

Fault location directly at the cable start with BAUR Step TDR

Doha Cables; Qatar



D O H A
C A B L E S

Customer:
 Doha Cables is Qatar's leading manufacturer of power and communication cables.



BAUR solution:
 Precise cable fault location directly at the cable start with IRG 400 and Step TDR technology.

One of the biggest challenges technicians face is locating cable defects directly at the connection point. This is difficult to achieve using conventional measuring techniques such as Time Domain Reflectometry (TDR). The so-called blind zone directly at the cable start prevents clear analysis. BAUR addresses this problem with an innovative solution: the Step TDR method. Used in the IRG 400 portable cable fault location device, this technology makes the invisible visible – and provides clarity where it was previously lacking.

When conventional measurement methods reach their limits

The weakest point of other Time Domain Reflectometry methods lies at the start of the cable. Here, the transmitted mea-

surement pulse superimposes possible reflections from defects that are only a few metres away from the connection. This creates a blind zone – which in turn leads to uncertainties in the analysis.



Step TDR is perfectly suitable for the cable end

Attempts to reduce the blind spot – with limited success

Narrowing the pulse width can technically reduce the blind zone. However, this introduces new problems:

- **Weak or noisy signals:** Even with pulse widths of 20–30 ns, the return reflections are often unreliable.
- **Signal attenuation:** Shorter pulses mean less energy – important details get lost, especially in the case of longer cables.

"The Step TDR method used in the BAUR IRG 400 time domain reflectometer is a milestone in cable fault location."

Anoop Varghese
 Doha Cables

Step TDR: Where others fall short, BAUR delivers true precision

With Step TDR, BAUR offers a new method that specifically addresses the shortcomings of traditional Time Domain Reflectometry methods. The system built into the IRG 400 provides a clear representation of faults right from the cable start – where previously only guesswork was possible.

What makes Step TDR in the IRG 400 time domain reflectometer so powerful

At the heart of the Step technology is the high-energy signal, which feeds significantly more energy into the cable than conventional pulses. This results in



Performing measurements with the BAUR IRG 400 portable time domain reflectometer

a much better signal-to-noise ratio – reflections from fault locations can be clearly and unambiguously identified.

In addition, digital averaging reliably filters out interfering signals from the trace. This enables the device to deliver stable and reliable measurement results even under difficult conditions. The ability to precisely detect faults directly in the vicinity – i.e. at the cable start – is particularly impressive. Step TDR

greatly reduces the previous blind zone. This enabled the technicians at Doha Cables to precisely locate even those faults that were difficult or impossible to detect using conventional methods.

Despite this level of technical sophistication, IRG 400 remains extremely user-friendly. The clearly structured user interface ensures that even less experienced operators can work with it quickly – without lengthy training, but with immediately noticeable benefits.

More efficient fault location – less downtime in the network

With IRG 400 and Step TDR, BAUR provides a practical answer to a real problem. The technology provides visibility where traditional Time Domain Reflectometry methods fall short – thereby playing a key role in reducing maintenance times and increasing network availability.



Exact fault location thanks to Step TDR



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