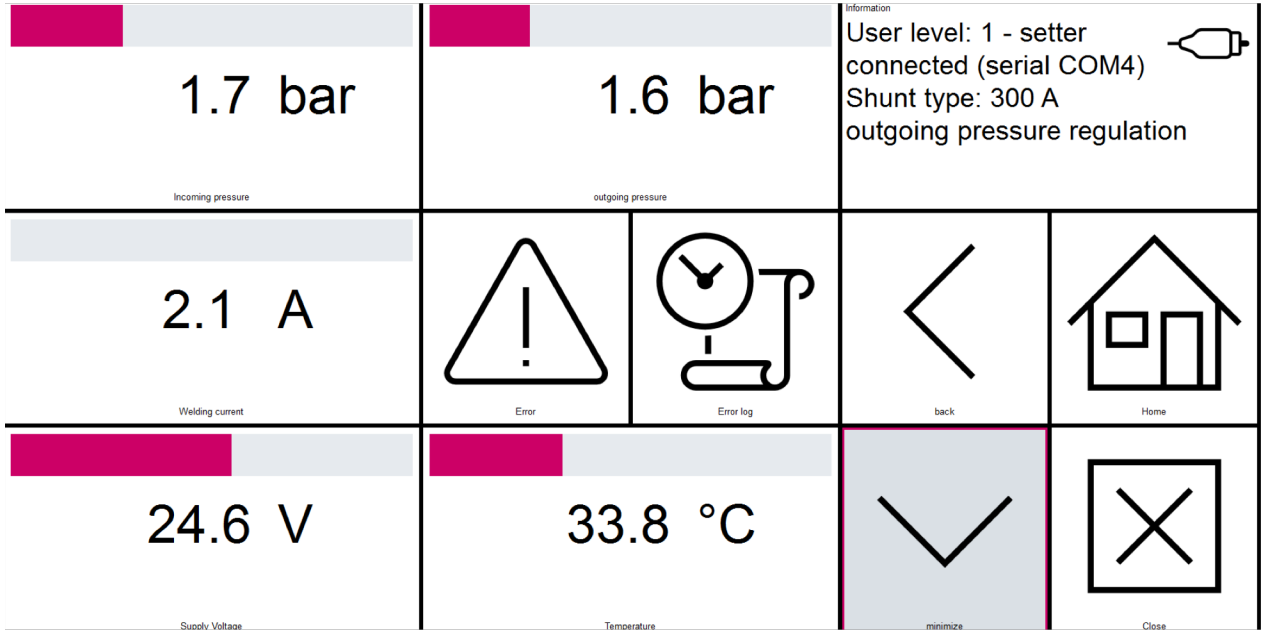


There is a choice between 150 A, 300 A or 500 A shunt. The selection depends on the welding current.

How Electronic Gas Management Cuts Cost & Improves Production

Setup

Monitoring Screen



The inlet gas pressure must be between 1 and 6 bar. It should be noted here that there may be physical limitations in the maximum achievable gas volume flow at inlet pressures of 1 - 2 bar.

How Electronic Gas Management Cuts Cost & Improves Production

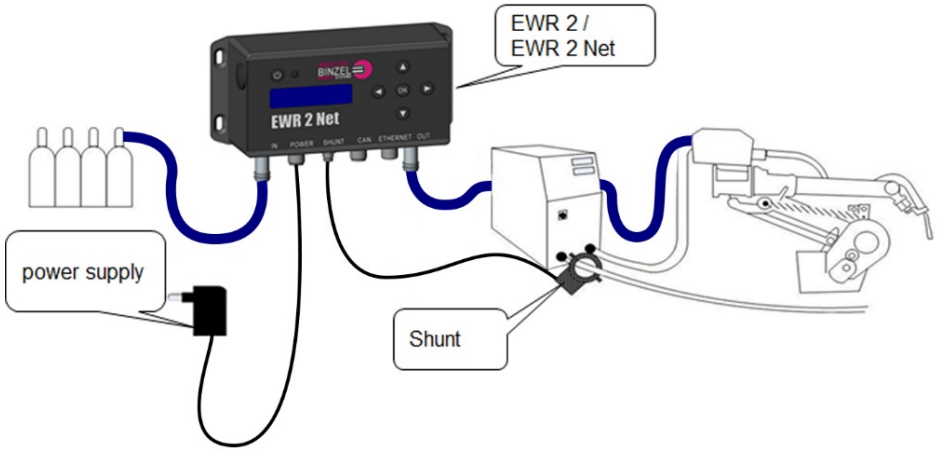
Setup

All Setup Features Also Available on Hardware (minus Data Acquisition Capability)

How Electronic Gas Management Cuts Cost & Improves Production

Setup

Further gas control units:



If there are other gas control units / volume flow devices, these must be deactivated or removed so they don't influence the function of the EWR 2.

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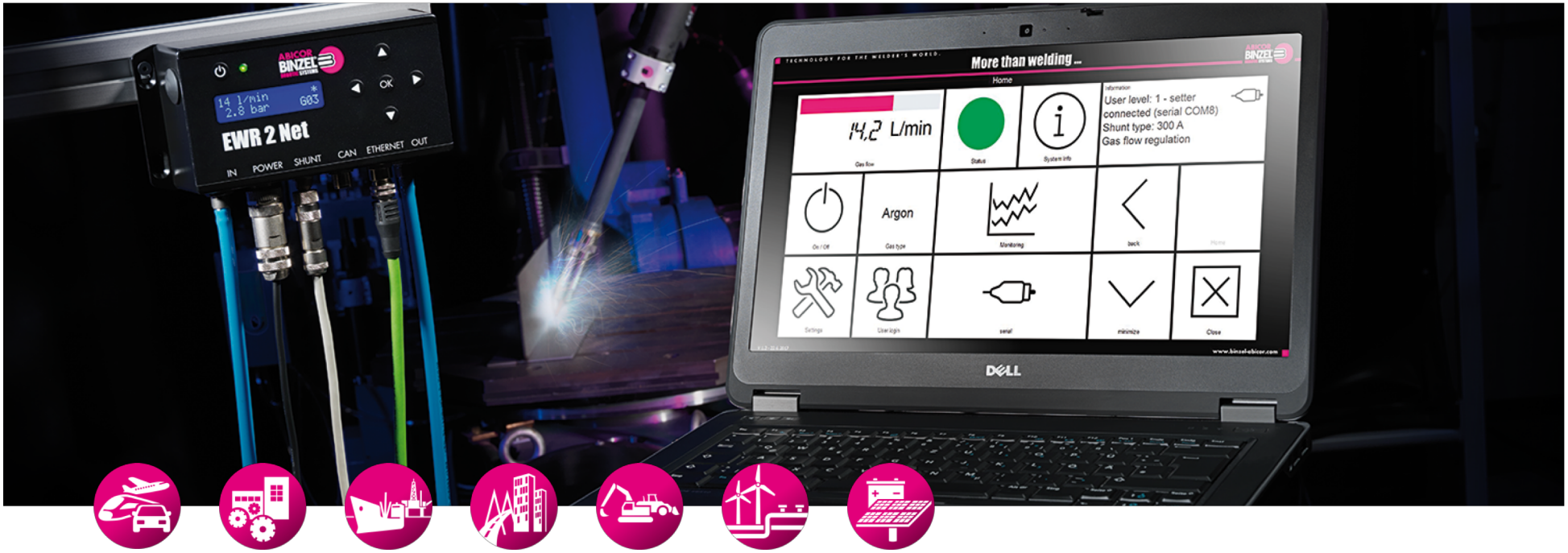

Case Studies

Con-Ag Manufacturer

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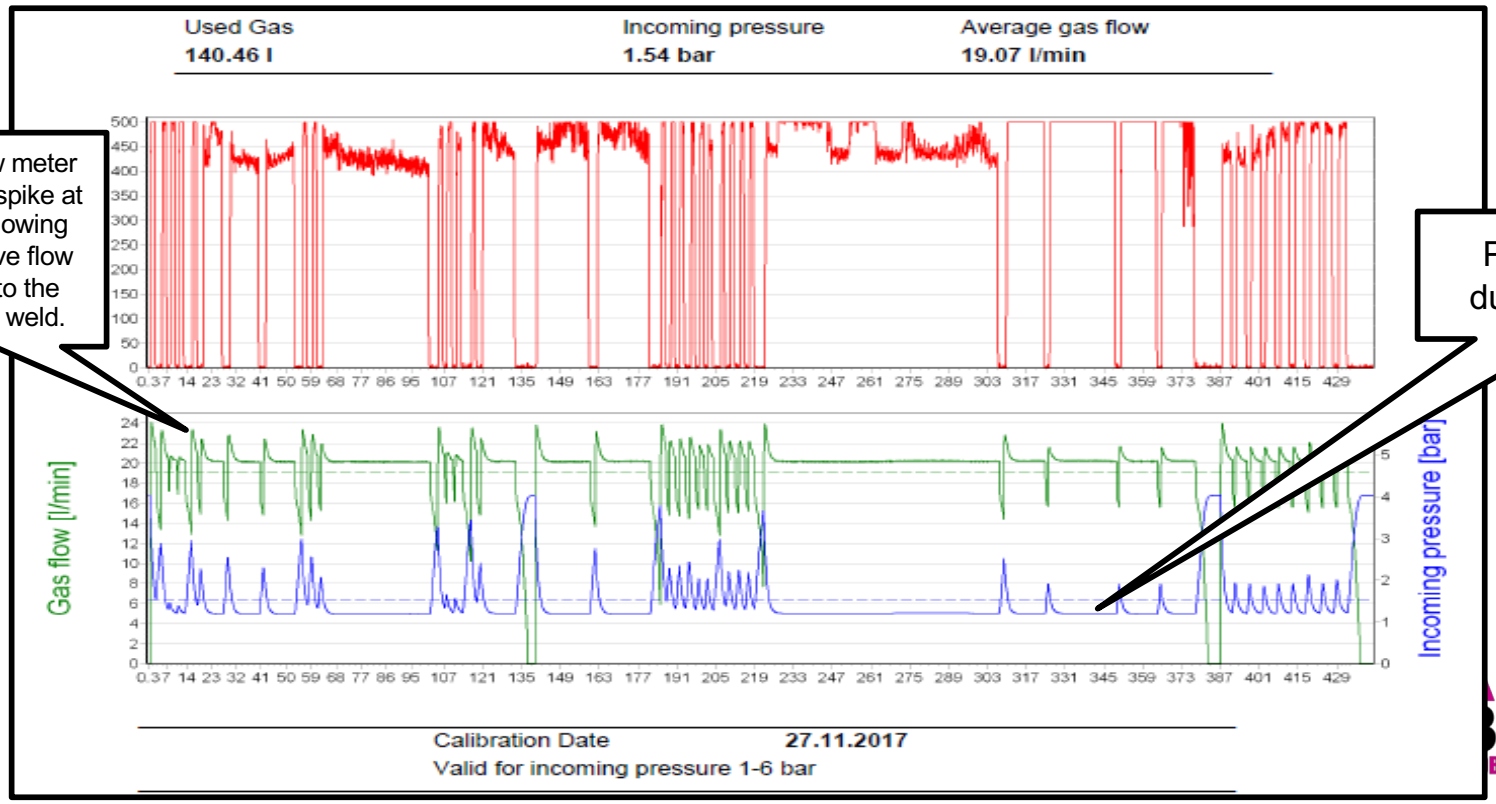
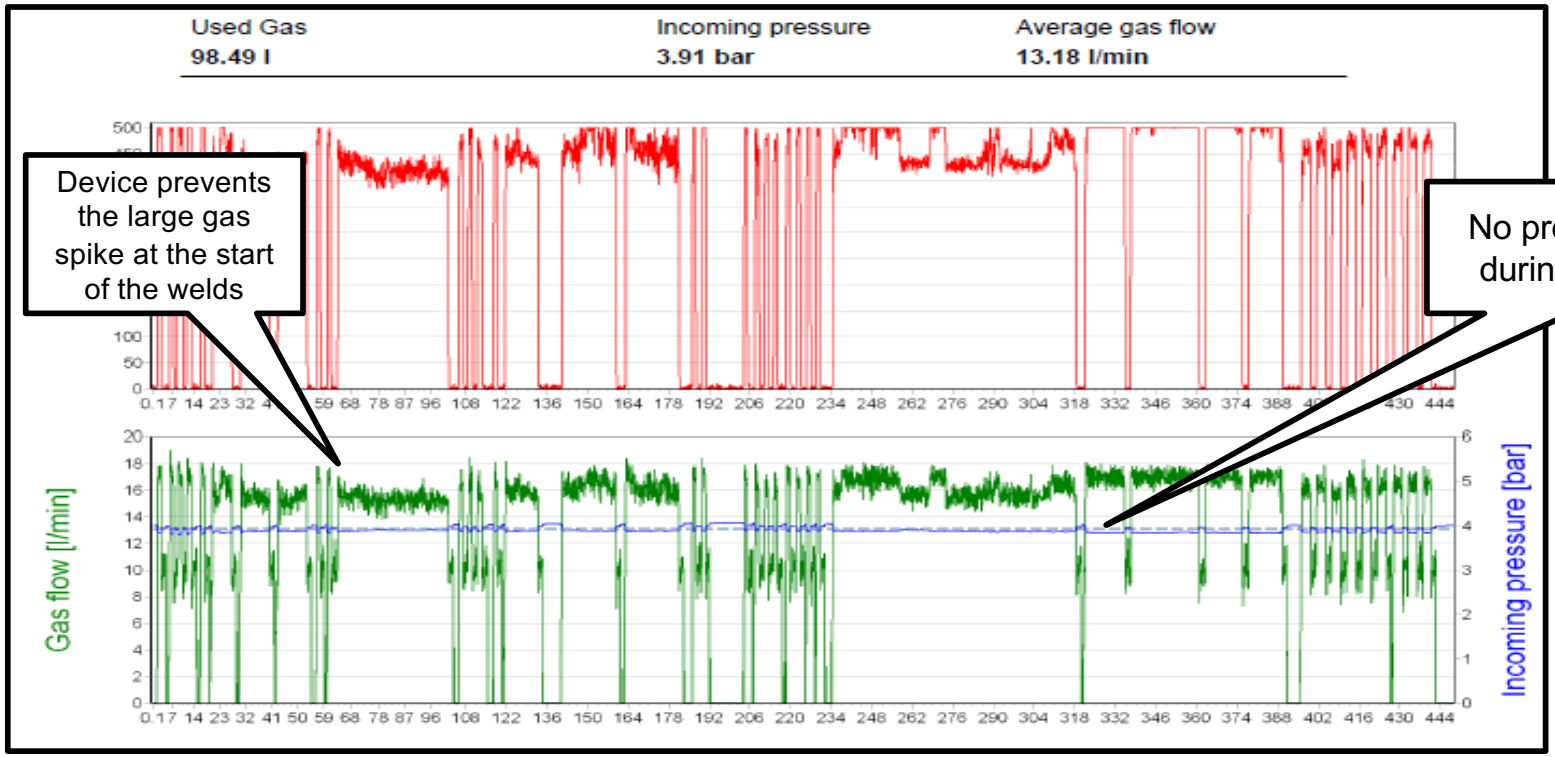
Case Study: Con-Ag Manufacturer

Base Line with Flow Meter set to 42.4 CFH (20 l/min)



Case Study: Con-Ag Manufacturer

Electronic regulation set to (10 l/min) Start, @500A flow is at 15l/min



Case Study: Con-Ag Manufacturer

57% gas savings will have an ROI of 0.29 – 0.38 years based on current data.

ABICOR BINZEL EWR2 ROI ANALYSIS REPORT

Abicor Binzel Corporation
650 Medimmune Ct.
Frederick, Md. 21703-8619
(800) 542-4867

Prepaired by:
Name: Scott Huber
Phone: ***865-368-1093***
Email: shuber@abicorusa.com

CUSTOMER NAME:	[redacted]
CONTACT NAME:	
TYPE OF WELDING PROCESS:	MIG
SAVINGS POTENIAL:	57%

Gas savings calculator - (Machines per shift) EWR2 Systems, LLC

Capacity	# of welding machines- 24hr day	Total arc-time in hours	Days per year	l/min before EWR2 installed: Liters per Min		l/min with EWR2 Installed: Liters per Min		% Savings	EWR2 Setting (23 to 2 l/mim)
# of welding mach. on 3rd shift	25	7	240	Base Line Test	30.91	EWR Sample Test #1	16.38	47%	14
# of welding mach. on 2nd shift	10					EWR Sample Test #2	13.18	57%	10
# of welding mach. on 1st shift	25					EWR Sample Test #3	N/A	#VALUE!	N/A
						EWR Sample Test #4	N/A	#VALUE!	N/A

Gas consumed/year (cubic ft.)	6,605,343.36
Total welding Machines	25
Gas price in cents per cubic ft.	4
Gas cost/year in dollars	$ 264,214

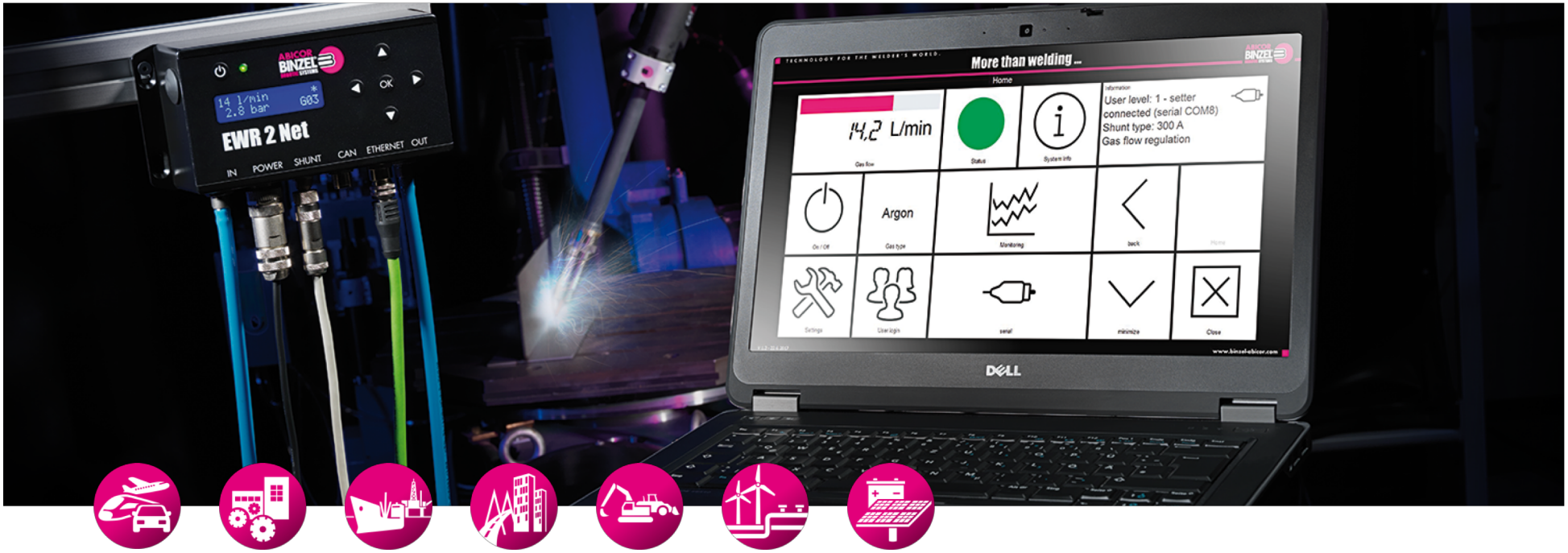
List Cost of the EWR2	$ 1,785
Investment in dollars*	$ 44,625

List Cost of the EWR2-NET	$ 2,330
Investment in dollars*	$ 58,250

Results: Actual saving	Dollars Saved	ROI in years EWR2	ROI in years EWR2-NET	Gas reduction in Cubic ft	
47%	$ 124,200	0.36	0.47	3,105,003	EWR2 Sample Test #1
57%	$ 151,553	0.29	0.38	3,788,830	EWR2 Sample Test #2
#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	EWR2 Sample Test #3
#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	EWR2 Sample Test #4

(All fields in Yellow need to be filled out)
*based on EWR basic list price

TECHNOLOGY FOR THE WELDER´S WORLD.



Case Studies

Automotive Supplier

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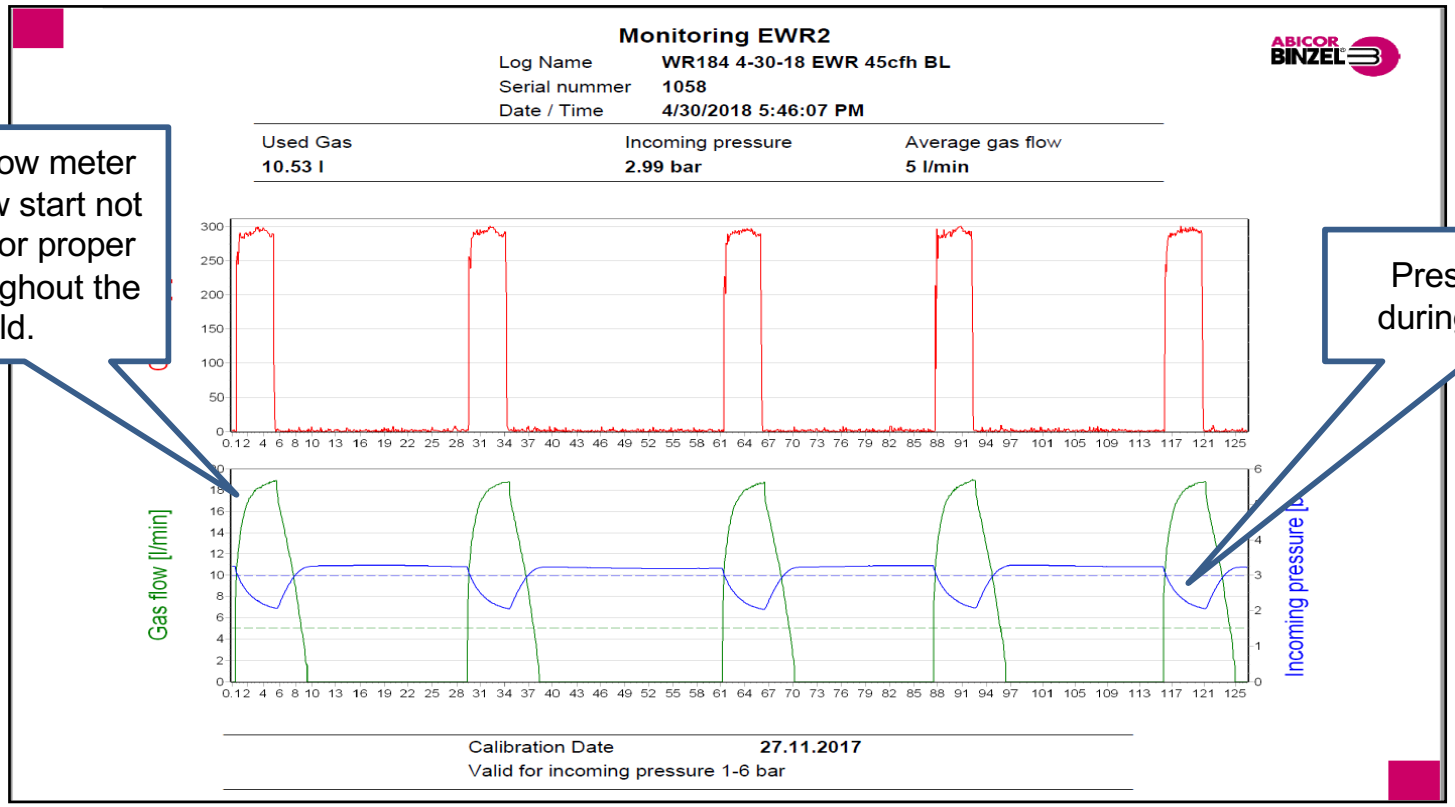
Case Study: Automotive Supplier

Base Line with Flow Meter set to 45 CFH (21 l/min) #2 Welding Torch

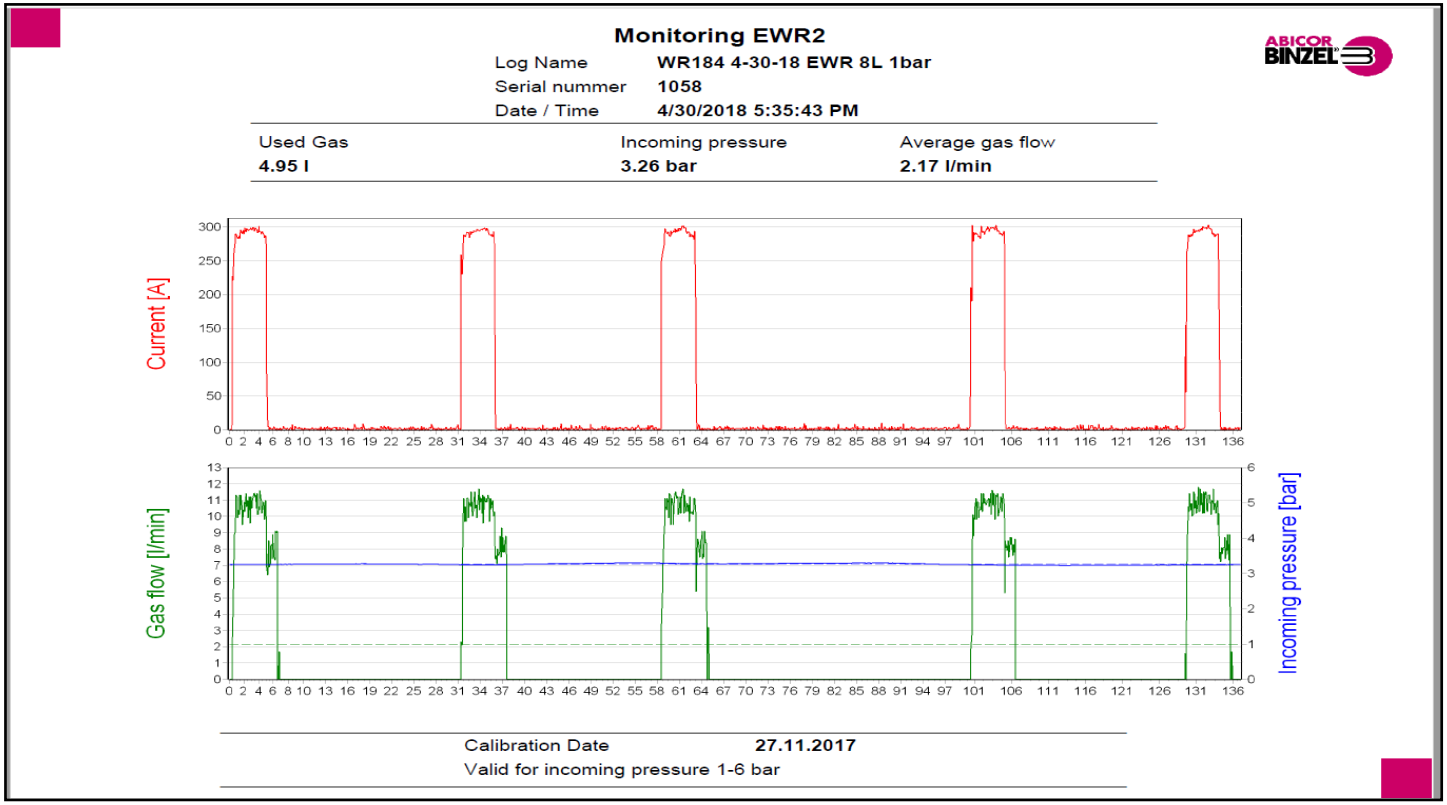
Current flow meter has a slow start not allowing for proper flow throughout the weld.

Pressure drop during the weld.



Case Study: Automotive Supplier

Electronic regulation set to 10 l/min flow #2 Welding Torch 52% savings



Case Study: Automotive Supplier

52% gas savings will have an ROI of 0.76 – 0.99 years based on current data.

ABICOR BINZEL EWR2 ROI ANALYSIS REPORT

Abicor Binzel Corporation
650 Medimmune Ct.
Frederick, Md. 21703-8619
(800) 542-4867

Prepaired by:
Name: Scott Huber
Phone: ***(865)-368-1093***
Email: shuber@abicorusa.com

CUSTOMER NAME:	[redacted]
CONTACT NAME:	
TYPE OF WELDING PROCESS:	MIG
SAVINGS POTENIAL:	53%

Gas savings calculator - (Machines per shift) EWR2 Systems, LLC

Capacity	# of welding machines- 24hr day	Total arc-time in hours	Days per year	l/min before EWR2 installed: Liters per Min		l/min with EWR2 Installed: Liters per Min		% Savings	EWR2 Setting (23 to 2 l/mim)
# of welding mach. on 3rd shift	0	6	240	Base Line Test	21	EWR Sample Test #1	17	19%	14
# of welding mach. on 2nd shift	45					EWR Sample Test #2	13	38%	10
# of welding mach. on 1st shift	60					EWR Sample Test #3	10	**52%**	8
						EWR Sample Test #4	N/A	#VALUE!	N/A

Gas consumed/year (cubic ft.)	6,731,424.00
Total welding Machines	60
Gas price in cents per cubic ft.	4
Gas cost/year in dollars	$ 269,257

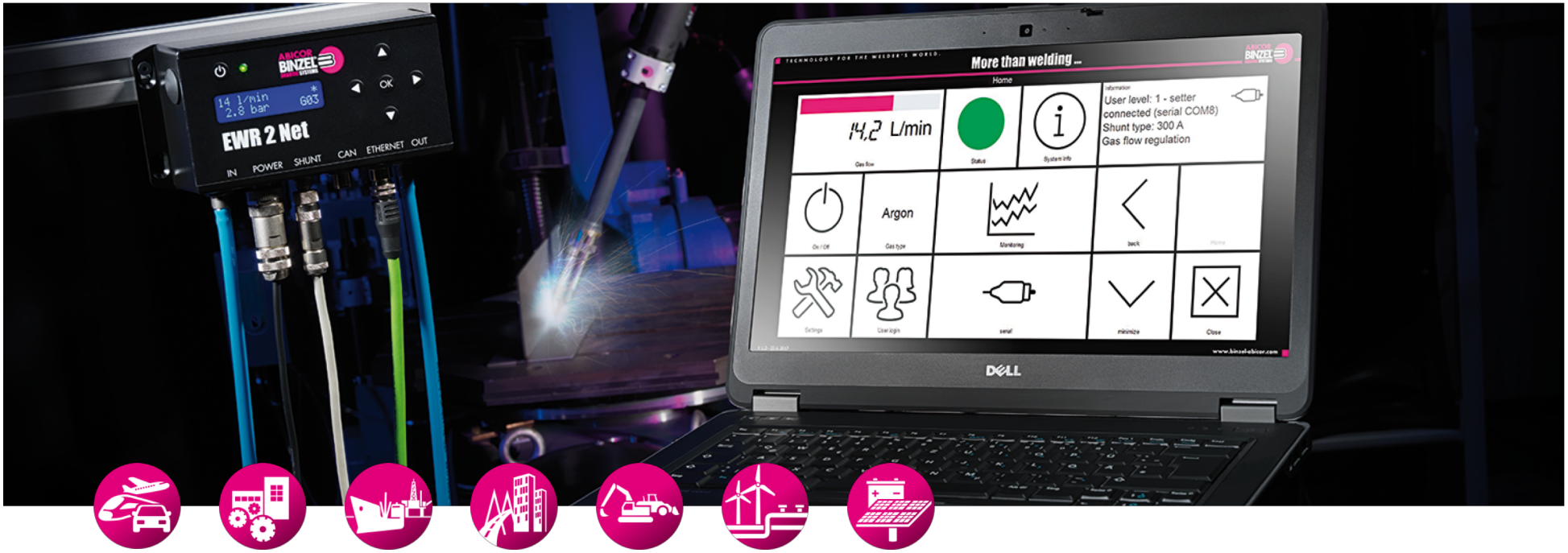
List Cost of the EWR2	$ 1,785
Investment in dollars*	$ 107,100

List Cost of the EWR2-NET	$ 2,330
Investment in dollars*	$ 139,800

Results: Actual saving	Dollars Saved	ROI in years EWR2	ROI in years EWR2-NET	Gas reduction in Cubic ft	
19%	$ 51,287	2.09	2.73	1,282,176	EWR2 Sample Test #1
38%	$ 102,574	1.04	1.36	2,564,352	EWR2 Sample Test #2
52%	$ 141,039	**0.76**	**0.99**	3,525,984	EWR2 Sample Test #3
#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	EWR2 Sample Test #4

(All fields in Yellow need to be filled out)
*based on EWR basic list price

TECHNOLOGY FOR THE WELDER´S WORLD.



Case Studies

Automotive OEM

ABICOR BINZEL® ROBOTIC SYSTEMS

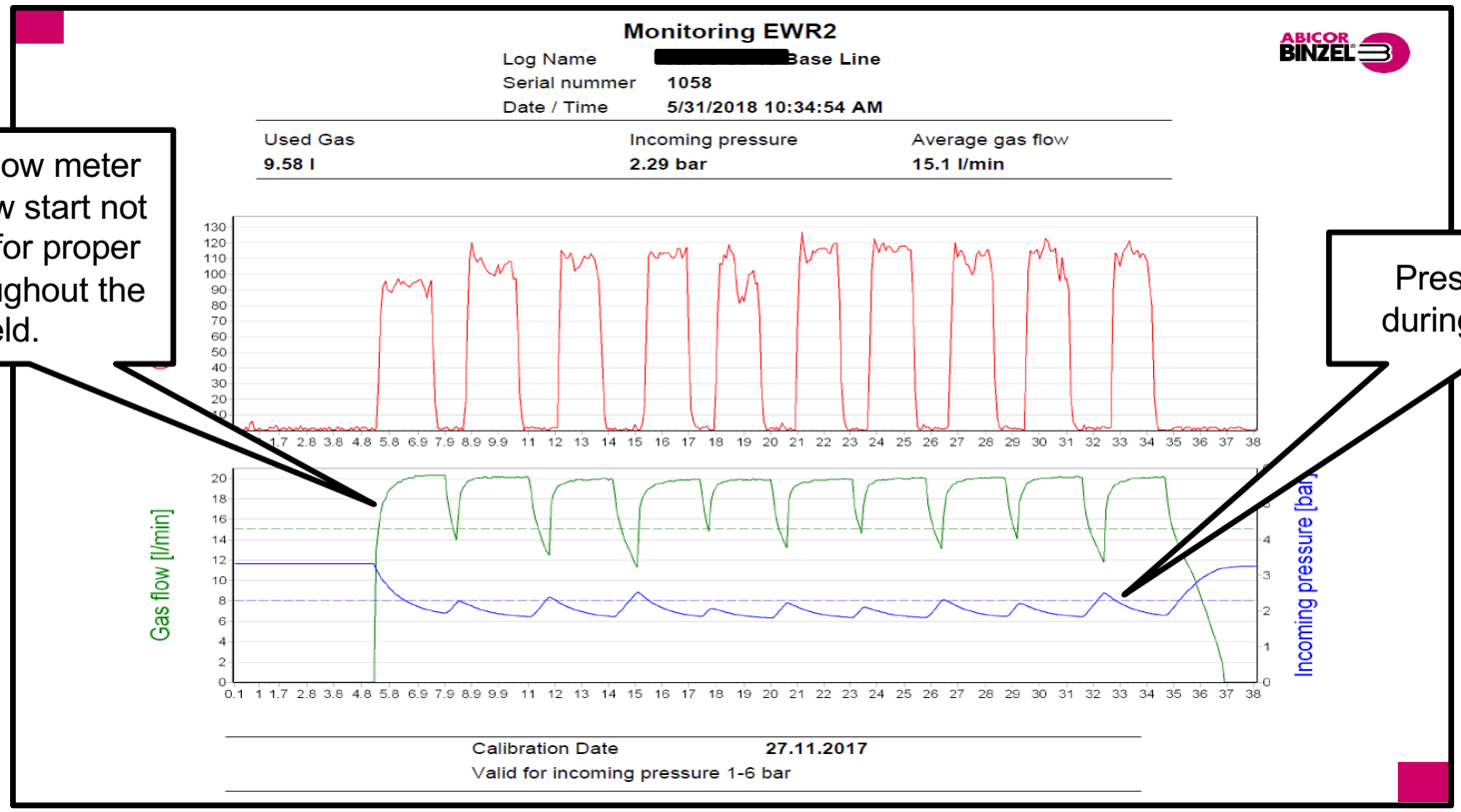
www.binzel-abicor.com

Case Study: Automotive OEM

Base Line with Flow Meter set to 42.4 CFH (20 l/min)

Current flow meter has a slow start not allowing for proper flow throughout the weld.

Pressure drop during the weld.



Case Study: Automotive OEM

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Current flow meter has a slow start not allowing for proper flow throughout the weld.

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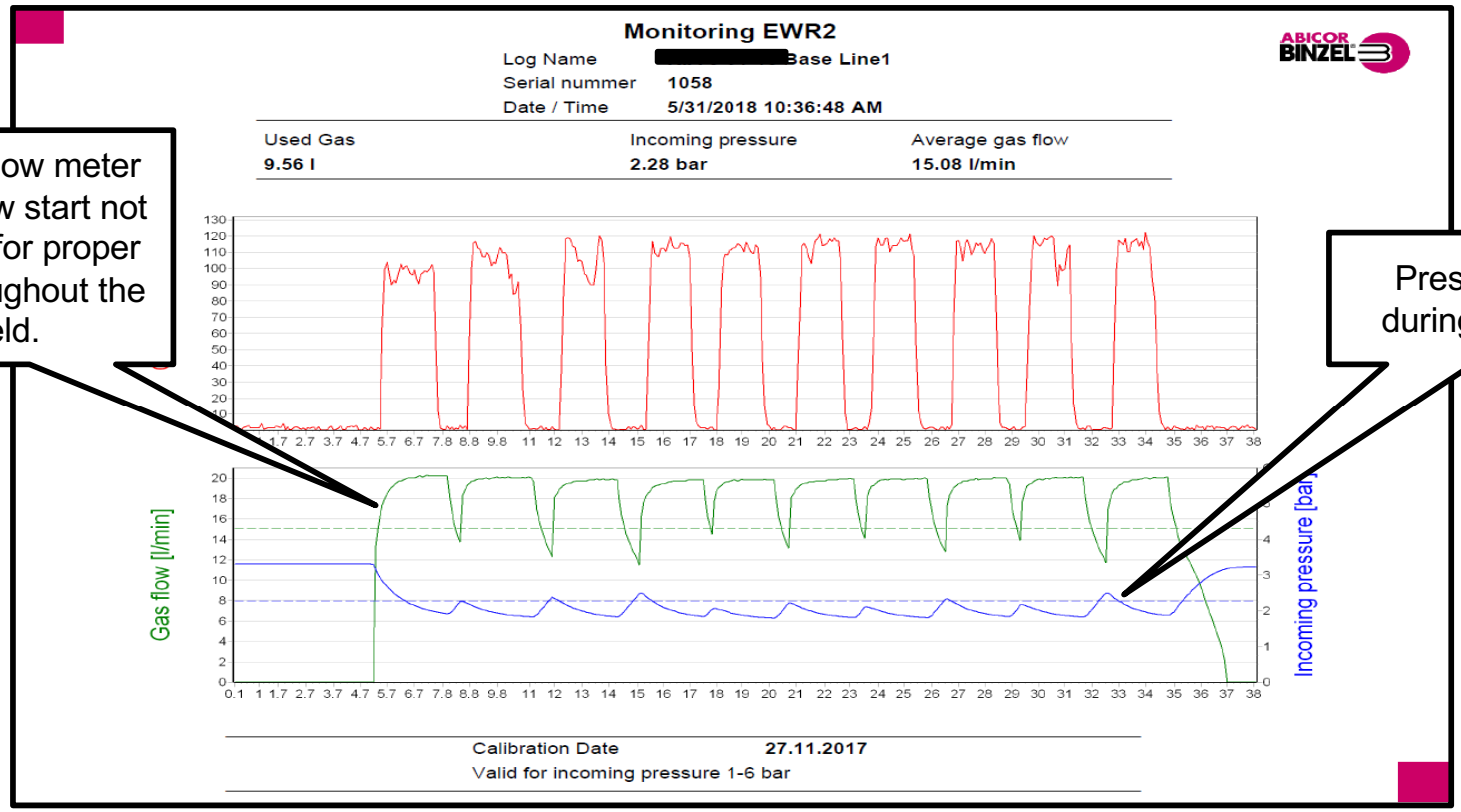
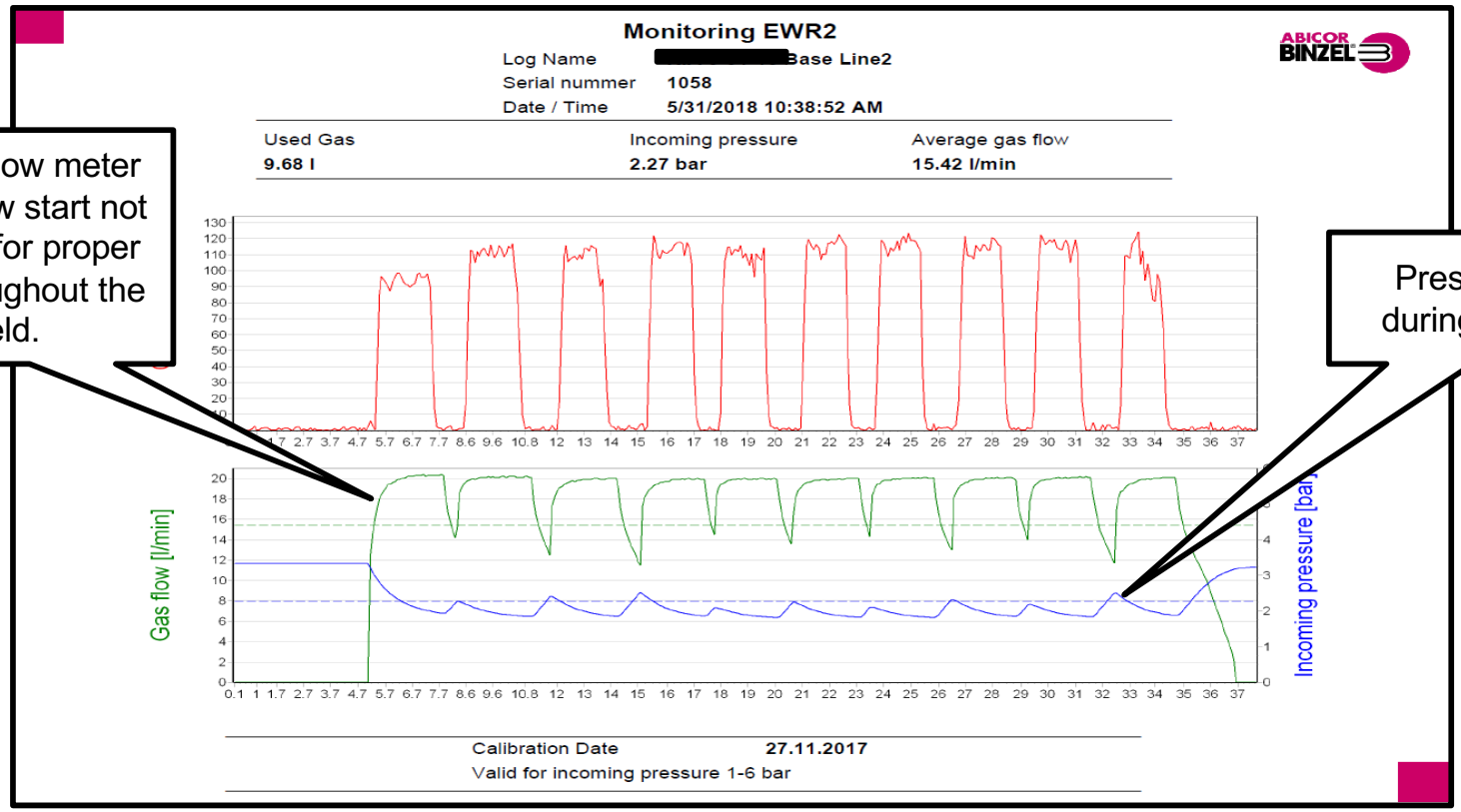


Case Study: Automotive OEM

Base Line with Flow Meter set to 42.4 CFH (20 l/min)

Current flow meter has a slow start not allowing for proper flow throughout the weld.

Pressure drop during the weld.



Case Study: Automotive OEM

Electronic regulation set to 20 l/min flow 30% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

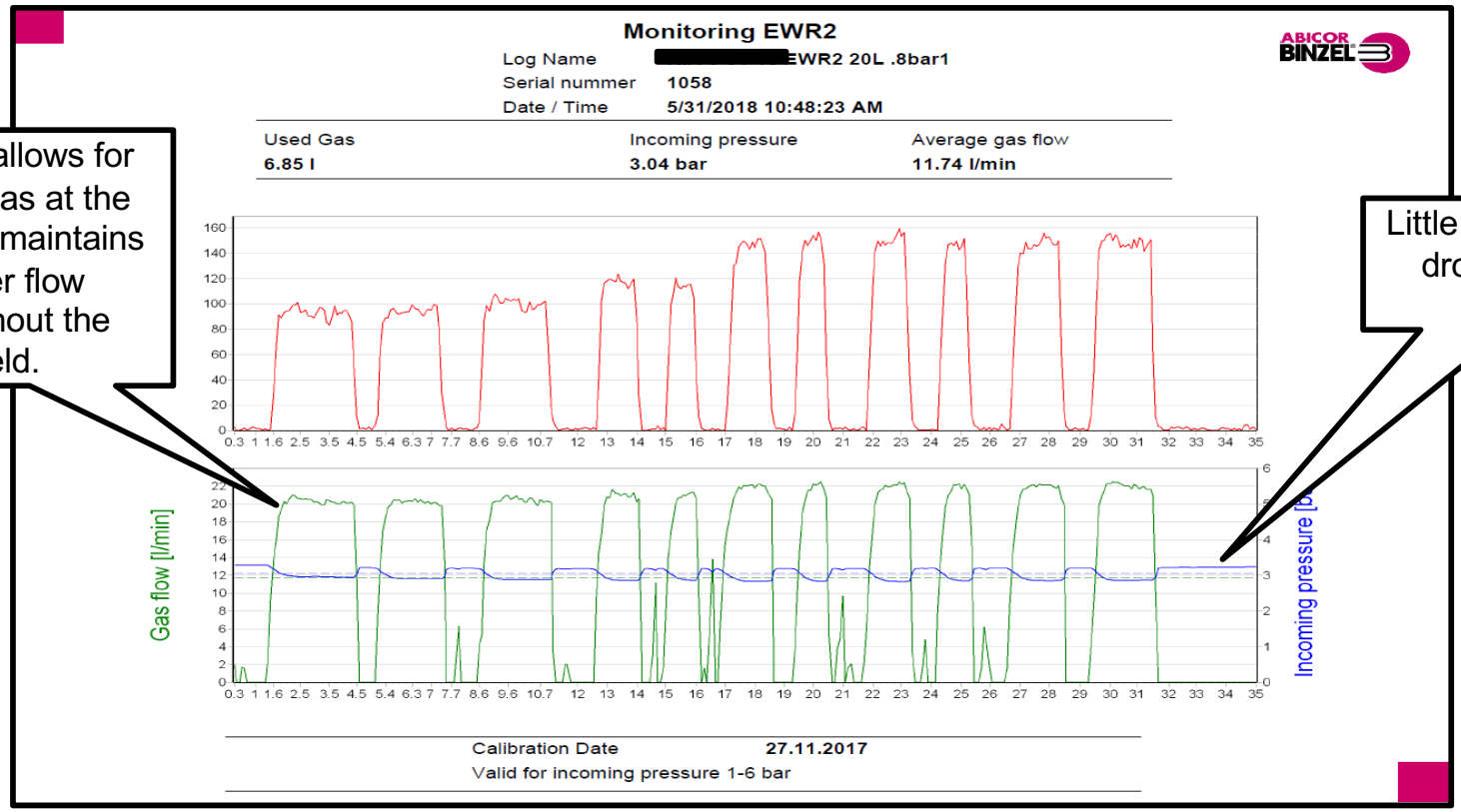
Little to no pressure drop during the weld.

Case Study: Automotive OEM

Electronic regulation set to 20 l/min flow 30% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.



Case Study: Automotive OEM

Electronic regulation set to 20 l/min flow 30% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

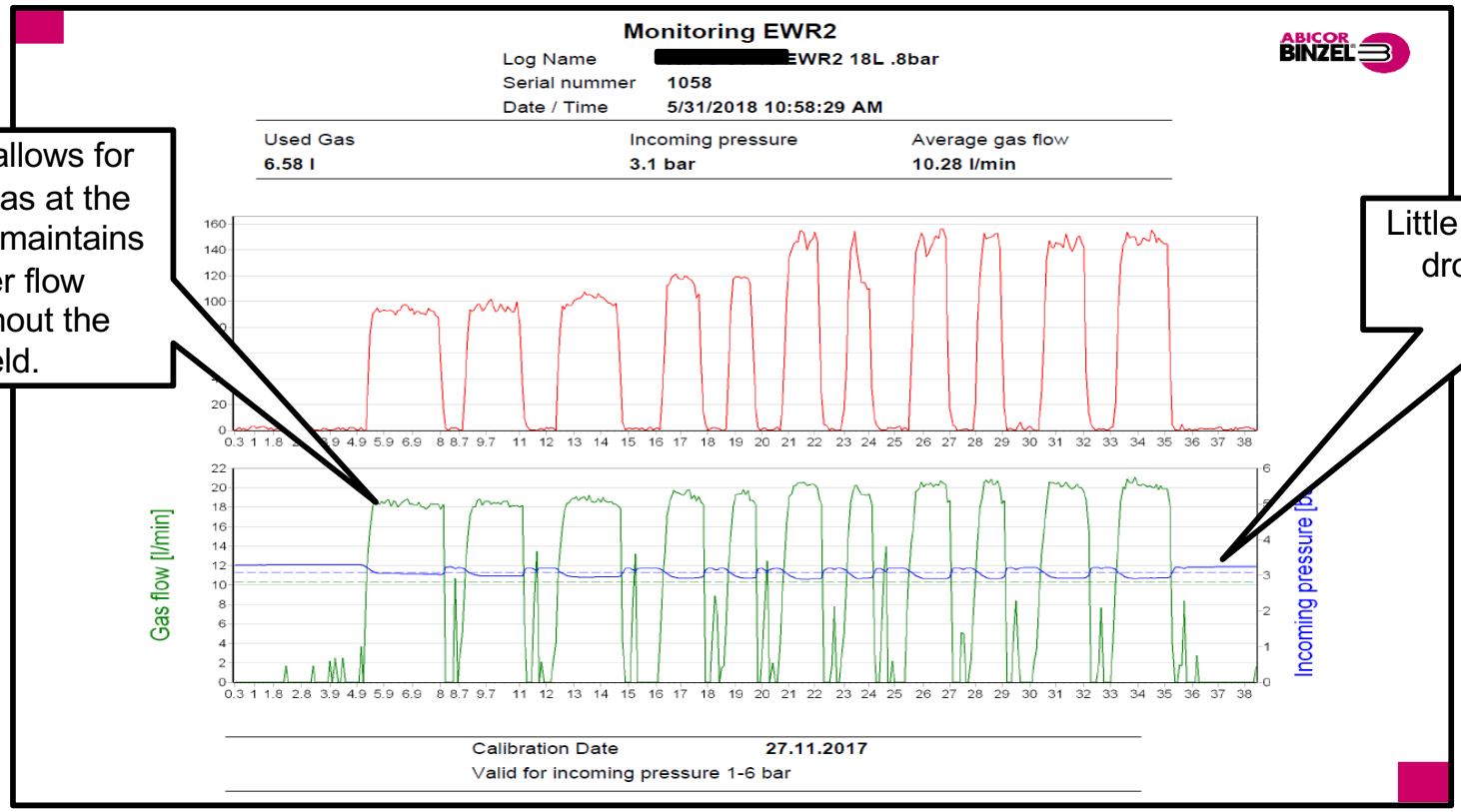
Little to no pressure drop during the weld.

Case Study: Automotive OEM

Electronic regulation set to 18 l/min flow 34% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.



Case Study: Automotive OEM

Electronic regulation set to 18 l/min flow 34% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.

Monitoring EWR2

Log Name [redacted]EWR2 18L .8bar1
Serial nummer 1058
Date / Time 5/31/2018 10:59:26 AM

Used Gas	Incoming pressure	Average gas flow
6.5 l	3.09 bar	9.97 l/min

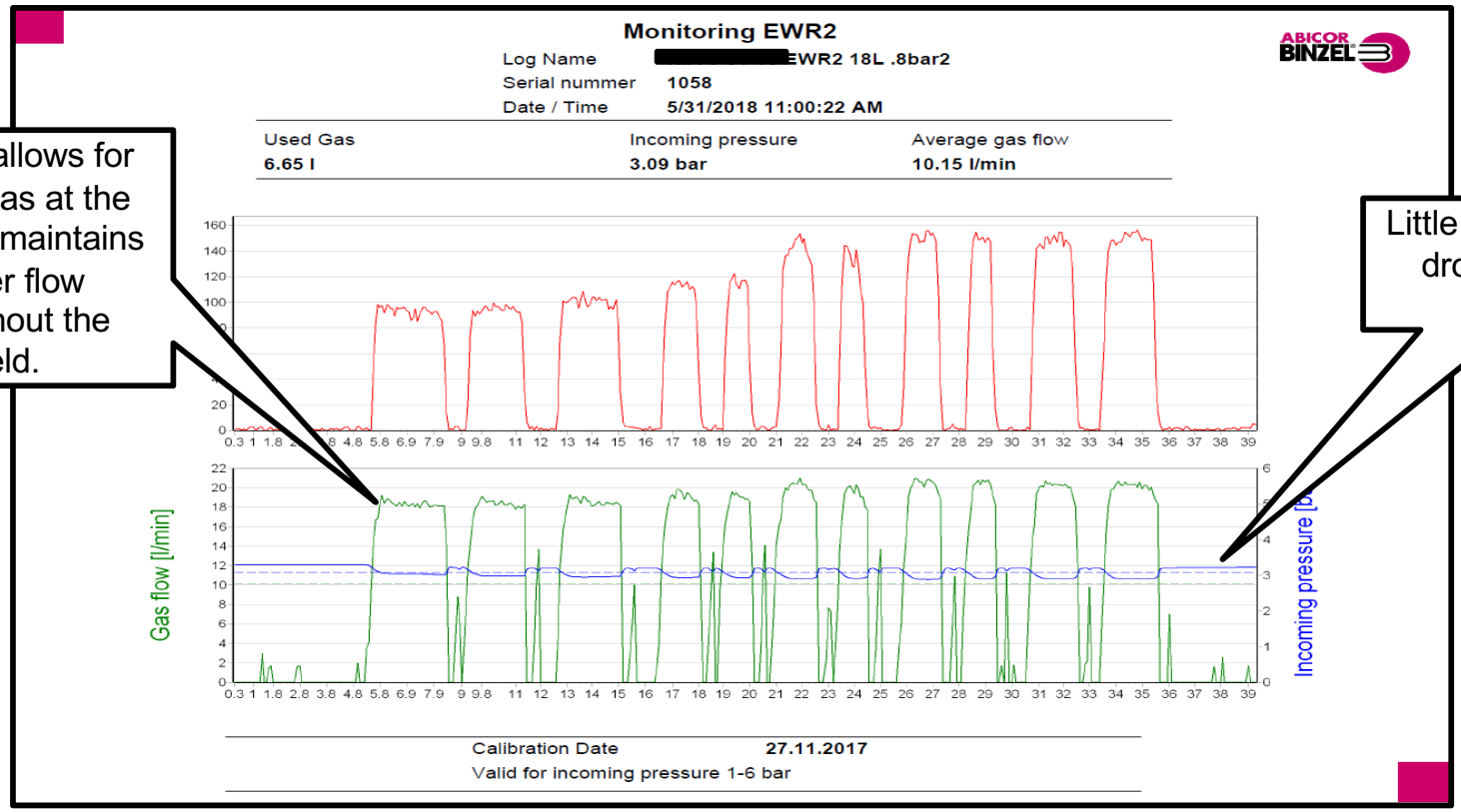
Calibration Date 27.11.2017
Valid for incoming pressure 1-6 bar

Case Study: Automotive OEM

Electronic regulation set to 18 l/min flow 34% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.

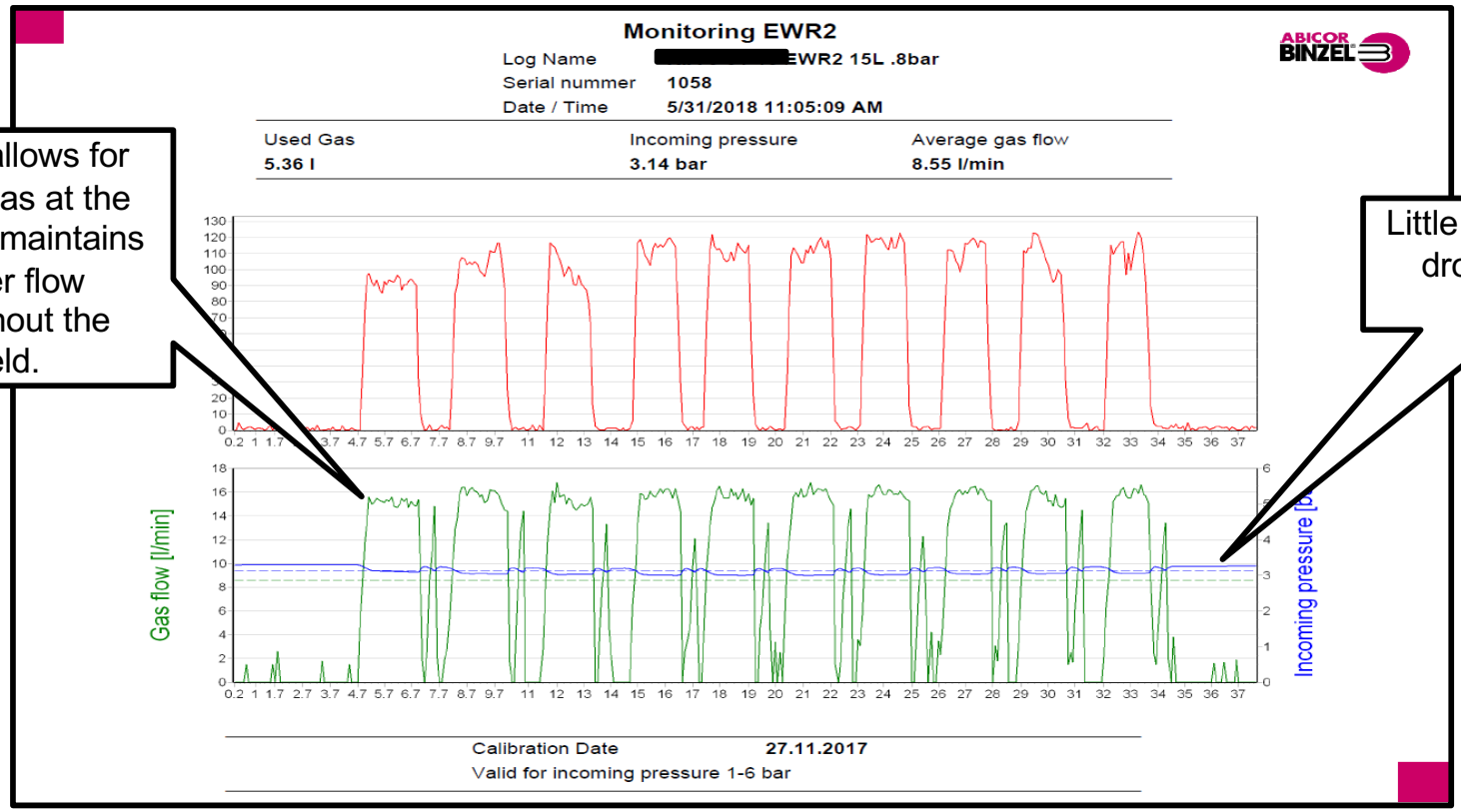


Case Study: Automotive OEM

Electronic regulation set to 15 l/min flow 43% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.

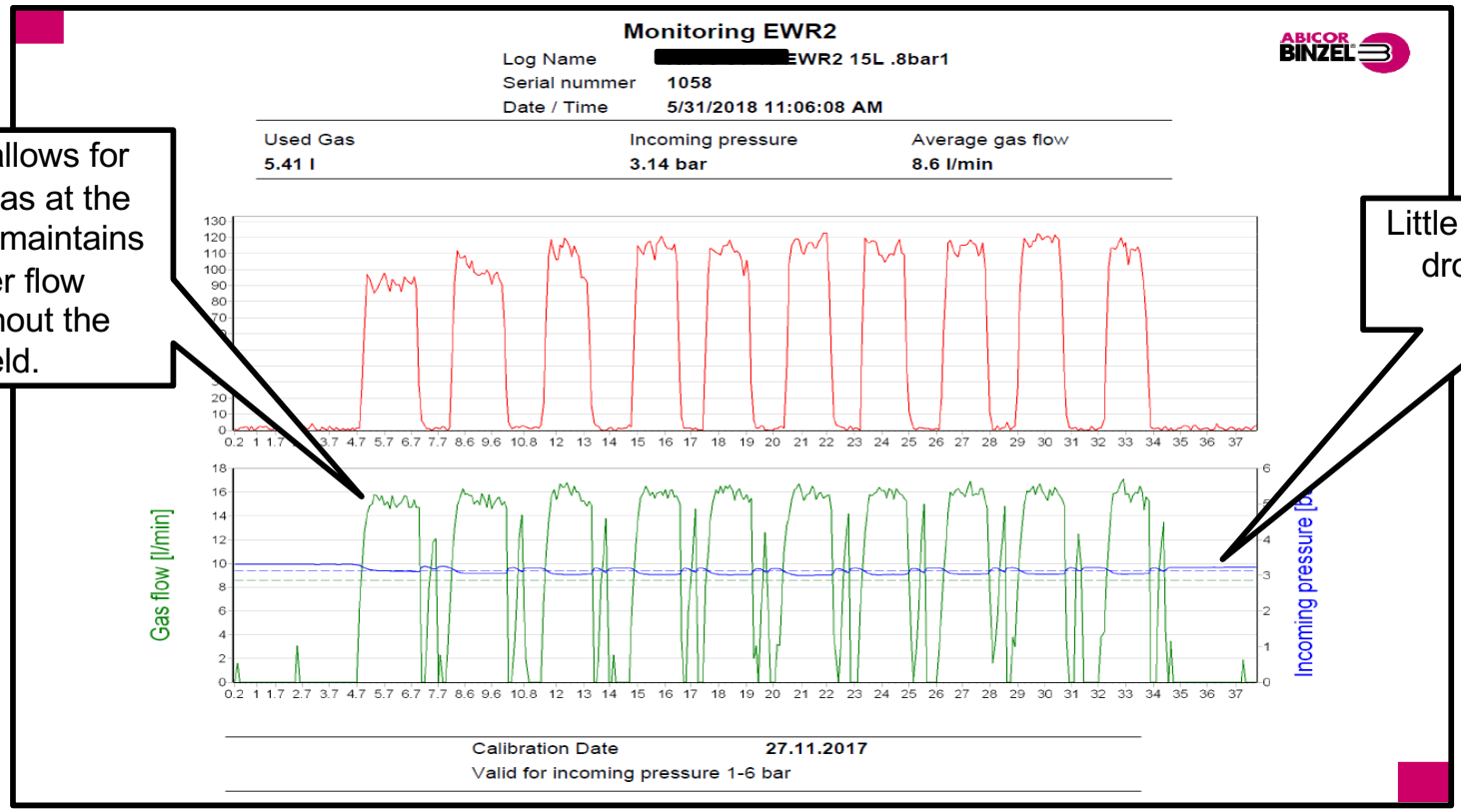


Case Study: Automotive OEM

Electronic regulation set to 15 l/min flow 43% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.



Case Study: Automotive OEM

Electronic regulation set to 15 l/min flow 43% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

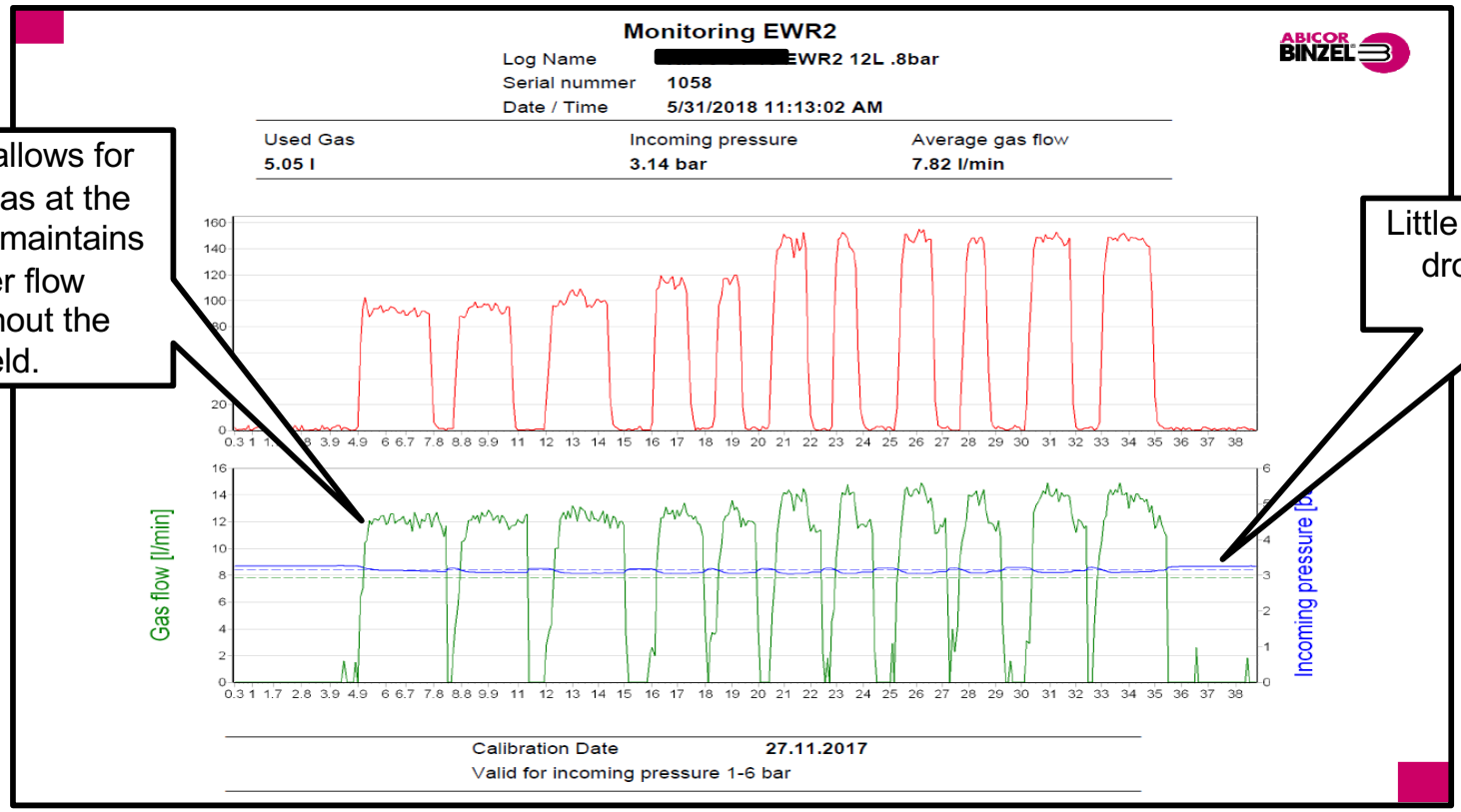
Little to no pressure drop during the weld.

Case Study: Automotive OEM

Electronic regulation set to 12 l/min flow 49% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.

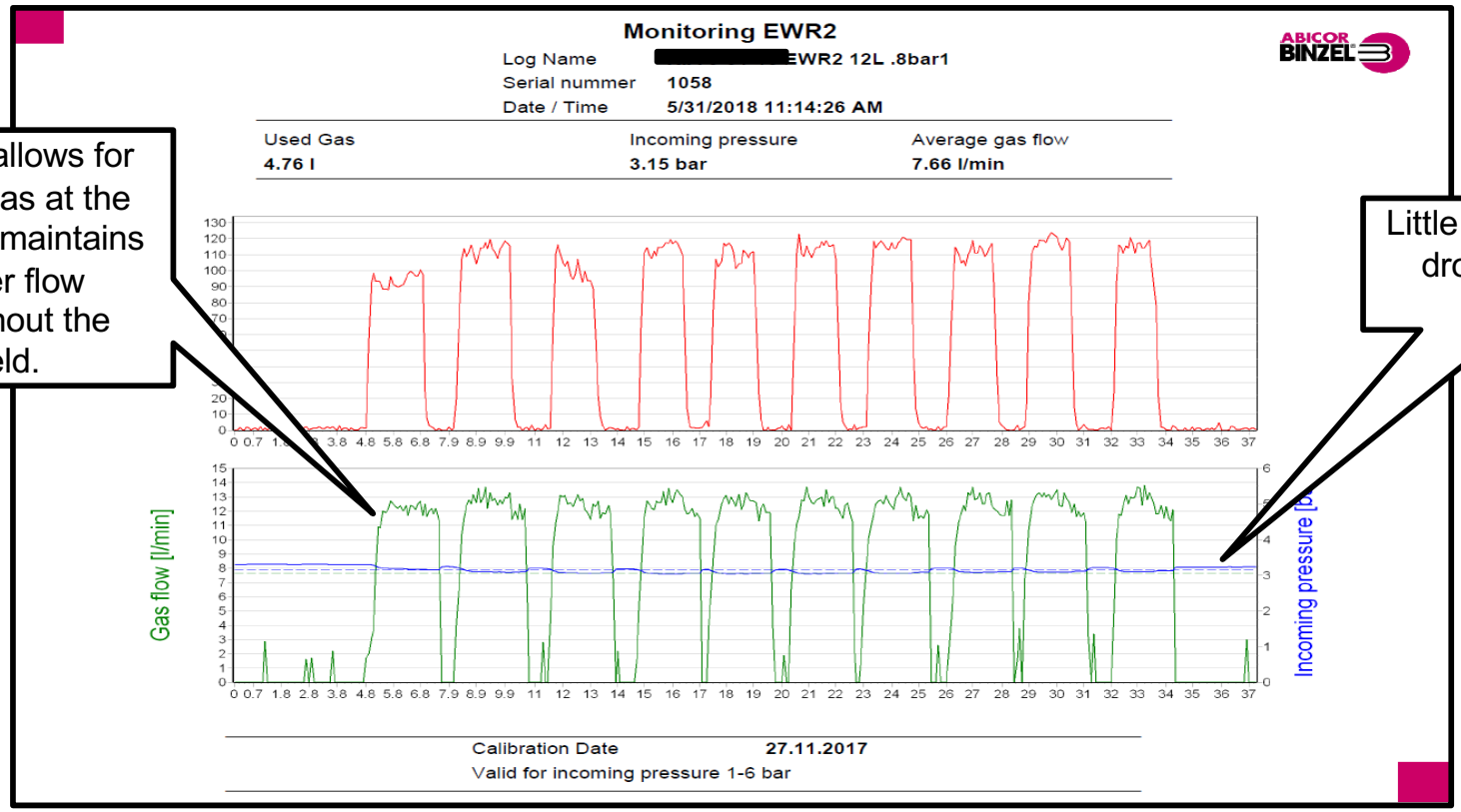


Case Study: Automotive OEM

Electronic regulation set to 12 l/min flow 49% savings

Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.

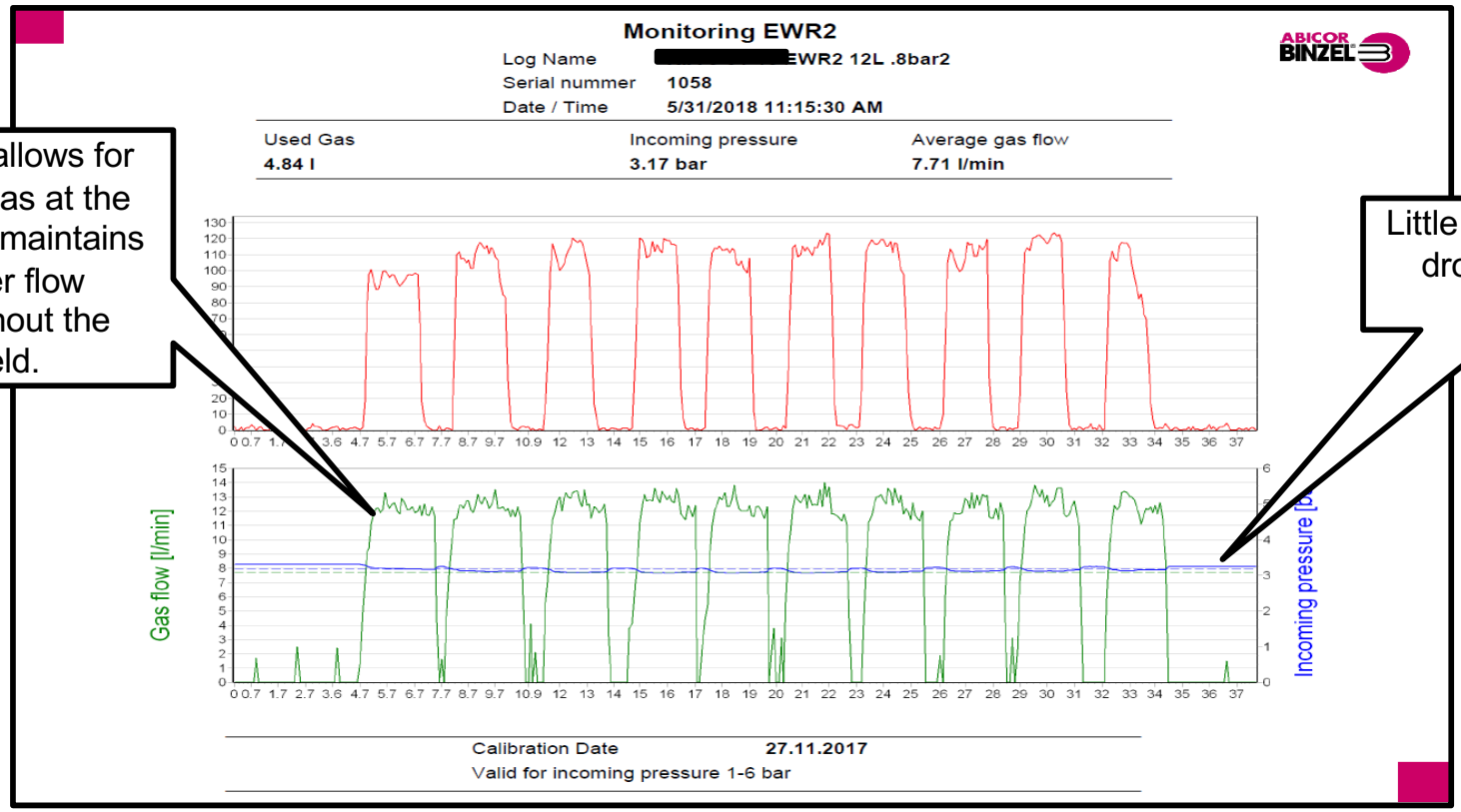


Case Study: Automotive OEM

Electronic regulation set to 12 l/min flow 49% savings

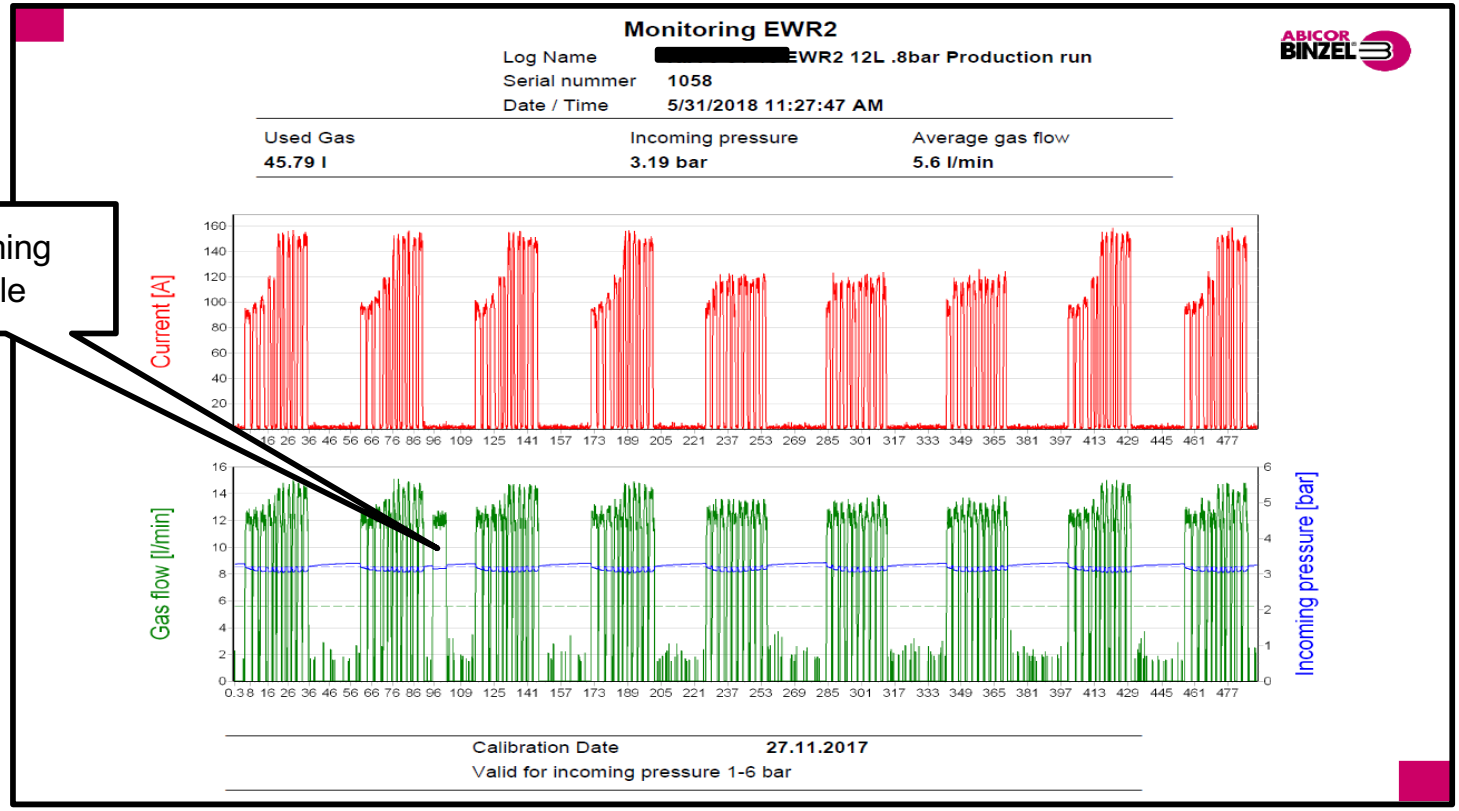
Device allows for instant gas at the start and maintains proper flow throughout the weld.

Little to no pressure drop during the weld.



Case Study: Automotive OEM

Electronic regulation set to 12 l/min flow over a 9 part production run



Case Study: Automotive OEM

49% gas savings will have an ROI of 0.64 – 0.83 years based on current data.

ABICOR BINZEL EWR2 ROI ANALYSIS REPORT

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650 Medimmune Ct.
Frederick, Md. 21703-8619
(800) 542-4867

Prepaired by:
Name: Scott Huber
Phone: ***(865)-368-1093***
Email: shuber@abicorusa.com

CUSTOMER NAME:	[redacted]
CONTACT NAME:	
TYPE OF WELDING PROCESS:	MIG
SAVINGS POTENIAL:	50%

Gas savings calculator - (Machines per shift) EWR2 Systems, LLC

Capacity	# of welding machines- 24hr day	Total arc-time in hours	Days per year	l/min before EWR2 installed: Liters per Min		l/min with EWR2 Installed: Liters per Min		% Savings	EWR2 Setting (23 to 2 l/mim)
# of welding mach. on 3rd shift	18	7	240	Base Line Test	15.24	EWR Sample Test #1	10.69	30%	20
# of welding mach. on 2nd shift	18					EWR Sample Test #2	10.13	34%	18
# of welding mach. on 1st shift	18					EWR Sample Test #3	8.72	43%	15
						EWR Sample Test #4	7.73	49%	12

Gas consumed/year (cubic ft.)	2,931,054.34
Total welding Machines	18
Gas price in cents per cubic ft.	3.5
Gas cost/year in dollars	$ 102,587

List Cost of the EWR2	$ 1,785
Investment in dollars*	$ 32,130

List Cost of the EWR2-NET	$ 2,330
Investment in dollars*	$ 41,940

Results: Actual saving	Dollars Saved	ROI in years EWR2	ROI in years EWR2-NET	Gas reduction in Cubic ft	
30%	$ 30,628	1.05	1.37	875,085	EWR2 Sample Test #1
34%	$ 34,398	0.93	1.22	982,788	EWR2 Sample Test #2
43%	$ 43,889	0.73	0.96	1,253,968	EWR2 Sample Test #3
49%	**$ 50,553**	**0.64**	**0.83**	**1,444,371**	EWR2 Sample Test #4

(All fields in Yellow need to be filled out)
*based on EWR basic list price

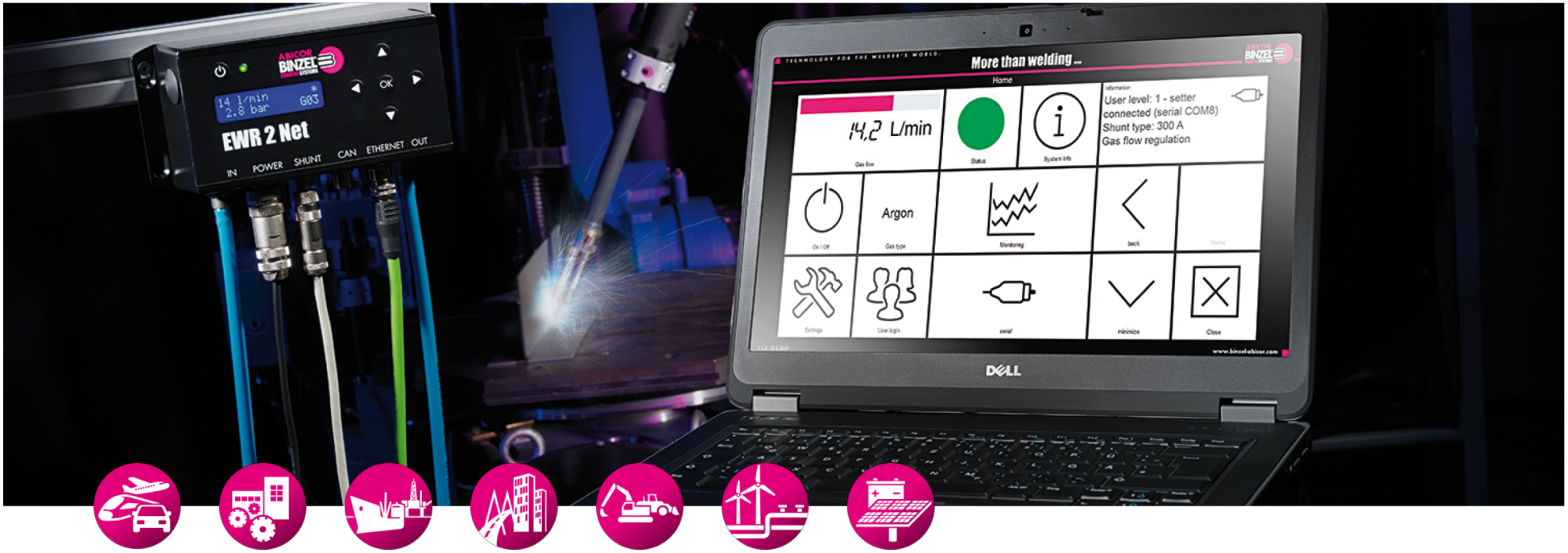
Case Study: Automotive OEM

So Who is Electronic Welding Regulation Good For?

- Monitor your gas delivery
- Control your gas delivery without being in immediate proximity of the weld cell
- Making data-informed decisions regarding production runs
- Optimizing gas usage and cost overall throughout your process

☺ ***Most everyone in the welding industry falls under one or more of these criteria*** ☺

TECHNOLOGY FOR THE WELDER´S WORLD.



QUESTIONS?

How Electronic Gas Management Cuts Cost & Improves Production

ABICOR BINZEL® ROBOTIC SYSTEMS

www.binzel-abicor.com

Contact Us!

Scott Huber
Key Accounts Manager, Sensors & Robotics
ABICOR BINZEL USA, Inc.

Phone: 865-368-1093
Email: shuber@abicorusa.com

ABICOR BINZEL District Sales Team
United States & Canada

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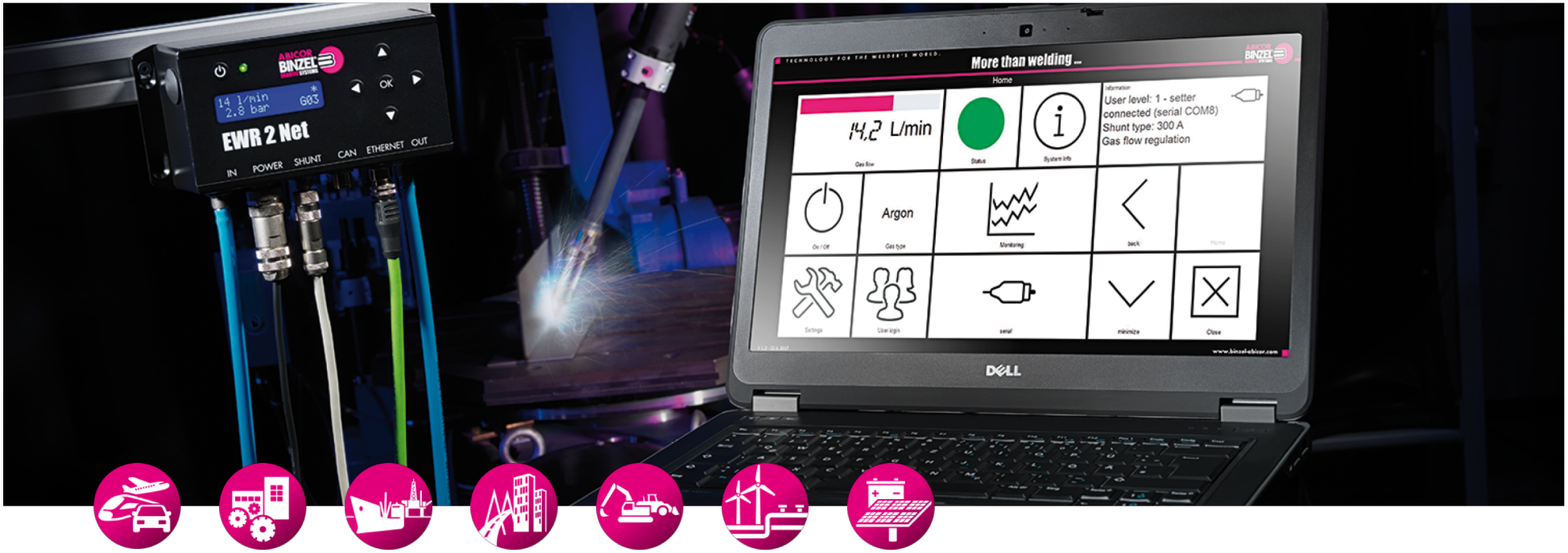
TECHNOLOGY FOR THE WELDER´S WORLD.



Thank You!

For Attending Our Webinar

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