CORPORATE PRESENTATION

www.htc.om

htc delivering a better tomorrow

شركة حسام للتقنية ش.م.م.

Hussam Technology Company L.L.C.


ABOUT
HTC

About HTC

A Brief Overview

HTC, since its inception in 2006, has chartered its own path towards becoming a reliable and innovative system integrator in the telecommunications sector and has played a significant role in the private network market of Oman. As the nation engages and enters into a foray of sustainable energy, HTC leveraged on its strengths and is a first mover in the energy transition having established its leading presence in distributed solar and expanding into energy efficiency.

We at HTC are determined to enriching the lives of people in regions of our operation through deployment of better technology solutions. We are committed to providing reliable, dependable and value-for-money solutions and services by identifying gaps in the market, seeking pertinent solutions, associating with pertinent technology providers and executing at best market standards. We put great emphasis on Quality, Health, Safety and the Environment to ensure adherence to highest professional and technical standards, which comply with QHSE and local regulatory requirements. We strongly believe that with our professional and enthusiastic staff, support of our stakeholders and trust of our clients, we will be capable of accelerated growth in expanding our offerings and delighted client base

Our History At A Glance

Key Milestones

2006
Inception

2008
Free Space Optics

2009
Millimeter Wave Technology

2013
DWDM
ISO 9001:2008
Private & Public (ISP) Wireless Infrastructure

2016
Renewable Energy
Shell's Solar into Schools
ASPR Guidelines, DCRP Approval for Solar Installer

2017
APSR Compliant
First-ever Grid-Connected Solar PV Plant

2018
Orpic SCADA Network
Solar Training

2019
ISO 9001:2018
ISO 14001
ISO 45001
Solar PV Consultancy

2020
ISO Trio
Scaling Commercial & Industrial Solar PV

2022-23
Huawei DWDM for OQ network
Mass-scale Residential Solar PV
Software Management Solutions

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LEADING PRIVATE NETWORKS AND CARRIER GRADE SOLUTIONS

Since inception in 2006 HTC made its' mark in the Telecom sector in Oman. HTC delivered Oman's first Private Network registered with the TRA, Oman's first wireless mesh network, Oman's first TRA registered FSO (free space optics link), Oman's first MMW (millimeter wave) link, and Oman's first L1 encrypted DWDM network. HTC partnered with telecom providers and selected by oil & gas concession holders to deliver over 4,000 last mile installations

delivering a better tomorrow

LEADING EPC IN GRID-CONNECTED PV

In 2016 HTC diversified into Energy starting with grid-connected PV plants. HTC delivered Oman's first AER-compliant grid-connected plant. This was followed by Oman's first East-West ballasted system which withstood 173 km/hr cyclone, Oman's first bifacial PV plant, and subsequently Oman's first tracker PV plant HTC's currently leads the distributed solar PV market with over 30MW* contracted HTC's clients include Shell, PDO, BP, Engie, ACWA, OAMC and ROP.

* Includes different subsets of EPC and paid for consultation

Our Solutions

Telecom

- **Private & Carrier Network Solutions**
- **Cloud Solutions**
- **Telecom Infrastructure**
  Towers, Shelters, Management, Accessories
- **Automation & IOT**
- **Network Test Measurement & Assurance**

Energy

- **Solar PV Systems**
  On-Grid, Off-Grid, Hybrid
- **Solar Plant Monitoring**
- **Solar Modules & Inverters**
- **Energy Efficiency & Metering**
- **Creative Solutions**

Our Services

Telecom & Energy

- Consultancy
- Managed Services
- Civil Works
- Regulatory Services
- Testing, Commissioning, Calibration


ENRICHING LIVES WITH INNOVATION TO DELIGHT

MARKET

In the areas of our operations we are experts ahead of the curve and are recognised as the “go-to” solution providers

OPERATIONS

Operational excellence and perpetual process innovation are cornerstones for delivering value to our stakeholders

PEOPLE

Talented inspired effective people performing who are living our WOW culture is the engine of our enterprise

IMPACT

Enriching lives with innovation to delight, is the vision we continuously work to achieve and the legacy we wish to deliver

HSE Policy

HTC is firmly committed to a policy enabling all work activities to be carried out safely, and with all possible measures taken to remove (or at least reduce) risks to the occupational health, safety and welfare of our stakeholders who may be affected by our operations. In pursuit of this, we are committed to ensuring we comply with the (global standardization) as far as possible. We actively communicate our policy to all stakeholders by suitable means and periodically review its relevance in continuously changing business environment. We also seek the co-operation of all workers, customers and other persons. Further, we encourage suggestions for realizing our health and safety objectives to create a safe working environment with a zero-accident rate. The HSE policy applies to all business operations and functions, including those situations where workers are required to work off-site

Quality Management Systems

Occupational Health and Safety

Environmental Management Systems

Design, Project Management, System Integration, Commissioning, Testing and After Sales Support for Wired and Wireless ICT Solutions and Solar Plants

SOME OF OUR CLIENTS

Our Telecom Solution Offerings

Our Valued Clients



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Key HTC Solution Components

Optical Transmission	Planning & Testing Tools	Wireless Backhaul, Metro & Access	Indoor Solutions	Renewable Energy
ADVA Optical Networking	cableScout® the network management software	InfiNet wireless	iBwave	Trinasolar
HUAWEI	FOC	BridgeWave COMMUNICATIONS	zinwave	HUAWEI
CISCO	InfoVista	TRANGO SYSTEMS	UBIQUITI NETWORKS	SCHLETTER
BROCADE	mentum Defining your wireless network	SM siae microelettronica	CISCO	Schneider Electric
JUNIPER NETWORKS	JDSU	Airspan	JUNIPER NETWORKS	
hp ProCurve Networking	ACCEDIAN NETWORKS		hp ProCurve Networking	Tigo®

TELECOM PROJECTS

Key Projects Designed, Constructed, Delivered

And Maintained

Mesh Network

Oman's First >350km2 Private Wireless Network To Connect Oil Rigs.

Description

2007 – Oman's first >350km2 private wireless network to connect oil rigs.

Unique Feature

Hybrid Mesh solution for Data, Voice and Video using 5Ghz unlicensed frequency band

Client	**MedcoEnergi**
Location	**Nimr**
Capacity	**2Mbps at Rig location**
Type	**Mesh Dynamics PTP/PMP**

DWDM

Oman's 1st Private Enterprise DWDM network

Description

40Gbps full duplex speed connectivity between ORPIC Sohar and ORPIC MAF via ORPIC Jifnain. ORPIC HO integrated with 10Gbps in the same network.

Unique Feature

High capacity 40Gbps with low latency DWDM solution for Data, Voice and Video communication.

Client	OQ(ORPIC)
Location	MUSCAT - SOHAR
Capacity	40Gbps
Type	DWDM Equipment from Adva Optical Networking, Viavi, Passler

Free Space Optics

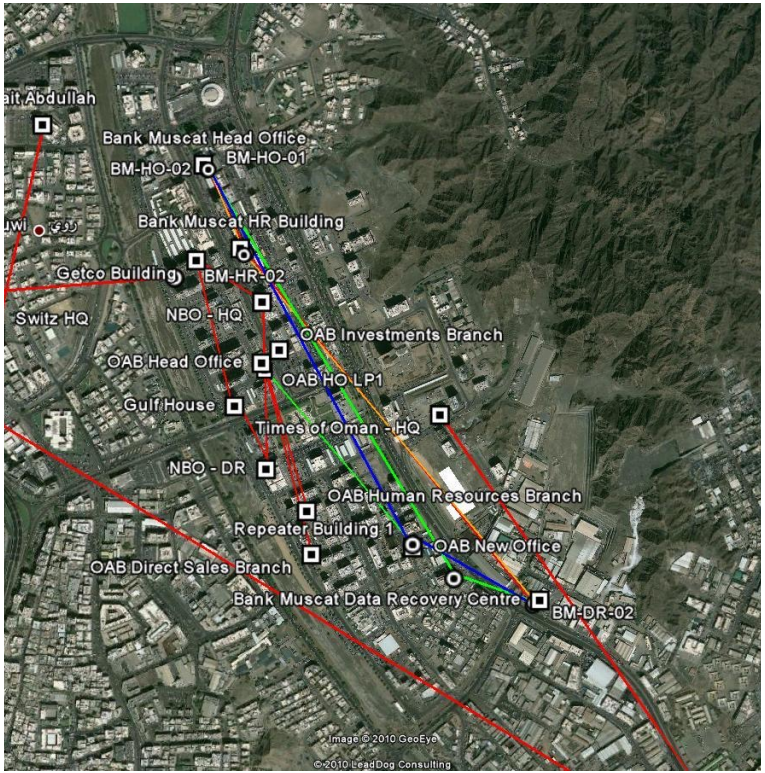
First TRA Approved Installer of FSO in Oman and market share leader

Description

FSO 100/1000Mbps full duplex PTP link is installed for clients to extend LAN connectivity between sites

Unique Feature

Free-space optics (FSO) solution is a unique in that they use beams of light for data transfer and are license-free worldwide. The latency associated with a FSO link is < 1ms.



Client	OFIC, OAB, Bank Dhofar, Bank Muscat, NBO, MSM
Location	Muscat
Capacity	100/1000Mbps full duplex
Type	fSona & LightPointe

Millimeter Wave Technology

MMW Technology

Description

MMW 1Gbps – 10Gbps full duplex back to back PTP for different customsers in

Unique Feature

MMW 80GHz licensed frequency band equipment supports up to 10Gbps TCP/IP full duplex speed. Products with an adaptive capability that can drop and increase the speed depending on environmental conditions. The latency associated with a MMW link is <40 us.

Client	**OQ (OOCEP), Bank Dhofar, OAB, IBN SINA, OXY, Ahli Bank, DHL etc**
Location	**Oman**
Capacity	**1Gbps – 10Gbps full duplex**
Type	**FP80, BridgeWave Communications**

Oil & Gas Concession Coverage

Private Wireless Network for Oil & Gas Field

Description

1000km2 private PTP/PMP wireless links network to connect oil wells, rigs, hoist and remote offices.

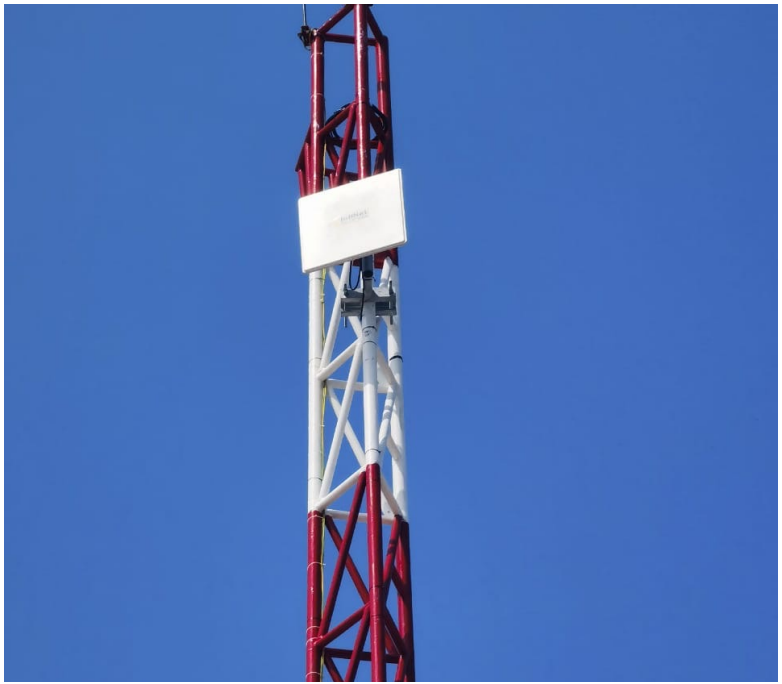
Unique Feature

Prior to 2014, Daleel used VSAT and GPRS technology to connect all its wells and rigs with its Centralized System. Such technology proved to be unreliable and slow at higher cost. Our Solution helps Daleel to integrate all the services like audio, video and critical operational data flow using same technology with high bandwidth and better QoS.

Client	**Daleel Petroleum**
Location	**Ibri**
Capacity	**Up to 500Mbps (PTP-500Mbps half duplex and PMP-300Mbps half duplex)**
Type	**PTP/PMP Equipment form InfiNET Wireless**

NBO

Extending Network



Description

Seven Branches (Mawalla, Baushar, Ghala, Azzaiba, Shaati, Qurum) are connected to HO using InfiNet Wireless

Unique Feature

Being LAN Extension gives an added advantage over traffic flowing through public network , thus almost negligible chance of hacking or data theft etc.

Client	**National Bank of Oman**
Location	**Oman**
Capacity	**Upto 1 Gbps**
Type	**PTP Links**

OQ Oman

Private Wireless Network for Oil & Gas Field

Description

Extending Lan Network

Unique Feature

OQ uses InfiNet Equipment to connect assests in Fahud, and extending LAN network to Outside offices in Sohar

Client	**OQ**
Location	**Fahud, Sohar**
Capacity	**Up to 1000Mbps**
Type	**PTP form InfiNET Wireless**

IP Network

SCADA Network for Oil Pipeline

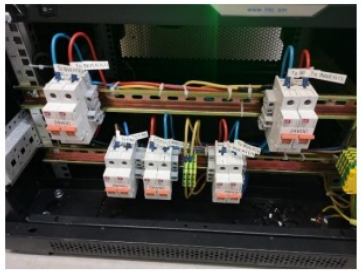
Description

1Gbps full duplex speed dual LAN ring connectivity to SCADA system. 10Gbps full duplex dual LAN ring for office data and voice network from ORPIC Sohar through different BVS stations till ORPIC MAF with an extension to ORPIC Jifnain.

Unique Feature

High capacity with low latency solution from Huawei

Client	**ORPIC**
Location	**MUSCT - SOHAR**
Capacity	**10Gbps and 1Gbps**
Type	**Huawei**



Fiber Monitoring

SCADA Network for Oil Pipeline

Description

Monitoring fibre health- Two fibre path between ORPIC Sohar and MAF (MSCP and MSPP). To identify fibre attenuation loss, bend, aging and fibre cut.

Unique Feature

This system identify fibre attenuation, bend, aging and cut and raise alert through send sms and email. The message includes the event occurs with exact location's coordinate thus , reduces service downtime .

Client	**ORPIC**
Location	**MUSCAT-SOHAR**
Capacity	**NA**
Type	**Viavi Solutions**

Ooredoo/NEC

Installation & Drive Test of LoRa IoT

Description

LoRa IoT solution to measure water and electricity readings.

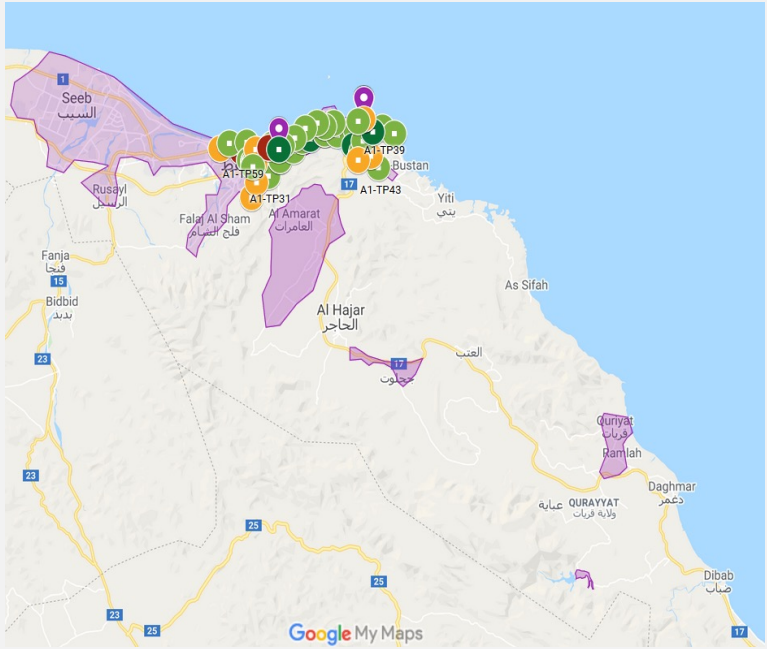
Unique Feature

Licensed frequency band radio with Omani directional Antenna to cover 360-degree coverage.

Client	NEC/Ooredoo
Location	Oman
Capacity	50Kbps
Type	LoRa IoT

Momkin

Drive Test for SigFox Network IoT



Description

SigFox IoT solution

Unique Feature

Licensed frequency band radio with Omani directional Antenna to cover 360-degree coverage.

Client	**Momkin by passive system**
Location	**Oman**
Capacity	**50Kbps**
Type	**Sigfox IoT**

Fibre laying

Fiber Laying

Description

3km excavation and fibre pulling for Saud Bahwan Group to connect DATA center to DR site. .
3.5Km excavation and fibre pulling for ORPIC to connect DATA center to DR site.

Unique Feature

Obtaining approval from all the concerned entities to pull fibre in public places.

Client	**Saud Bahwan Group & ORPIC**
Location	**SBG-Wattayah and ORPIC-MAF & Sohar**
Capacity	**NA**
Type	**Civil work & Fibre laying**

Tower Installation

Supply & Installation of Towers

Description

Supply & Installation of Three 40m Towers in Daleel Block 5

Unique Feature

Supply & Installation of the towers with the highest HSE Standards.

Client	**Daleel**
Location	**Ibri**
Capacity	**NA**
Type	**40m Tower**

Our Valued Clients

ENERGY SOLUTIONS

Our Energy Solution Offerings

ENERGY SOLUTIONS PROJECTS

Key Projects Engineered, Procured, Constructed, Operated And Maintained

Pilot Residential Solar PV Project

Oman's First Residential PV Project With Pergolas

Description

Pilot project for 10 villas at PDO Ras al Hamra for solar PV integration at residential scale

Unique Feature

HTC installed 4 villas with solar pergolas with dual glass/frameless PV modules serving as an aesthetic shade atop villas

Client	**Petroleum Development Oman**
Location	**Ras Al-Hamra, Muscat**
Capacity	**40 kWp = 10 kWp x 4 Villas**
Type	**Monocrystalline, roof-mounted**

Solar Energy Training Facility

Oman's First DCRP Approved Solar Training Facility

Description

Oman's first DCRP approved Solar Training Centre preparing Omani/Expat engineers to become certified Solar PV experts

Unique Feature

HTC installed 4 systems representing different kinds of installations such as south facing, east-west, metal corrugated sheet, and ground mount

Client	**Shams Global Solutions**
Location	**GUTech, Halban**
Capacity	**12 kWp**
Type	**Ground, Ballast, Metal Shed, E-W Mounts**

Solar Into Schools

Oman's First AER Compliant Grid-connected PV Plant on Metal Corrugated Sheet Canopy

Description

Oman's first APSR compliant grid-connected Solar PV plant

Unique Feature

HTC installed the Solar PV plant on the school's canopy (metal corrugated sheet), equipped with module level monitoring and DC disconnect allowing rapid shutdown when required

Client	**Shell Development Oman**
Location	**Buraimi**
Capacity	**120 kWp**
Type	**Monocrystalline, metal roof mounted**

Solar Into Schools

Oman's First Bifacial Solar PV Car Park

Description

Oman’s first bifacial Solar PV plant installed as a carpark

Unique Feature

HTC installed the Solar PV plant with bifacial dual-glass modules serving as an aesthetic carpark

Client	Shell Development Oman
Location	Suhar
Capacity	150 kWp
Type	Monocrystalline Bifacial, Car Park

MOG – Solar PV Car Park

Oman's First Solar PV Plant Installed At A Ministry Premises

Description

This paragraph is intended to display basic information about the project

Unique Feature

HTC installed the Solar PV plant over the carpark with multiple orientations while still keeping the system electrically balanced with DC combiner boxes and single MPPT inverters

Client	**Petroleum Development Oman**
Location	**Ministry of Oil and Gas, Muscat**
Capacity	**520 kWp**
Type	**Monocrystalline, Car Park**

Ibri - II R&D Plant

Oman's First R&D Facility For A Utility Scale PV Plant

Description

The R&D plant for ACWA power for Oman's first 500 MW Solar PV IPP (Ibri-II)

Unique Feature

HTC installed the facility with two key areas:

1) Albedo assessment area installing multiple albedometers measuring albedo for a variety of materials to be selected for Ibri-II
2) PV module assessment area installing a dozen module makes to facilitate ACWA's assessment and decision on the module make for Ibri-II

Client	**ACWA Power**
Location	**Ibri**
Capacity	**50 kWp**
Type	**PV System and Monitoring System**

Solar Pre-feasibility & Consultancy

Oman Airports

Description

Oman's first solar pre-feasibility and consultancy project

Unique Feature

HTC along with its partners conducted the pre-feasibility for all 4 airports in Oman (Muscat, Suhar, Duqm, Salalah). Deliverables included detailed engineering and tender documents for EPC and BOOT model

Client	**Oman Airports Management Company**
Location	**Oman**
Capacity	**~20 MWp**
Type	**Rooftop, Ground Mounts, Car Parks**

Shell’s Solar Into Schools

Imam Nasser bin Murshid School, Rustaq

Description

Oman's First Solar PV tracker (single-axis)

Unique Feature

HTC installed the single axis tracker with bifacial (83%) and monofacial (17%) for analysis on actual gains in specific yield between monofacial and bifacial technologies

Client	**Ministry of Education (sponsored by Shell Development Oman)**
Location	**Rustaq**
Capacity	**120 kWp**
Type	**Ground Mounted – Single Axis Bifacial Tracking System**

Shell's Solar Into Schools

Imam Nasser bin Murshid School, Rustaq

Description

Oman's East-West Mounting System

Unique Feature

HTC installed the single axis tracker with bifacial (83%) and monofacial (17%) for analysis on actual gains in specific yield between monofacial and bifacial technologies

Client	**Ministry of Education (sponsored by Shell Development Oman)**
Location	**Rustaq**
Capacity	**120 kWp**
Type	**Ground Mounted – Single Axis Bifacial Tracking System**

THANK YOU

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